MORE THAN A WAY STATION: GROUND-LEVEL EXPERIENCES IN THE FIELD TRIALS OF ORAL CONTRACEPTIVES AND IUDS IN PUERTO RICO, 1956-1966

By

Kathryn Danielle Lankford

A DISSERTATION

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

History—Doctor of Philosophy

2021

ABSTRACT

MORE THAN A WAY STATION: GROUND-LEVEL EXPERIENCES IN THE FIELD TRIALS OF ORAL CONTRACEPTIVES AND IUDS IN PUERTO RICO, 1956-1966

By

Kathryn Danielle Lankford

Large-scale, field trials of emerging contraceptives occurred in Puerto Rico between 1956 and 1966. Most famously, the largest trials of the first Food and Drug Administration (FDA) approved birth control pill, G.D. Searle & Company's Enovid, occurred in Río Piedras and Humacao, Puerto Rico during this period. Despite scholarly attention to the pill and intrauterine device (IUD), relatively little is known about the trials that begot these consequential forms of birth and population control. When historians of medicine and science, women and gender, Puerto Rico, and the modern US have attended to the contraceptive field trials, they have narrowly focused on the tests leading to the 1960 FDA-approval of Enovid, and thus render the trials as a way station in broader historical processes. This dissertation responds to this shortcoming in the historiography by offering a longer history of the field trials in Puerto Rico. It argues that the trials of contraceptive pills and IUDs were no mere way station in the history of birth control, medicine, and Puerto Rico, but rather a generative event heralded by local actors and organizations in Puerto Rico in conversation with collaborators elsewhere.

By narrating a longer history of the field trials, new insights into the nature of medical research in colonized spaces are elucidated. Ground-level physicians, allied health professionals, and women taking contraceptives come to the fore as the trials' architects. Mainland US-origin physicians Edris Rice-Wray and Adaline Pendleton Satterthwaite worked in concert, and at times at odds, with Puerto Rican professionals like Iris Rodríguez and Noemí Rodríguez. These professional women worked during a time in which Puerto Rico was grappling with changing

meanings of modernization and an evolving colonial relationship with the US. As such, the public and private agencies that sponsored their work promoted modernization and contraceptives amid the tension created by US colonialism. Trial leaders' personal and professional aspirations also influenced the trials. Their motivations were circumscribed by gender norms from the US mainland, which were in turn shaped by Puerto Rican modernization projects and the US colonialism that undergirded it. These dynamics only come to light by focusing on the ground-level happenings. By exploring the trials well beyond 1960 and at the level of day-to-day doing of medical science, this dissertation makes it clear that the trials' success depended upon the women taking the pill and IUD. To better understand these women and their consequential role in the creation of medical science, this dissertation uses the notion of trial "participant" in specific ways. In so doing, this dissertation attempts to go beyond the established dualism of patients and experimental subjects, reconsider the doctor-patient relationship discussed in the scholarship, and more fully attend to the subjectivity of people enrolled in field trials. This approach allows us to understand how day-to-day aspects of medical science, as much as colonial domination, shaped decisions that women made in their reproductive lives. The use of "participant" also helps us to articulate what we can and cannot know about the trials from the existing historical sources.

The dissertation comprehensively examines the decade from 1956 to 1966. The field trials were initiated to answer questions on the safety and efficacy of Enovid. They expanded to address these concerns for multiple contraceptive pills and IUDs. By the mid-1960s, researchers investigated safety and efficacy, conducted basic science research, and aimed to create a public birth control program. That a public birth control program, offering many contraceptives, seemed possible by 1966 represented a sea change from the beginning of the field trials, indicating the important roles that the trials played both before and after the FDA-approval of Enovid.

For my parents and grandparents:
Shirley Oliver Lankford
Michael Hosea Lankford
Ella Mae Oliver (1930-2014)
Ross Leonard Oliver (1921-2008)

ACKNOWLEDGMENTS

It has been a long journey to the Ph.D., consisting of sprints and crawls, staying-the-course and pitstops off-the-beaten track, and successes and missteps. I am deeply indebted to my dissertation committee, the faculty and staff of Michigan State University's Department of History, friends, family, and partner for their unending support and constructive feedback to help me achieve this feat. Any strength in the dissertation that follows derives from their insights and compassion.

To my dissertation committee, thank you for putting up with my antics the past eight years and guiding me through this process. Dr. Naoko Wake, the chair of my committee, is the paragon of what an advisor should be. Her seemingly endless knowledge exposed me to new veins of inquiry. Her insatiable curiosity and sharp intellect pushed me to hone my analysis. Dr. Wake's dedication to supporting me in all aspects of my life kept me going through graduate school. She knew when to be patient, and she knew when to cajole. I enjoyed much more than a transactional relationship with Dr. Wake. She has been my mentor and a model of how to compassionately serve others through education. Dr. Lisa Fine helped me realize the importance of integrating gender and labor in the study of medical professionals. Because of Dr. Fine, I maintained a focus on the overlapping professional and personal lives of the doctors, social workers, and other allied healthcare workers in the dissertation. It was in Dr. Fine's classes that I first began writing about Adaline Pendleton Satterthwaite, a key architect of the field trials of contraceptives. Her classes and feedback also pushed me to be a better writer. I have taken many courses with Dr. Edward Murphy and served as his teaching-assistant. In both endeavors, Dr. Murphy encouraged me to see the potential, and limits, of including Puerto Rico under the umbrella of Latin America and the

Caribbean. Because of him, I have attended to the lived experiences of modernization, industrialization, and colonialism in Puerto Rico, as well as how medicine operated as a tool, and a foil, of these ideologies. I also had the incomparable experience of serving as Dr. Helen Veit's teaching-assistant for the first-half of the US History survey course. Dr. Veit's commitment to engaging undergraduate students in a personal environment, despite the lecture-hall sized classroom, should serve as a model for all aspiring professors. Her comprehensive exam also gave me the space to evaluate how to situate the field trials of contraceptives in the much longer history of science and medicine in the US.

I would be remiss if I did not thank a few individuals at two other institutes of higher learning. At the University of West Georgia, my undergraduate institution, Dr. Mautusi Mitra exposed me to the world of research. I may no longer work on *Chlamydomonas reinhardtii* like I did under Dr. Mitra's supervision, but she taught me to love research and opened my eyes to scientific-knowledge in the making. I gained my first "adult" job at University of Michigan's Newnan Academic Advising Center as a Pre-Health and Academic Advisor. I am forever grateful to my two-former supervisors, Dr. David Brawn and Dr. Tara Liss-Mariño, and the pre-health advising team for supporting me as I worked full-time and tried to finish this dissertation. A special thank you to Dr. Christine Neejer, former colleague at UM and fellow graduate student of history at Michigan State University. Christine encouraged me to finish the dissertation, and Christine's advice got me writing again.

The dissertation that follows would not have been possible without the amazing friends I made in graduate school. Sara Bijani and Dr. Eddie Bonilla shared many a class with me. The conversations that continued long after class meetings have significantly shaped this dissertation. Heather Brothers and Dr. Emily J. Elliott are my constant companions. Our many discussions (or

rants) on porches helped me see the field trials in new lights and provided much needed reprieves from the solitude of dissertating. Dr. Jorge Felipe Gonzalez read this entire dissertation and provided feedback on many parts of it. His poignant comments directly shaped this dissertation. Jorge's friendship is a constant source of joy.

Last, but not least, I owe everything to my family and partner. My cousin Rachel W. Snoddy's daily phone calls woke me up and gave me strength to tackle the day. My grandma, Ella Mae Oliver passed away early in my graduate school career, but she was a scrappy and tenacious woman. She had to be growing up as one of eleven children. A contemporary of field trial participants, Grandma let me to "try out" discussing issues of sexuality, contraception, and marriage dynamics with her. My daddy, Michael H. Lankford, could tell a story and remember dates like no other. Dementia has taken his booming voice and penchant for telling a tale, but his love of people's stories informed my decision to include many anecdotes in this dissertation. My mom, Shirley O. Lankford, cannot be described in a few sentences. She is my compass, and anything I have, or will, achieve is because of her. And Xenofon Konstantinou, my partner, helped me reach this stage. I met him at a time when I was unsure if I would continue with graduate school, and his love and dedication helped me realize I could.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

INTRODUCTION

One morning in 1961, a mother living in the municipality of Humacao, Puerto Rico rose and prepared to visit her physician, Adaline Pendleton Satterthwaite. Before leaving her home, the mother donned a magenta skirt and white top, dressed her infant in a pale-yellow onesie, and swaddled the child in a white blanket. This woman had at least one other child, but solely the baby needed to accompany her to visit Doctora Penny, Satterthwaite's professional alias in Puerto Rico. Dressed and readied, the woman and her youngest child set out that day for the maternal health clinic at Ryder Memorial Hospital, a protestant, mission hospital in the community. As mother and baby entered the clinic and waited to see Doctora Penny, this woman likely noticed a group of mainland US photographers in the medical office. That day, these photographers milled about Satterthwaite's clinic and snapped photos of women as they conversed with social workers and nurses employed there. They also captured Doctora Penny as she worked with her colleagues and the women seeking her medical advice. Though the mother might have been disquieted by the presence of strangers documenting the private spaces of women's reproductive healthcare, the mother might have also known the interlopers would be at the clinic that day. She had, after all, dressed her baby in a fine yellow garment, and she herself looked striking in the richly colored skirt. Regardless of her previous knowledge of the visitors, the mother waited to see Doctora Penny. When it was her turn to meet with Doctora Penny, the mother sat to the side of the doctor's office desk, not atop an examination table, and cradled her baby. Satterthwaite, dressed in the traditional white medical dress of the era and hair piled atop her head in a bun and braid, took her seat at the desk. The two adult women likely exchanged pleasantries to begin the session. At some point, Doctora Penny turned to the mother, leaned towards her and the baby, smiled, and stroked

the newborn. *Click*. The cameraperson captured this intimate moment between doctor, mother, and child.

Without the full context of this photograph, this rendering of a mother and child visiting a woman doctor in 1960s Puerto Rico evokes a spectrum of feelings and suggests a wide-range of possible meanings. Given the scarcity of women in medicine at the time, a viewer might be impressed in seeing a medical clinic ran by and for women in the 1961. Knowing that Satterthwaite worked at a protestant organization on a largely Catholic, colonized island might shift a viewer's interpretation to one of questioning. What power dynamics led to this mother to allow she and her child to be photographed while visiting the doctor, especially given that the mother's gaze is averted from both the physician and camera? Did the mother want this photograph to be taken, or did she feel obliged to acquiesce to her doctor's or one of the photographers' request? Such ponderings hint at, but do not fully explain, the underlying purpose of this photograph. The identities of those portrayed, the origins and nature of the two women's relationship, and the specific context of this photograph are essential to understanding *why* this photograph exists in publicly available print media.

The photograph of mother, child, and physician served the explicit purpose of publicizing the humanity and long-term safety of a then emerging medication for women, oral contraception. Satterthwaite was a key figure in the testing of new contraceptives in Puerto Rico during the 1950s and 1960s. The mother in the photograph ingested Enovid as a participant in that pill's field trials under the auspices of Satterthwaite. After three years on the oral contraceptive, the mother stopped taking the pill and became pregnant. The baby, healthy in appearance, held by its mother, and monitored by a medical professional, then, evidenced that not only did Enovid work in pausing

reproductive ability but was safe in the long-term. A woman could bear a healthy child after extended use of the contraceptive.

This dissertation narrates the Puerto Rican field trials of emerging contraceptives between the 1956 and 1966. Large-scale, human trials began on the island in 1956 with the evaluation of G.D. Searle & Company's Enovid, the first Food and Drug Administration (FDA) approved oral contraceptive. The tests grew to include other oral contraceptives from Searle, Ortho Pharmaceutical Company (Ortho), and intrauterine devices (IUDs). The trials effectively concluded in 1966. By the end of the trials, health care professionals were investigating the safety and efficacy of individual methods of contraception, as well as the viability of a public birth control program that provided "a cafeteria" of contraceptive options.[1] The current literature outlines the tests of "simple methods" and trials of Enovid prior to the 1960 FDA-approval of the pill as a contraceptive, but scholars have not fully delineated the ten-year span of the trials.[2] By tracing a

[1] Cafeteria was used by researchers to illustrate their program's instruction in the rhythm method, provision of contraceptives, and the option of female sterilization. For an example, see, Adaline P. Satterthwaite, "The Role of Antepartum and Postpartum Education in Maternal Health," *The Journal of the American Medical Women's Association* 20, no. 8 (1965): 741.

[2] Simple methods are barrier, non-hormonal methods of temporary contraception. They include, but are not limited to, condoms, diaphragms, pessaries, and spermicidal foams. For the testing of a spermicidal foam in Puerto Rico in the 1950s, see, Laura Briggs, *Reproducing Empire: Race, Sex, Science, and U.S. Imperialism in Puerto Rico* (Berkeley: University of California Press, 2002): 123-124; Annette B. Ramírez de Arellano and Conrad Seipp, *Colonialism, Catholicism, and Contraception: A History of Birth Control in Puerto Rico* (Chapel Hill: The University of North Carolina Press, 1983): 128-131. For the existing literature on the early Enovid trials in Puerto Rico, see, Briggs, *Reproducing Empire*, 129-141; Adele E. Clark, *Disciplining Reproduction: Modernity, American Life Sciences, and "the Problems of Sex*," (Berkeley: University of California Press, 1998): 193-195; Linda Gordon, *The Moral Property of Women: A History of Birth Control Politics in America*, Illinois paperback edition (Urbana, IL: University of Illinois Press, 2007): 286-288; Suzanne White Junod and Lara Marks, "Women's Trials: The Approval of the First Oral Contraceptive Pill in the United States and Great Britain," *Journal of the History of Medicine and Allied Sciences* 57, no. 2 (April 2002): 117-160; Iris López, *Matters of Choice: Puerto Rican Women's Struggle for Reproductive Freedom* (New Brunswick, NJ: Rutgers University Press, 2008): 16-18; María de Lourdes Lugo Ortiz, "Sterilization, Birth Control, and Population Control: The News Coverage of *El Mundo*, *El Imparcial*, and *Claridad,*" (PhD diss., University of Wisconsin-Madison, 1994): 94-102, 288-293; Lara Marks, "A 'Cage of Ovulating Females': The History of the Early Oral Contraceptive Pill Clinical Trials, 1950-1959," in *Molecularizing Biology and Medicine: New Practices and Alliances, 1920s-1970s*, ed. Soraya de Chadarevian and Harmke Kamminga (Amsterdam: Harwood Academic Publishes, 1998): 221-247; Lara V. Marks, *Sexual Chemistry: A History of the Contraceptive Pill*, new preface edition (New Haven, CT: Yale University Press, 2010): 89-115; Loretta McLaughlin, *The Pill, John Rock, and the Church: The Biography of a Revolution* (Boston: Little, Brown, and Company, 1982): 128-133, 138-139; Nelly Oudshoorn, *Beyond the Natural Body: An Archaeology of Sex Hormones* (New York: Routledge, 1994): 125-137; Ramírez de Arellano and Seipp, *Colonialism, Catholicism, and Contraception*, 105-123; James Reed, *From*

longer history of the field trials of contraceptives in Puerto Rico, this dissertation argues that field trials are more than a way station in the production of medical knowledge and therapies. Field trials are semi-autonomous, productive spaces of medical and scientific knowledge that incorporate personal, professional, local, and international concerns as much as the dictates of regulatory agencies that certify emerging medical technologies. Personal and professional aspirations circumscribed by gender norms in the US mainland, Puerto Rican modernization projects, US colonialism, urban-rural differences, interprofessional collaborations and contestations, and doctor-patient and researcher-participant dynamics mattered as much, if not more, in the day-to-day conduct of the trials in Puerto Rico than FDA-approval.[3] This dissertation substantiates this premise by paying special attention to how people and organizations in Puerto Rico facilitated the trials.

The Puerto Rican field trials hinged upon the "ground-level" experiences of mid-level physicians and allied health workers, trial participants, and local politics and organizations as much as they did on elite medical scientists, statistical reports of participants' experiences on a contraceptive, and global networks of scientists and birth control advocates to generate medical knowledge and new therapies.[4] International collaborators and funding agencies were not faceless entities to those carrying out the trials in Puerto Rico. Rather, these seemingly diffuse

Public Vice to Public Virtue: The Birth Control Movement and American Society (Princeton: Princeton University Press, 1984): 311-366; Johanna Schoen, *Choice & Coercion: Birth Control, Sterilization, and Abortion in Public Health and Welfare* (Chapel Hill: The University of North Carolina Press, 2005): 202-216; Andrea Tone, *Devices and Desires: A History of Contraceptives in America* (New York: Hill and Wang, 2001): 203-232; Elaine Tyler May, *America and the Pill: A History of Promise, Peril, and Liberation* (New York: Basic Books, 2010): 11-34; Elizabeth Siegel Watkins, *On the Pill: A Social History of Oral Contraceptives, 1950-1970* (Baltimore: The John Hopkins University Press, 1998): 9-33.

[3] A trial participant is any person taking experimental contraceptives or any person whose experience is documented to substantiate the pill and IUDs in the subsequent scientific literature or FDA applications. I elaborate my definition of participant in Chapter Four.

[4] This dissertation uses the term ground-level to describe the day-to-day interactions of trial architects and participants in Puerto Rico and to indicate a framework for the actual practice of medicine and research in the physical areas in which the trials occurred.

organizations, like Planned Parenthood and the Population Council, were individuals with whom those in Puerto Rico built fraught relationships, even as they grappled with the local, day-to-day demands of their work. Hence, this dissertation focuses on how individuals and organizations in Puerto Rico grew and transformed the contraceptive trials in the 1950s and 1960s, as well as how life changed for those who navigated the trials daily in Puerto Rico. By approaching the trials with a focus on Puerto Rican medical professionals, social workers, and trial participants, this dissertation emphasizes that the Puerto Rican field trials were more than a way station in the history of contraception, birth control politics, women in medicine and medical research, and Puerto Rico in the postwar era. Specifically, those who labored for the trials in Puerto Rico were an agential collective of individuals of primary importance for four historical reasons. They fundamentally contributed to the development of contraceptive pills and IUDs. They responded to and reshaped birth control politics in and beyond Puerto Rico during the contested era of family planning. They shifted opportunities for women in healthcare, health sciences, and medical research. Equally important, in becoming architects of the trials, they perpetuated and contradicted colonial logics of the postwar and early Cold War era.

I use the metaphor of "way station" because of its dual meanings of a pass-through point and of lesser importance. In the most literal rendering, a way station is a point worth pausing, but not stopping, a journey. The second meaning of way station evidences a comparative valuation. A way station is only of import because it marks progression between the origin and ultimate conclusion; it is ultimately less meaningful than the origin and conclusion. In the history of contraceptives, the field trials have largely been treated as a way station. As this dissertation details, the field trials are a space worth pausing and examining and of autonomous importance to a variety of historical phenomena. To address these concerns, it is essential to examine the

established history of the field trials of Enovid and how scholars' analyses of the trials have created the potential for a longer history of contraceptive trials in Puerto Rico.

The Puerto Rican field trials of emerging contraceptives arose, in part, out of decades of birth control advocacy and research from across the globe. In the mainland US, famed birth controller Margaret Sanger recruited Katharine Dexter McCormick, a suffragist and wealthy philanthropist, to the cause of realizing a contraceptive controlled by women and separate from the act of sex in 1950.[5] In 1951, the women turned to Gregory Godwin "Goody" Pincus and his colleague Min-Chueh Chang of the Worcester Foundation of Experimental Biology in Massachusetts to identify compounds capable of serving as a contraceptive.[6] Pincus and Chang identified progestin, a class of synthetic progesterone, as a viable candidate to induce temporary sterility based upon animal tests.[7] Steroid hormones, including progestins, had only recently become commercially available and relatively cheap due to the discovery that these compounds could be easily synthesized from the Mexican tuber, *barbasco*. In 1951, Luis E. Miramontes, a

[5] Briggs, *Reproducing Empire*, 132; Marks, *Sexual Chemistry*, 54; Tone, *Devices and Desires,* 204-207. For biographical accounts of these women as they relate to the development of the pill, see: Jean H. Baker, *Margaret Sanger: A Life of Passion* (New York: Hill and Wang, 2011): 231-208; Ellen Chesler, *Woman of Valor: Margaret Sanger and the Birth Control Movement in America*, new afterword edition (New York: Simon & Schuster Paperbacks, 2007): 414-468; Armond Fields, *Katharine Dexter McCormick: Pioneer for Women's Rights* (Westport, Conn.: Praeger, 2003): 259-292. For a recent work that contextualizes McCormick's financial backing of the trials within women's rights in the first half of the twentieth century, see, Joan Marie Johnson, *Funding Feminism: Monied Women, Philanthropy, and the Women's Movement, 1870*-1967 (Chapel Hill: The University of North Carolina Press, 2017): 199-222.

[6] Pincus was a controversial figure due to his research, interpersonal skills and cantankerous working style, and ambition to cement his research as consequential. His work on *in vivo* fertilization in rabbits in the 1940s and 1950s pushed him to the fringes of endocrinology research in the 1940s and 1950s, and his claims in the 1960s that Enovid might have anti-carcinogenic properties caused tensions amongst his collaborators. These tensions might explain why solely a single, non-academic biography exists on Pincus. No biography exists on Chang, though works on developing the science of the pill aim to more articulate his important contributions. For the sole biographical account of Pincus and the pill, see, Leon Speroff, *A Good Man Gregory Goodwin Pincus: The Man, His Story, The Birth Control Pill* (Portland, OR: Arnica Publishing, Inc., 2009): 201-224. For more detailed accounts of Chang's scientific contribution to the pill, see: Marks, "'Cage of Ovulation Females,'" 221-247; Marks, *Sexual Chemistry*, 90-92; Reed, *From Private Vice to Public Virtue*, 346-382; Tone, *Devices and Desires,* 233-260.

[7] Progesterone is a naturally occurring steroid hormone that regulates menstrual cycles. Ovulation is prevented in the presence of high-levels of progesterone or progestin. This is the mechanism by which birth control pills prevent pregnancy.

college student working at Syntex Laboratories in Mexico, successfully synthesized progestin from barbasco brought to the pharmaceutical house by thousands of Mexican families.[8] As non-medical research scientists and advocates, none of the mainland Americans possessed the necessary credentials to direct human tests of progestins, so they set out to bring a physician-researcher into their flock.

A Catholic physician with interests and experience in fertility research, John A. Rock of Harvard University and the Free Hospital for Women in Boston joined Pincus and the rest in 1953 to enable human trials of Enovid. Like Pincus at Worcester, Rock did not work in isolation and greatly benefited from the collaboration of Miriam Minkin and Luigi Mastroiani. Rock's, Minkin's, and Mastroiani's addition to the team provided important expertise and legitimacy as the tests progressed to human trials.[9] The initial tests of progestins under Rock greatly differed from the eventual large-scale, field trials of Enovid in Puerto Rico that began in 1956. First, Rock provided both naturally-occurring progesterone and a variety of progestins in the first human tests. Rock and his colleagues conducted such tests to determine if administered steroid hormones operated in a similar manner in women as in animals. The researchers also needed to compare the efficacy of synthetic progestins and progesterone as contraceptive agents in humans. Third, Rock administered the hormones vaginally, intravenously, and orally to elucidate the most efficacious

[8] Miramontes shares the US-patent for progestin with George Rosenkanz and Carl Djessari. Marks, *Sexual Chemistry*, 64-72; Gabriela Soto Laveaga, *Jungle Laboratories: Mexican Peasants, National Projects, and the Making of the Pill* (Durham: Duke University Press, 2009): 66-69; Gabriela Soto Laveaga, "The Conquest of Molecules: Wild Yams and American Scientists in Mexican Jungles," in *Colonial Crucible: Empire in the Modern American State*, eds. Alfred W. McCoy and Francisco A. Scarano, (Madison, WI: University of Wisconsin Press, 2009): 312-314.

[9] Rock enjoyed a better reputation than Pincus and gained international attention as a Catholic supporter of birth control. This might explain why more biographies exist on Rock than on Pincus. Like Chang, no biographies exist of Minkin and Mastroiani. Marks, "'Cage of Ovulating Females," 226-232; Marks, *Sexual Chemistry*, 94-95; Margaret Marsh and Wanda Ronner, *The Fertility Doctor: John Rock and the Reproductive Revolution* (Baltimore: The John Hopkins University Press, 2008): 185-221;. On Rock's advocacy for birth control from a Catholic perspective, see his self-authored treatise: John Rock, *The Time Has Come: A Catholic Doctor's Proposal to End the Battle Over Birth Control* (New York: Alfred A. Knopf, Inc., 1963).

means of therapeutic delivery. Fourth, by conducting regular biochemical and physiological tests on women taking the hormones in a variety of ways, the researchers wanted to see how long it would take for the drugs to regulate ovulation and thus serve as a contraceptive. As Rock and his colleagues worked on these foundational questions, Pincus pinpointed Searle's Enovid (active ingredients of the progestin norethynodrel and synthetic estrogen) as the pill to be used in the transition to small-scale studies of a single contraceptive. Rock continued broader examinations of the progesterone-family therapeutics but expanded his work to include small-scale studies of Enovid in some of his patient population. A small-scale study was also established in Puerto Rico under the ground-level direction of physician Celso-Ramón García and remote supervision of Rock.[10] Because of these facets of Rock's experiments, the tests he directly supervised represented a unique endeavor relatively apart from the eventual Puerto Rican field trials.

Taken together, these aspects of Rock's and others' tests illustrate the clinical and scientific*,* rather than medically practical, nature of these trials. Rock's tests sought to establish the foundational, clinical science of progestins in women and provide answers to questions like, can extracorporeal progesterone or progestins effect and alter women's physiological processes? If these compounds do alter the physiological process of ovulation in an objective manner, what is the best way to introduce progestins to women? Besides ovulation regulation (the desired physiological alteration), what other changes are affected upon women's bodies by ingested steroids? Such research questions were essential to the development of the birth control pill, but

[10] Tests of other progestins with similar goals occurred in New York, Los Angeles, Japan, the United Kingdom, and even Puerto Rico, to name a few. For overviews of these clinical sites, see: Marks, "A 'Cage of Ovulation Females,'" 227-233; Marks, *Sexual Chemistry*, 92-101; Ramírez de Arellano and Conrad Seipp, *Colonialism, Catholicism, and Contraception,* 105-112; Tone, *Devices and Desires,* 216-220; Tyler May, *America and the Pill,* 24-29. It is worth noting that May dedicates *America and the Pill* to her parents, Edward T. and Lillian B. Tyler. Edward T. Tyler was a contemporary of Pincus and oversaw tests of contraceptives in Los Angeles. For an overview of Edward T. Tyler's experiences in Los Angeles, see: Edward T. Tyler, "Eight Years' Experience with Oral Contraception and an Analysis of Use of Low-dosage Norethisterone," *British Medical Journal* 2 (Oct. 1964): 843-847.

the controlled settings of a clinic or small participant group did not provide answers to how a contraceptive worked in the routine lives of women. Rock's tests in the US and other similar, small-scale human tests could not answer the more practical medical concerns surrounding Enovid: safety, efficacy, and user experience of a single rendering of progestin over long use in everyday life, and participant buy-in to the promises and perils of the pill.[11] To address these practical concerns, more participants taking oral contraceptives, a different form of medical testing in a community, and a ground-level architect imbedded within a community were necessary. Indeed, a field trial, a scaled-up test that utilizes standardized therapies to address medically practical questions of safety and efficacy of a medical treatment in everyday life, was needed to continue the research endeavor. The field trials in Puerto Rico began in 1956 and provided this crucial contribution, an evaluation of Enovid safety and efficacy in the real world, to the development of contraceptives.

The first large-scale field trials of Enovid began in Río Piedras, Puerto Rico, in 1956.[12] Within a year, over two-hundred women became participants in these field trials hosted by the local family planning agency, *Asociación Puertorriqueña Pro Bienestar de la Familia* (Profamilia). Participants came to the field trials through Profamilia's medical director, Edris Rice-Wray, a mainland US physician who relocated to Puerto Rico in the 1940s, and Iris Rodríguez, a University of Puerto Rico (UPR) trained health educator and social worker.[13] I. Rodríguez was also affiliated with Profamilia. Both Rice-Wray and I. Rodríguez had histories with public agencies

[11] Even in the field trials, researchers tried to increase data points on long time use by rendering experience as number of menstrual cycles, "woman months," rather than individuals. On the theoretical and ethical ramifications of this variable, see, Oudshoorn, *Beyond the Natural Body*, 112-135. Tyler May uses promise, peril, and liberation as a framework to understand the pill in US history from its development to the first decade of the 2000s, *America and the Pill: A History of Promise, Peril, and Liberation*.

[12] Río Piedras is part of the metropolitan San Juan area and home to the flagship campus of the University of Puerto-Río Piedras (UPR-RP) and the sole, public medical school in Puerto Rico.

[13] In this dissertation, I use the acronym UPR to refer to the broad university system, UPR-RP for the flagship campus, and UPR School of Medicine for the medical school.

in Puerto Rico like the Department of Health, but the professionals explicitly introduced themselves to participants as members of the *private* Profamilia. The field trials in Río Piedras under Rice-Wray and I. Rodríguez lasted for just a year. In 1957, Rice-Wray left Puerto Rico on a World Health Organization (WHO) fellowship amid mounting speculation as to the purpose of such contraceptive trials in the capital area of Puerto Rico.[14] In a rapidly changing Puerto Rico, contraception had its supporters and detractors based upon political, economic, and social ideologies. In 1956 and 1957, skeptics in Puerto Rico were most suspicious of any suggestion of a *public* option of birth control.

It is important to define trial "participant" before delving further into the established history of the trials of Enovid in Puerto Rico. In this dissertation, a trial participant is any person taking experimental contraceptives or any person whose experience is documented in the scientific literature to substantiate the pill and IUDs. For example, in Río Piedras, at least two-hundred and twenty-five women's experiences were used to justify the safety of Enovid, but not all these women ingested Enovid. A control group of women shared their reproductive and medical histories with Rice-Wray and I. Rodríguez in order to prove the researchers' claims about Enovid. Their contributions were essential for the legitimization of Enovid as a comparison point. Hence, I include the women of such control groups in my definition of trial participants. I push the parameters of participant further by including any person, explicitly or implicitly, harkened to in the justification for and characterization of contraceptives in Puerto Rico. This framing encompasses the partners of women consuming contraceptives and children born of mothers using

[14] Participants recruited by Rice-Wray and I. Rodríguez continued to receive Enovid from Profamilia under the supervision of the new Medical Director, Manuel Paniagua, post-1957. After Rice-Wray's departure, the Río Piedras trials were absorbed under the direct supervision of Pincus and García. For Paniagua's contribution to the trials, see, Gregory Pincus, John Rock, Celso-Ramón García, Edris Rice-Wray, Manuel Paniagua, and Iris Rodríguez, "Fertility Control with Oral Medication," *American Journal of Obstetrics and Gynecology* 75 (June 1958): 1333-1346.

contraceptives, like the baby at the opening of this introduction.[15] Trial participants also include people who took contraceptive agents and devices for non-contraceptive purposes. Although my expansive definition of participant may seem to dilute the gravity and ramifications of taking emerging contraceptives, its strength is that it allows my analysis to attend to the unequal gains and losses people experienced due to their different forms of involvement in the trials. The joys and the detriments were not shared equally across participants, and it is crucial to delineate a range of them to understand the field trials in the broader contexts of Puerto Rico. Last, I use participant, not patient, specifically when referencing medical interactions in the service of contraceptive research. As my chapter on participants (Chapter 4) delineates, participation in the field trials encompasses moments of doctor-patient relationships and researcher-subject dynamics. There are instances of collaboration, service, and exploitation, often in the same interaction, in the field trials of contraceptives in Puerto Rico.[16]

The Puerto Rican field trials of Enovid did not cease at Rice-Wray's departure, but instead moved east to the rural municipality of Humacao. Distinct from the Río Piedras iteration, the Humacao trials still shared some broad features with the initial trials in the metropolitan area. Like in Río Piedras, the trials in Humacao were funneled through a private, not state, agency. In Humacao, however, the trials of Enovid gained a new institutional home, sponsorship, and ground-level supervision. Ryder Memorial Hospital, a protestant mission hospital in the municipality,

[15] Participants taking the pill or inserted with an IUD were often asked how their sexual partners, coded as husband since all contraceptive users in the trials had to be married, felt about the woman's contraceptive use. Similarly, researchers on the ground took note of how women experienced pregnancy after contraceptive use and the health of children born after contraceptive use.

[16] Medical researchers increasingly used participant in the second-half of the twentieth century to refer to people involved in medical experimentations to suggest informed consent and the possibility of co-creation in medical knowledge. For the limits of subjectivity and informed consent in the framework of participant, see, Jill A. Fisher, "'Ready-to-Recruit' or 'Ready-to-Consent' Populations?: Informed Consent and the Limits of Subject Autonomy," *Qualitative Inquiry* 13 no. 6 (Sept. 2007): 875-894; Norma Morris and Brian Bàlmer, "Volunteer Human Subjects' Understandings of Their Participation in a Biomedical Research Experiment," *Social Science & Medicine* 62, no. 4 (Feb. 2006): 998-1008.

served as the local home of the Enovid trials. Pincus and his colleagues in Massachusetts continued as distant orchestrators; through them, Ryder received the Enovid pills and test parameters. Mainland US birth controller and eugenicist, Clarence J. Gamble, heir to the Proctor & Gamble fortune, provided additional funds, materials, and his own opinions to the trials in Humacao.[17] The new ground-level director of the Humacao trials was Adaline Pendleton Satterthwaite, a missionary doctor and mother. Like Rice-Wray, Satterthwaite was a transplant to Puerto Rico of mainland origins and with medical credentials. Another similarity between the two sites was that they both relied on the labor of physicians and social workers. Social workers Noemí Rodríguez and Elizabeth (Betty) MacDonald contributed their expertise, as well as understanding of community and social structures, to the field endeavor. And like in Río Piedras, participants came to and left the trials of Enovid for their own reasons.

The similarities between Río Piedras and Humacao were limited. Significant changes to the parameters of the trials of Enovid in Humacao arose within a month of the start of the trials. Beginning in March 1957, N. Rodríguez oversaw a participant population who gained access to the oral contraceptive outside the buildings of Ryder. Coded the Rodríguez-series (R-series) in the literature, N. Rodríguez distributed Enovid to participants and conducted medical surveys in participants' home, often far away from the hospital. The research protocols required that the physician, Satterthwaite, tabulate and collate N. Rodríguez's findings, yet it was N. Rodríguez

[17]Gamble figured prominently in funding the development of contraceptives, eugenics efforts, birth control programs, and sterilization campaigns before and after the pill. In all these efforts, Gamble marshalled his money, medical training, and social connections to enact his goals. For Gamble's funding of birth control, sterilization programs ,and quest for simple methods outside of Puerto Rico, see, Linda Gordon, *The Moral Property of Women*, 233-241; Raúl Necochea López, "Gambling on the Protestants: The Pathfinder Fund and Birth Control in Peru, 1958-1965" *Bulletin of the History of Medicine* 88, no. 2 (Summer 2014): 344-371; Ilana Löwry, "'Sexual Chemistry' before the Pill: Science, Industry, and Chemical Contraceptives, 1920-1960," *The British Journal for the History of Science* 44, no. 2 (June 2011): 245-274; James Reed, *From Public Vice to Public Virtue,* 219-280; Schoen, *Choice & Coercion*, 33-48. For Gamble's involvement in Puerto Rico prior to the field trials, see, Briggs, *Reproducing Empire,* 102-107, 122-128; López, *Matters of Choice,* 15-17; Ramírez de Arellano and Seipp, *Colonialism, Catholicism, and Contraception*, 45-54, 94-104.

who represented the trials and access to Enovid for the R-series participants. It was by exception that R-series participants engaged with Satterthwaite. Satterthwaite most frequently engaged with the second participant population, the Pendleton-series (P-series).[18] By April 1957, Satterthwaite's patients began requesting Enovid in their appointments, and this allowed her to argue the need for a second study group to Pincus and Gamble. The P-series participants, first acquainted with Satterthwaite as their obstetrician and gynecologist, began to come to Ryder for their refills of Enovid and medical surveys. P-series participants sometimes had a social worker visit them in their homes to follow-up on missed appointments, but social workers in the home was a rarer occurrence for them than for R-series participants. Because these professional women advocated for a two-group study, more contraceptive participants became involved in the trials in Humacao than in Río Piedras, even within the first year. The two-pronged approach also allowed for a comparison of different delivery methods and urban versus rural attitudes across field trials' sites. Second, the field trials of Enovid in Humacao continued much longer than the ones in Río Piedras. Satterthwaite, Rodríguez, and MacDonald recruited women to Enovid, characterized their experiences on the contraceptive pill, and continued to collect and examine data until mid-1965,

[18] P-series stands for Pendleton-series. In this dissertation, I refer to Adaline Pendleton Satterthwaite as Satterthwaite, not by her maiden name, Pendleton. I grappled with this decision because people in Puerto Rico knew her as "Doctora Penny" and most of Satterthwaite's collaborators referred to her by Pendleton. She published both as Adaline Pendleton and Adaline Pendleton Satterthwaite. Yet, there is a clear distinction in when each of her monikers appears in the scientific literature. For publications in which Satterthwaite is not the first author, her name frequently appears as Pendleton. For publications and presentations in which she is the primary or secondary author, thus suggesting a more active role in the drafting of the paper, her name appears Adaline P. Satterthwaite or Adaline Pendleton Satterthwaite. In her oral history, she claimed that Pendleton was easier for people in Puerto Rico to pronounce and Doctora Penny arose from that ease. In her rendering, Pendleton persisted because of others, not because of her wishes. Adaline might have used the "ease" of Pendleton as a convenient excuse to use her family surname in a time when women by default had to take their husband's surname. To compromise, I use Pendleton or Doctora Penny when others refer to her in that manner and Satterthwaite in my discussion of her. It is also worth noting that Satterthwaite's first name, Adaline, is often misspelled by her contemporaries and later scholars on the trials. To see how her name differed across her publications, compare: Gregory Pincus, Celso R. García, John Rock, Manuel Paniagua, Adaline Pendleton, Felix Laraque, Rene Nicolas, Raymond Borno, and Vergniaud Pean, "Effectiveness of an Oral Contraceptive," *Science* 130, no. 3367 (July 1959): 81-83; Adaline P. Satterthwaite, "Experience with Intra-Uterine Devices in Puerto Rico," *Caribbean Medical Journal* 27, no.1 (1964): 92-100. For an example of "Adeline" rather than Adaline in the scholarship, see, Briggs, *Reproducing Empire,* 138 and 276.

long after the FDA-approval in 1960. The field trials, then, were born out of the labor of Satterthwaite, N. Rodríguez, and MacDonald, and they evolved to include field trials of a host of contraceptives during the 1960s. Many of these trials did not have any direct relation to the FDA or US mainland researchers' interests.

This is a simple summation derived from the scholarly work on the Puerto Rican field trials of Enovid, which has explained their development from 1956, through the 1957 FDA-approval of Enovid as a menstrual disorder corrective, and to the 1960 FDA-approval of Enovid as the first birth control pill. My synopsis has highlighted the salient facts, analytical frameworks, and periodization guiding the few studies of the field trials of Enovid. In particular, scholars have used FDA-approval as a dividing point in the history of oral contraception. Before FDA-approval, the focus is often on tireless, albeit problematic, efforts to develop a woman-specific, accessible contraceptive. After FDA-approval, the literature turns to the shifting landscape of birth control politics or the reception and use of oral contraception in the US mainland[19] Other scholars pivot to more-recent examples of the interwoven histories of gender, birth and population control, sterilization, and colonialism in Puerto Rico.[20] Historians' attention to these facets has elucidated the essential role of medicine in colonial practices and the broad contours of contraceptive practices in the mainland US after Enovid. Yet, these approaches inadvertently minimize Puerto Rico and Puerto Ricans as meaningful historical actors, as well as the importance of mid-level professionals on the island in the trials. Studies that connect colonialism and the trials center mainland US intent as a driving force, but mostly eschew investigation into Puerto Ricans' intersecting objectives and desires. Similarly, almost exclusive attention to FDA-approval

[19] Gordon, *The Moral Property of Women, 295-320;* Tone, *Devices and Desires*, 233-260; Tyler May, *America and the Pill*, 71-92; Watkins, *On the Pill*, 34-52.
[20] Briggs, 142-161; Ramírez de Arellano and Seipp, *Colonialism, Catholicism, and Contraception*, 124-133; Schoen, *Choice & Coercion* 213-216.

obscures that the field trials in Puerto Rico grew to include other pills, IUDs, and public birth control programming after 1960. From this scholarly perspective and periodization, Puerto Rico and diverse Puerto Ricans appear as at best secondary, at worst passive and inconsequential, factors and actors in a largely mainland US driven event. I contend this is wrong: people on the ground in Puerto Rico, of Puerto Rican and mainland US origin, drove the development of the pill, IUD, and birth control programming more centrally than previously illustrated. To argue the centrality of ground-level happenings, a close study of the trials trajectory not only before but also after 1960, is necessary.

The oldest, and most fruitful, connection of the trials of contraceptives has been by historians of women and gender in the mainland US. Linda Gordon has integrated the development of Enovid into a shifting landscape of American birth control politics. Rather than a technology inherently destined to empower individual women, Enovid was, at least partially, the product of political considerations. It arose in the 1950s due to the transformation of birth control—the feminist goal of women's autonomy through control of reproduction—to population control to legitimize a woman-centered contraceptive that could serve as a tool to address concerns about the burgeoning global population. Despite the changing rhetoric, Gordon has argued, Enovid "had a greater impact on gender and sexual patterns in the United States than on overpopulation in poor countries."[21] Elaine Tyler May has further elaborated the importance of population control politics to the trials of Enovid in *America and the Pill*, but it is Elizabeth Siegel Watkins who has directly used the trials to then argue how Enovid and other pills "reveal[ed] much about the evolution of gender relations, particularly the professional relationship between women and their doctors."[22] In the early 1960s, emboldened by the numerous advertisements put out by Searle and other

[21] Gordan, *Moral Property of Women*, 288.
[22] Tyler May, *America and the Pill*, 35-56; Watkins, *On the Pill*, 8.

pharmaceutical houses, women went to "their physicians with specific requests for oral contraceptives [and] no longer passively received medical care, but were transformed into active participants … If [the physician] refused to comply, chances were she would find another more willing physician."[23] Andrea Tone also has narrated media representations of Enovid immediately after the 1960 approval to bring together the political, power dynamics, and medical ramifications of Enovid: "Never just a medical event, Pill mania was a cultural and political phenomenon that joined journalists, scientists, politicians, and African-American and feminist activists in open and often heated debate about the social implications and larger meanings of oral contraception."[24]

Other scholars have connected the trials of Enovid to the long histories of birth control, gender, and colonialism in Puerto Rico. As discussed earlier, it is important to disabuse the notion of a unilaterally powerful, mainland US dictating all aspects of Puerto Rican life and governance. However, Puerto Rico's territorial status has indeed shaped the island in innumerable ways. Thus, it is not surprising that the colonial connections of medicine have been some of the most attended to aspects of the trials of contraceptives. Scholarly accomplishments made along these lines of inquiry have been rich, if not numerous. For one, by carefully attending to this colonial facet, scholars have illustrated how the colonial relationship allowed mainland U.S. organizations and individuals to test out various scientific, social, and medical programs during the twentieth century. As the U.S. structured strategies and programs to counter the Soviets and their influence during the Cold War, Puerto Rico emerged as the perfect testing ground for the effectiveness of such programs. American Cold War logic suggested that impoverished regions were more likely to turn to communism. Poverty, in part, derived from too large a population conceived and birthed by women. If contraception was developed and introduced to an impoverished region (Puerto Rico in

[23] Watkins, *On the Pill*, 51.
[24] Tone, *Devices and Desires*, 233.

the case of field testing), then its population size would progressively decrease, which would in turn ameliorate poverty and the pre-conditions of communism. The testing of such Marshall Plan-like programs in Puerto Rico is a subject of study in Laura Briggs' 2002 work *Reproducing Empire:*

Briggs has demonstrated that the field trials came to Puerto Rico by way of US foreign policy goals and Cold War logics. Both reversible and permanent birth control became enmeshed in the Cold War strategy of development because of the US's identification of reproduction, specifically overpopulation, as a key locus of poverty. In this way, as Brigg has argued, reproduction, contraception, and Cold War policy were seamlessly linked in Puerto Rico. It is commendable that she has diversified and expanded scholars' understanding of how contraception could have been imagined in broader geopolitical contexts, yet Briggs has simultaneously simplified mainland U.S.-Puerto Rican relations by rendering Puerto Rico as relatively passive to mainland hopes, wants, and policies. This is problematic considering how much attention Briggs gives to the emerging middle-class in Puerto Rico in relation to the development of eugenic thought in the 1920s and 1930s. Ultimately for Briggs, "Puerto Rico, having been characterized as a 'laboratory' of one sort or another since World War I, was transformed into a 'social laboratory' for anti-poverty development programs intended to stave off communism by transforming backward women."[25]

A strong interest in family planning (propelled by Comstock laws that prohibited commercial distribution of contraception in the mainland US), concerns surrounding overpopulation among insular government officials, and Neo-Malthusian logic typified Puerto Rico's social welfare programs and relations with the mainland United States during the mid-

[25] Briggs, *Reproducing Empire,* 140.

twentieth century.[26] A central motif of Puerto Rico's family planning at the beginning of the second half of the twentieth century was female sterilization. Frequent sterilization "was physician induced, externally funded, legally sanctioned, and politically accepted (though not promoted)," and it ultimately became viewed by many Puerto Rican women as a reliable form of contraception as well.[27] The field trials of Enovid also fit nicely within Puerto Rico's family planning programs and ethics of the time. Along with the economic benefit of research dollars flowing into the institutes that housed the trials, pro-family planning physicians and government officials welcomed such investigations that promised more options for fertility limitation.[28] Thus, Annette B. Ramírez de Arellano sees no causal links between high levels of sterilization and the advent of the trials of Enovid in her 1983 work *Colonialism, Catholicism, and Contraception.* Instead, she has situated the trials and female sterilization as individual case-studies of family planning programs in Puerto Rico. For Ramírez de Arellano, "family planning was a public issue which took precedence over other concerns. The intensity of … feelings for the subject is almost without parallel."[29] Though she does not sufficiently highlight the connection between sterilization and field trials of contraceptives, Ramírez de Arellano provides a richer social history of the day-to-day activities of the trials than does Briggs. In particular, Ramírez de Arellano's work has proven foundational because it began to challenge the long-existing paradigm that the field trials of Enovid, sterilization, and indeed most aspects of Puerto Rican governance, occurred solely due to

[26]For a more detailed discussion of Comstock Laws, what they prohibited, and how Americans circumvented these laws, see, Tone, *Devices and Desires*, 3-87. Neo-Malthusian logic refers to increased concerns about population size, the fears surrounding increased population sizes, and the ramification of population size in the post-World War II era. Subscribers to this logic often called for population control, Ramírez de Arellano and Seipp, *Colonialism, Catholicism, and Contraception,* 108-109.

[27] Ramírez de Arellano and Seipp, *Colonialism, Catholicism, and Contraception,* 144. Two documentaries use interviews with Puerto Rican women to demonstrate the ubiquity of sterilization as a recognized form of contraception on the island. *The Pill*, directed by Erna Buffie and Elise Swerhone (New York: Women Make Movies, 1999), DVD; *La Operación*, directed by Ana María García (New York: Latin American Film Project, 1982), DVD.

[28] Ramírez de Arellano and Seipp, *Colonialism, Catholicism, and Contraception* 108-109.

[29] Ramírez de Arellano and Seipp, *Colonialism, Catholicism, and Contraception,* x.

Puerto Rico's dominion status to the United States. María de Lourdes Lugo Ortiz's dissertation on Puerto Rico's newspapers depictions of the contraceptive trials; Johanna Schoen's recognition that the trials "offered [Puerto Rican women] some control over reproduction … however, without providing them with real medical attention and a true commitment to reproductive health care;" and Iris López's framework that women's reproductive decisions go beyond the binary of "choice and constraint" have further substantiated the complicated terrains of the contraceptive trials.[30]

Another group of scholars, those focused on the creation of knowledges in medical science and research of contraceptives, has provided a springboard for a more expansive timeframe of the field trials of Enovid and other forms of contraception in Puerto Rico. Nelly Oudshoorn, Adele Clarke, and Lara Marks have examined the questions and metrics used to evaluate Enovid's safety and efficacy in clinical and field trials. They found that the history of the trials predated 1956. Oudshoorn has interrogated the use of menstrual cycles, or "woman years," as the value by which Pincus, Rock, Rice-Wray, and Satterthwaite reported patient experiences in the scientific literature and in their application to the FDA. According to Oudshoorn, "Representing women as menstrual cycles resulted in a major increase of scale: the grand totals … included much more impressive numbers than a focus on the individual might have achieved."[31] The nimble variable of menstrual cycles did not elongate the trials; to the contrary, it was meant to shorten the time necessary for Enovid to be in the field prior to applying for FDA-approval. However, Oudshoorn has found that this tool would not have been feasible without earlier attempts in endocrine research to dissociate reproduction from the tangible human body. Clarke has complemented Oudhoorn's connection of the trials to the politics of reproductive sciences. Specifically, Clarke has found that Pincus'

[30] Lugo Ortiz, "Sterilization, Birth Control, and Population Control," 94-102, 288-295; Schoen, *Choice & Coercion*, 213; López, *Matters of Choice*, 144.
[31] Oudshoorn, *Beyond the Natural Body,* 132.

involvement with Sanger, McCormick, and private funding happened solely due to his ouster from prestigious institutions of scientific research due to his work on "artificial parthenogenesis and other reproductive problems in the 1930s and 1940s."[32] In Clarke's rendering, had Pincus remained at Harvard University, he would have never become involved in search for an oral contraceptive. Lara Marks' articles and 2001 monograph, *Sexual Chemistry: A History of the Contraceptive Pill*, rounds out the seminal works on the field trials of Enovid through the lens of medical research.[33] Like Briggs and Ramírez de Arellano, her interest in the Puerto Rican field trials has centered the pre-FDA-approval efforts with Enovid. Relatively little attention is directed to the growth of the trials overseen by Satterthwaite and others associated with Ryder.[34] However, Marks' rendering of how medical science and therapies are made at a range of different locations provides a springboard for this dissertation. In assessing the meanings of the trials in Puerto Rico, Marks has reminded readers that "multiple skills … were involved in [the pill's] development … [and] expertise and knowledge involved in scientific work are not confined to the site of the laboratory and those who work there."[35] The promise of Marks' framing is the possibility for multiple layers of contributions to the generation of medical knowledge and therapeutics. Medical researchers in Massachusetts, physicians at clinics in Puerto Rico, social workers in women's homes, and indeed participants ingesting Enovid, all provided essential labor and expertise to the enterprise to realize oral contraception. The limit of Marks' thesis, however, is the reification of medicine as science

[32] Clarke, *Disciplining Reproduction*, 193.
[33] Junod and Marks, "Women's Trials,"117-160; Marks, "'A Cage of Ovulation Females,'" 221-247; Marks, *Sexual Chemistry*.
[34] Marks conducted an oral history of Satterthwaite in 1995 and deposited the transcript at the National Sound Archive in London. She also corresponded via mail with Satterthwaite. See, Marks, *Sexual Chemistry*, *n. 78* on 294, 336; Adaline Pendleton Satterthwaite to Lara Marks, June 3, 1998, box 21, folder 9, Adaline Pendleton Satterthwaite Papers, Sophia Smith Collection, Smith College, Northampton, Mass. The finding aid for Marks' oral history with Satterthwaite may be viewed at, http://cadensa.bl.uk/uhtbin/cgisirsi/?ps=wVqbuHRaMF/WORKS-FILE/292560022/18/X490/XTITLE/Lara+Marks+contraceptive+pill+interviews.
[35] Marks, *Sexual Chemistry*, 89.

that, in turn, diminishes the importance of field trials. In this regard, another contribution to the history of medical science in relation to oral contraceptives is noteworthy. Gabriela Soto Laveaga's *Jungle Laboratories* and "The Conquest of Molecules" have further extended the time period of research on contraceptives by tracing the pill's origin back to the development of commercially sustainable steroid hormones in 1940s and have broadly invited questions about where, and by whom, scientific and medical innovation occurs.[36]

Scholars of medicine and medical practitioners alike grapple with the dual nature of medicine and its associated research: medicine as science, medicine as art. The rise of biomedicine has worked to make experiment and trial protocols as scientific and standardized as possible, and it has resulted in the ascendency and primacy of the Randomized Clinical Trial (RCT) within medical tests.[37] Though the importance of the RCT cannot be overstated, its primacy as the paragon of medical research has directed scholars to focus on the history of RCT rather than the more qualitative, less standardized field test. The image of the clinic resonates much more with the scientific lab than does a community endeavor. I argue that the influence of the RCT on medicine and the history of medicine is an essential catalyst for the dearth of information on the field trials of contraceptives in Puerto Rico after FDA-approval. Though basic science research continued through the 1960s, and indeed clinicians on the ground desired to become more involved with the basic science research, the field trials after 1960 centrally focused on participant experience and the sustainability of new contraceptives in birth control programs. A careful attention to the more artful nature of these trials, hence, helps remedy the lack of attention to the field trials, a lacuna in

[36] Soto Laveaga "The Conquest of Molecules," 309-316; Soto Laveaga, *Jungle Laboratories,* 39-70.
[37] The seminal work on the history of medical experiments in the twentieth century remains Harry M. Marks, *The Progress of Experiment: Science and Therapeutic Reform in the United States, 1900-1990* (Cambridge, UK: Cambridge University Press, 1997): 129-163. For evidence of how statistical analysis in forms of birth control grafted onto the turn to RCT, see: Marcia L. Meldrum, "'Simple Methods' and 'Determined Contraceptors': The Statistical Evaluation of Fertility Control, 1957-1968," *Bulletin of the History of Medicine* 70, no. 2 (Summer 1996): 266-295.

the scholarship driven by an implicit consensus among scholars that biomedical research and its history are the most—perhaps only—valuable subjects of study.

The works by scholars interested in the intersection of gender, colonialism, and the production of knowledge in the field trials of Enovid and other contraceptives direct us to adapt a long chronology of the tests through a lens of *largo dislocare*. Described by Soto Laveaga in 2018, largo dislocare is a

> concentrated effort to examine how and when distinct microhistories among nontraditional protagonists intersect. [It] relies on chronologies not framed in the West and intentionally seeks linkages that do not tread on worn, north-south or tired imperial networks … [To] use this approach [is] to re-examine examples of innovations emerging from the formerly colonized, and as later termed, developing world we can find robust exchange of ideas—but usually not in the guise that we expect.[38]

There are complications to utilizing largo dislocare as a lens of analysis for the contraceptive trials in Puerto Rico between 1956 and 1966. Puerto Rico was, and is, colonized. Some of the central figures in this dissertation are of mainland US origin, and the trials are not exactly a microhistory. Yet, the impetus to shift the attention to ground-level actors, social dynamics within Puerto Rico, and female professionals and participants fit within the purview of largo dislocare. Additionally, scholars of the trials have already hinted at a longer history of the field trials of contraceptives prior to the earliest tests of Enovid in Puerto Rico. What has not been done, however, is a focused study on what came *after* FDA-approval of Enovid in the Puerto Rican trials. The trials grew and prospered well into the mid-1960s. Remaining focused on the trials' evolution from a single pill to multiple pills and IUDs to evaluation of publicly endorsed family planning programs enables the transformation of the tests in Puerto Rico from a way station in the history of clinical trials, women's history, Puerto Rican history, and history of medicine, to a generative space of

[38] Gabriela Soto Laveaga, "*Largo dislocare:* Connecting microhistories to remap and recent histories of scienc*e," History and Technology* 34, no. 1 (Sept. 2018): 23.

knowledge, orchestrated by ground-level architects grappling with, and at time perpetuating, power disparities.

By extending the history of the trials of contraceptives in Puerto Rico to 1966, this dissertation also delineates the dynamics of "doing science," the importance of ground-level happenings in shaping the research enterprise; the interplay of gender, interprofessional dynamics, and colonialism in the growth of the trials; the shifting values on private versus public attempts at birth control; and reconsideration of who creates medical knowledge. In expanding my analysis into the mid-1960s, I trace the professional trajectory of Satterthwaite to illustrate the continued growth of field trials of contraceptives. I do not suggest that other tests of contraceptives outside of Satterthwaite do not occur in Puerto Rico. To the contrary, funds from other mainland Americans and organizations flowed into Profamilia in Río Piedras to facilitate trials of simple methods like the spermicidal foam, Emko. Led by social worker and birth control advocate Celestina Zalduondo, Profamilia's work with Emko served the dual purpose of characterizing the contraceptive potential of Emko and facilitating the growth of volunteer-based, private birth control programs in Puerto Rico.[39] However, Zalduondo's trials of Emko existed apart from the earlier Profamilia trials of Enovid and the trials initiated in Humacao. Emko foam did not require as many medical professionals to be tested, whereas the contraceptives associated with Satterthwaite did.[40] Through the 1960s, Zalduondo and Profamilia did progressively became

[39] For Zalduondo's research on volunteer-ran initiatives in creating sustainable birth control programs, see: Celestina Zalduondo, "A Family Planning Program Using Volunteers as Health Educators," *America Journal of Public Health* 54, no. 2 (Feb. 1964): 301-307. For historical accounts of the Emko tests, see: Laura Briggs, *Reproducing Empire*, 123-128; Ramírez de Arellano and Seipp, *Colonialism, Catholicism, and Contraception*, 128-134.

[40] On the tension of birth control programs and contraceptives as medical endeavors, see in particular: Linda Gordon, "Professionalization," in *The Moral Property of Women*, 171-210; Cathy Moran Hajo, *Birth Control on Main Street: Organizing Clinics in the United States, 1916-1939* (Urbana, IL: University of Illinois Press, 2010); Carole R. McCann, "*Birth Control Politics in the United States, 1916-1945* (Ithaca, NY: Cornell University Press, 1994): 59-98.

involved in Satterthwaite's research, but the connection was never as strong as the linkage between the trials in Río Piedras and those in Humacao.

Satterthwaite's lived experiences in Puerto Rico during the 1960s serve as a launchpad for identifying some key changes in the trials and substantiating the contraceptive field trials as more than a way station. First, between 1961 and 1963, field trials under her supervision grew to include new contraceptive pills from Searle and Ortho, as well as IUDs (largely the Lippes Loop and Margulies Spiral). By the mid-1960s, Puerto Rico was a veritable center of field research into new contraceptives. Second, contraceptive trials expanded spatially in Puerto Rico. By 1963, Satterthwaite engaged participants both in eastern rural communities (Humacao) and western rural communities (El Guacio and Castañer). By her departure from Puerto Rico in 1966, Satterthwaite had provided pills or inserted IUDs to women in east, west, and central Puerto Rico, including the greater metropolitan area of San Juan. As the contraceptive trials traveled with Satterthwaite, the trials and Satterthwaite became more directly linked with Puerto Rican medical professionals and organizations. In the 1960s, Satterthwaite served on the Board of Directors for Profamilia, enjoyed an appointment with UPR School of Medicine, and held positions associated with the Department of Health. These affiliations facilitated connection and collaboration with local birth control advocates like Zalduondo and an increased role for UPR School of Medicine in the field trials. In many ways, the 1960s realized a more public, indirectly state-sanctioned contraceptive trials, even though the public-private binary was not absolute for the field trials in the 1960s. As Satterthwaite herself drew away from Ryder in favor of state agencies like UPR and Puerto Rican-led groups like Profamilia, new, private funding sources from mainland US and international organizations flowed into her work, the contraceptive field trials, and even the public agencies. In particular, Satterthwaite's professional relationships and collaborations with representatives from the

Population Council, Planned Parenthood, and National Maternal Health Committee (NMHC) funded the growth of the trials and partially paid her salary. These connections led to another shift of the field trials in the 1960s related to the possibility of a more directly state-sponsored, public birth control program in Puerto Rico. Though not fully realized by her departure in 1966, Satterthwaite's and the trials connection with public figures in the capital area assisted in providing the evidence necessary to demonstrate a desire for a publicly funded options for contraception in Puerto Rico.[41] Indeed, participants' desire for contraceptives available through field trials by the mid-1960s served as a key justification for the Puerto Rican state pumping money into public birth control programs. This, in turn, suggested an increased public acceptance of the insular government-led population control, something that had been a taboo. Reflecting this change, trial participants' desire differed greatly from the hesitancy that surrounded Rice-Wray's affiliation with the Department of Health in the mid-1950s.

As previously discussed, my examination of Satterthwaite and, to a lesser degree, others who engaged in the trials, seeks to illuminate not only professional efforts but also personal aspirations in the making of the history of medicine. Here, it should be noted that my focus on Satterthwaite partially derived from the fact that one of the largest source bases for this dissertation is the personal collection of Satterthwaite homed at the Sophia Smith Collection of Women's History at Smith College. Made available for research in 2012 and visited by me in the summer of 2014, the collection's relative newness made it a treasure trove of information and different

[41] Ramírez de Arellano's and Seipp's *Colonialism, Catholicism, and Contraception* remains the most comprehensive account of birth control politics and programs in Puerto Rico during U.S. colonization from the perspective of programs and actors on the ground. Laura Briggs' *Reproducing Empire* does not fully parallel the content presented by Ramírez de Arellano and Seipp, but adds important insight to the ways contraceptives, birth control programs, and birth control politics intersected with U.S. colonialism. For a brief overview of the birth control movement in Puerto Rico, see, López, *Matters of Choice,* 3-19. For birth control politics in the Puerto Rican diaspora, especially as it relates to 1970s critiques of US colonialism and neocolonialism, see: Johanna Fernández, *The Young Lords: A Radical History* (Chapel Hill: The University of North Carolina Press, 2020): 233-270; Jennifer Nelson, *Women of Color and the Reproductive Rights Movement* (New York: New York University Press, 2003): 113-123.

perspectives on the trials not available to earlier scholars. To date, solely one published paper by Nicole C. Bourbonnais relies heavily on Satterthwaite's collection. Bourbonnais has utilized Satterthwaite's field journals to trace the tensions of international family planning and population control programs represented by mainland Americans on the ground in Latin America, Asia, and Africa through the Population Council.[42] Like Bourbonnais, I benefit from Satterthwaite's penchant for lengthy descriptions of her daily life and world around her to tease out the details of her professional life. Unlike Bourbonnais, however, I use Satterthwaite's weekly letters to her family rather than her professional field journal meant for consumption by her superiors. The fundamentally intimate nature of personal correspondences provides a window into Satterthwaite's interpretation, rather than the facts, of the world around her. I analyze these correspondences by comparing them to other sources, so as to delineate both personal and professional meanings of the trials for her and her coworkers. Satterthwaite's collection has also provided me with records on the everyday conduct of business at Ryder, staged and candid photographs of the trials (the opening anecdote derives from a photo in her collection) and participants, drafts of her research findings, and pamphlets from a variety of organizations on the island. For the records related to trial participants and patient experience at Ryder, I have made every effort to maintain the anonymity of participants and patients.

The Sophia Smith Collection also introduced me to the oral histories of Edris Rice-Wray and Adaline Pendleton Satterthwaite. Much like Satterthwaite's correspondences, these oral histories must be read as interpretations created in reflection. They are as indicative of the moment of creation in 1970s and 1980s as they are of the personal remembrances of youth and work in the trials. Edris Rice-Wray's archival collection was announced as open to the public for research in

[42] Nicole C. Bourbonnais, "Population Control, Family Planning, and Maternal Health Networks in the 1960s/1970s: Diary of an International Consultant," *Bulletin of the History of Medicine* 93, no. 3 (Fall 2019): 335-364.

2019 at Countway Library of Medicine at Harvard University. Unfortunately, its public availability occurred after the research stage of this dissertation bookended by the coronavirus pandemic of 2020-2021. As such, the bulk of my insights on Rice-Wray, especially those related to her personal thoughts and emotions, derives from her two oral histories and her publications on the field trials. I round out my primary source base with scientific and medical literature, organizational and institutional records from multiple Puerto Rican archives, and research notes and interview transcripts from documentary interviews of former trial participants.

If Satterthwaite's and Rice-Wray's contributions to the trials have been obfuscated by only recently available collections and gendered dynamics of medical research, the lived-experiences and contributions of social workers I. Rodríguez, N. Rodriguez, and MacDonald are even harder to ascertain. I relied on counter-readings of the physicians' personal memorabilia; I also paid close attention to the acknowledgment sections of the publications on the trials and vague titles like "the social workers" in the body of scientific articles, to even to begin to trace their history. Whereas personal remembrances illustrate as much about inter-professional collaboration and tensions in the field trials as they do the content of the social workers experiences, linking acknowledgements to phrases like social worker in peer-reviewed literature has been surprisingly illuminating. For example, I found I. Rodríguez identified as a "leader of the educational programs" in Reuben Hill's *The Family and Population Control*, a tome of a report on a multi-year research project concerned with birth control attitudes in Puerto Rico in the years prior to the field trials in Río Piedras.[43] By confirming that I. Rodríguez served in this position, I was able to follow the project research protocol to detail her training prior to the field trials and suggest how this experience informed her feedback on trial protocols in Río Piedras. I carried out similar analysis for N. Rodriguez and

[43] Reuben Hill, J. Mayone Stycos, and Kurt W. Back, *The Family and Population Control: A Puerto Rican Experiment in Social Change* (Chapel Hill, NC: The University of North Carolina Press, 1959).

MacDonald. Of the Humacao social workers, N. Rodriguez's lived experiences present less readily than MacDonald's due, in part, to MacDonald's and Satterthwaite's personal friendship and shared experience as missionaries. Overall, the relative dearth of direct primary sources made me realize the importance of looking at not only professional, but also personal, aspects of the field trials. This has made it possible for this dissertation to begin to address another important, yet relatively underexplored, question in the scholarship: how a range of different dimensions of researchers and participants shaped the effort to create an effective birth control program.

My attention to the female architects of the trials, shaped by the availability of the new primary sources, places this dissertation in contrast to earlier studies, which relied heavily on the archival collections of Rock, Pincus, and Gamble in the mainland U.S. to narrate the field trials. After looking into the archives of the key women figures, I wish I could circle back to the mainland archives to see some of the correspondences between the mainland architects and N. Rodríguez, which unfortunately do not exist in the archives I accessed. Nonetheless, my search for ground-level architects of the trials led me to archives in Puerto Rico, which bore important sources that have been little used in other works on the field trials. Nydía Colón, the head of public relations for Profamilia, provided photo copies of Profamilia's photos and institutional histories that enabled me to contextualize the trials within the organization's shifting goals of the 1950s and 1960s. At the Archivo General de Puerto Rico, I found letters written by the trials' architects to the governor and gained insight into their relations with the Department of Health from the Governor's Records. Archivo General also granted me access to the unprocessed records of pharmaceutical companies aiming to set up manufacturing in Puerto Rico between 1960s and 1980s. Though these records are mostly about the decades after what this dissertation covers and thus are not extensively used, the pharmaceutical companies' harkening to the field trials of contraceptives as evidence of their

"good history" on the island suggests the continued importance of the trials beyond the scope of this study. Once again, the field trials were more than a way station.[44]

I aimed to conduct oral histories of trial participants but was unsuccessful in this endeavor. To narrate participant experience, I relied on a critical reading of the peer-reviewed literature to generalize and specify participant experience. I used small anecdotes from the personal collections of the trial architects and scientific literature to get at the more qualitative experiences of participants, though these were always filtered through the goals of the researchers and articles. For the most qualitative discussion, I relied on partial transcripts of participant interviews for the 1999 documentary, *The Pill* by Erna Buffie and Elise Swerhone.[45] In addition to the transcripts, the creators provided me with their research journals and notes as a means to identify leads in Puerto Rico. I ultimately used these artifacts to elucidate the perspectives the film makers brought to the interviews and tensions they appeared to create between the interviewers and the interviewees. Recorded around the centennial of US colonization in Puerto Rico, Buffie and Swerhone forcefully framed many of their interviews along the binaries of colonizer-colonized, researcher-human guinea pig. Much like López's informants for her ethnography, trial participants equally pushed back as they affirmed the documentary maker's perceptions. For these participants, they made decisions if not choices.[46]

This dissertation's tight focus on the field trials of contraceptives in Puerto Rico illuminates the intricacies and intimacies of medical knowledge in the making by everyday medical practitioners and participants. The trials also provide a different angle from which to evaluate the

[44] Annette B. Ramírez de Arrellano's at Biblioteca Conrado F. Asenjo of UPR—Recinto de Ciencias Médicas includes interview notes from her research for *Colonialism, Catholicism, and Contraception* served a similar role as the physicians' oral histories, though with even more need for caution given they were interpretations of others' memories.
[45] Buffie and Swerhone, *The Pill*.
[46] The other complicating factor of the transcripts were their translation to English. Certain phrases made me pause to consider the variety of meanings, and I have tried to highlight the multitude of meanings the translations might include.

sea changes occurring in Puerto Rico between the 1940s and 1960s under the banner of populism, modernization, and industrialization amidst a changing colonial relationship with the mainland United States.

Nineteen forty-eight was an ambivalent year for Puerto Rico. It marked the first time Puerto Rican's themselves decided who acted as the governor, the highest political position on the island. Puerto Ricans elected Luis Muñoz Marín, de facto head of the *Partido Popular Democrático* (Popular Democratic Party, PPD) and then president of the Puerto Rican Senate. He took office on January 2nd, 1949. However, this grain of independence only re-inscribed the U.S.-Puerto Rican colonial relationship. The election of a governor, rather than a president, demonstrated the continued colonial ties to the United States. Muñoz Marín, and the Puerto Rico he governed, incurred increased autonomy, but not absolute separation from the United States. Interestingly, Muñoz Marín ascended to his governorship via a populist platform. Though colonialism constrained populist possibility, Puerto Rican populism still shared much with Latin American populism, as well as diverged from it in unique ways. In particular, recent historians of Puerto Rican populism have noted how Muñoz Marín was cautious to imbue the populist moment with unlimited revolutionary possibility by attending to his approach to issues of nationalism and gender.

The election of a Puerto Rican governor nicely conveys the ambiguity of Puerto Rico's relationship to the mainland United States, especially if we look at the passage of *Ley de la Mordaza* (Law Fifty-Three) in May of 1948. In his capacity as Senate president, Muñoz Marín orchestrated the passage of Law Fifty-Three, a gag order against any and all displays of Puerto Rican nationalism. Not utilized on a mass scale until 1952, the gag order made the Puerto Rican

flag, displayed in one's home, anathema to modern Puerto Rico[47]. As historian Eileen J. Suárez Findlay points out, modernity in Puerto Rico was not associated with independence. The nationalism, so central to other Latin American populists, had to be forged in the crucible of colonial encounters. Indeed, "by the mid-1940s, Luis Muñoz Marín and his faction of the PPD had decided to abandon any pretenses of interest in national independence, and instead attempted to expand elements of political home rule on the island while maintaining dependent economic ties between Puerto Rico and the United States."[48]

The separation of populism from nationalism and independence movements created a political discourse that sparked the support from rural, working class to the PPD at the same time as posited that agriculture was not the future of modernity. Findlay's *We Are Left Without a Father Here: Masculinity, Domesticity, and Migration in Postwar Puerto Rico* highlights how this balancing act was made possible by the rhetoric of paternalism. Using the little known case of Operation Farmlift, Findlay narrates why and to what avail a little over five-thousand rural Puerto Rican men left the island for rural Michigan to harvest sugar beets in the 1950s under the sponsorship of the Puerto Rican government. These men went to Michigan seeking gainful employment to support their families and reestablish their masculinity within the framework of a father providing economically for their families. Once in Michigan, however, they found a stark reality. They were often unable to find stable employment or return to their families in rural Puerto Rico. As such, many remained in the mainland United States. Although Findlay could not locate the farm workers' final residences, Findlay found that many did not stay in the agricultural lands

[47] The Puerto Rican criminalization of flags differ from Vargas' barring of state flags. Vargas' disavowal of local flags meant to create national rather than regional identity, whereas in the Puerto Rican case, it valorized and legitimized the colonizer. Nelson A. Denis, *War Against All Puerto Ricans: Revolution and Terror in America's Colony* (New York, NY: Nation Books, 2015), 105-107.

[48] Eileen J. Suárez Findlay, *We Are Left Without a Father Here: Masculinity, Domesticity, and Migration in Postwar Puerto Rico* (Durham: Duke University Press, 2014), 9.

of Michigan. They were lost from historical record. The failure of Operation Farmlift, and other economic factors, sparked demonstrations and advocacy by the farm workers and their wives back in Puerto Rico. Many letters began to arrive on Muñoz Marín's desk from wives demanding their husbands return home. These protests, whether voiced in letters directly to Muñoz Marín or in newspapers like *El Mundo*, Findlay argued, occurred simultaneously to the rise and supremacy of mid-century populism on the island that was supposed to provide the democratic inclusion of working class Puerto Ricans. And yet, Muñoz Marín did not take action to bring these fathers home to Puerto Rico. Findlay used this paradox, extreme dissatisfaction amidst the purportedly most people-centric era, to demonstrate, "the populist decades of the 1940s and '50s that so enduringly shaped Puerto Rican political life encouraged and incorporated gendered popular demands for homes, modernity, and dignity even as they excluded those voices deemed threatening to the core principles of productive modernity within a colonial framework."[49] Rather than a triumphalist tale speaking power to the PPD's platform *Pan, Tierra, y Libertad* (Bread, Land, and Freedom), Findlay uses gender to explain why populism did not deliver for the rural working classes of Puerto Rico.

Findlay argues how not only was populism paternalistic, but it remade gender expectations for the people it sought to inculcate in the nation. At the core of her argument, Findlay demonstrates that the domestic sphere is foundational to notions of masculinity. The PPD in general, and Muñoz Marín in particular, put forth the image of a father bringing in a family wage that enabled domestic bliss and security of his wife and child(ren) in a single-family home as the means for modernity. Even as said man/father, such as the men involved in Operation Farmlift, could not inhabit the dreamed-for single-family house, his labor provided for a domestic sphere.

[49] Findlay, *We are Left Without a Father Here*, 5.

And yet, as Findlay shows, such ideals were rarely attained by the men and women of Puerto Rico. In the case of Operation Farmlift, many men/fathers could not attain a family wage, let alone save enough money to purchase a home. Like in other populist moments in Latin America, the material promises of populism only partially panned out.

At the same time that Puerto Rican independence was constrained, politicians, elites, and indeed Puerto Ricans at large worked to envision a new, modern, and developed Puerto Rico. In particular, Puerto Ricans looked to populist Muñoz Marín and the PPD for a vision of the future. This future was to be carried out via modernization, industrialization, and migration. Thematically similar to other instances of populism in Latin America, the great difference is that the economic revolution was to occur through a more intimate relationship with the United States, without the threat or realization of nationalization of U.S. businesses.[50] This is in stark contrast to Brazil and Argentina, which took steps to curtail US free market exploitation. Such effort for nationalization was seen as antithetical to modernization and industrialization in Puerto Rico. Rather than nationalize industry, the insular government lifted barriers and provided tax exemptions to US-owned manufacturing. This resulted in the five insular-owned factories being sold to private interests. Yet, in the immediate aftermath of this two-hundred and thirty new plants opened and by "1956, the income generated by the manufacturing sector exceeded that of agriculture for the first time."[51] In this way, industrialization was not tied to nationalism for an independent Puerto Rico.

[50] César J. Ayala and Rafael Bernabe, *Puerto Rico in the American Century: A History since 1898* (Chapel Hill: University of North Carolina Press, 2009), 136-162.
[51] Amidst neoliberal economic policies, however, Puerto Ricans are bearing the ramifications of all these industries leaving. Ayala and Bernabe, *Puerto Rico in the American Century*, 190.

Muñoz Marín also looked to insular bureaucrats and activists, and American intellectuals, to form his notions of modernity.[52] One faction, consisting of social scientists, medical professionals, and insular activists argued that over-population prevented the realization of an industrial, and thus modern, Puerto Rico.[53] Muñoz Marín went on the record to agree that overpopulation might be the most pressing issue on the island, but he stopped shy of endorsing (at least publicly) contraception as a necessary state program for the betterment of the island. Instead, he vociferously advocated for industrialization as the panacea the state could and should provide.[54] Despite his side-stepping of contraception and birth control methods, his willingness to comment publicly on issues of population suggest that the pill and other contraceptives are concomitant projects born of a modernization ethos of mid-twentieth century of Puerto Rico populism and politics. Though populists of Latin America shared an interest in family and sexuality, the centrality of contraception and ideas of overpopulation were a singularly Puerto Rican manifestation of populism. An examination of the field trials in Puerto Rico, then, allow for an on-the-ground analysis of how populism, modernization, and development interacted with the growth of contraceptive research on the island.

Chapter One, "Attempting to Test in Modernizing Río Piedras: Professional Development, Family Life, and Gender in the Field Trials of Enovid, 1940s-1957," opens with the gendered pressures that prompted Rice-Wray's move to Puerto Rico in the 1940s and an overview of Rice-

---

[52] Michael Lapp, "The Rise and Fall of Puerto Rico as a Social Laboratory, 1945-1965." *Social Science History* 19, no. 2 (July 1, 1995): 169–99. doi:10.2307/1171509.

[53] Briggs, *Reproducing Empire: Race, Sex, Science, and U.S. Imperialism in Puerto Rico*; Ramírez de Arellano and Seipp, *Colonialism, Catholicism, and Contraception*.

[54] "Lo hago con much gusto porque entiendo que este problema de la población es posiblemente el más serio que confronta a nuestro pueblo. Lo creo de tan gran seriedad porque afecta prácicamenta a todos los demás grandes problemas de Puerto Rico … Para lograr este se proponen varias soluciones. Yo no estoy de acuerdo con todas las que se propenen," in "El Problema Poblacional de Puerto Rico: Sintesis del Foro Publico Celebrado Por la Asociación de Salud Publica," Box 1816, Folder 206.1, Oficina del Gobernador Tarea 96-20, Parte 1, Archivo General de Puerto Rico, San Juan, Puerto Rico.

Wray's and I. Rodríguez's involvement in the Family Life Studies (FLS) of Puerto Rican families prior to the 1956 Río Piedras field trials of Enovid. Their personal and professional experiences help contextualize the meteoric rise and fall of the trials of G.D. Searle & Co.'s Enovid in Río Piedras within the landscape of a changing Puerto Rico. By looking to how the ground-level architects of the field trials navigated projects and organizations affiliated with the Puerto Rican state-apparatus, the role of personal and political are explored through the professional trajectories of physician Edris Rice-Wray and social worker Iris Rodríguez. Rice-Wray and I. Rodríguez's involvement in the trials in Río Piedras were not a one-off, but part of a longer involvement in birth control research programs, public and private alike.

Chapter Two, "Realizing Rural Possibilities for Enovid: Protestant Missionaries, Gender, and Population Concerns on the Ground in the Humacao Trials of Enovid, 1952-1958," turns to the rural field trials of Enovid on the eastern end of the island. It begins with an overview of how and why Satterthwaite moved to Puerto Rico in 1952 and details her life as a physician, rather than researcher, at Ryder. By 1956, Satterthwaite developed colonial views of Puerto Rican femininity, masculinity, and family structures as in need of correcting, which prompted her to seek out means of contraception other than sterilization. As I show, this impetus partially explains the advent of the trials of Enovid to Humacao in 1956, but not completely. Satterthwaite and N. Rodriguez's work as the ground-level health professional, too, greatly contributed to the Enovid tests from 1956 to 1958. N. Rodríguez and Satterthwaite actively recruited for the trials; they also transformed and perpetuated contraceptive tests in the rural municipality. Throughout, this chapter draws a critical comparison between the Humacao trials and earlier Río Piedras counterparts as a means to explore the growth of the trials in Humacao for a decade.

Chapter Three, "FDA-approval of Enovid as a Way Station: Questions of Efficacy, Funding, and Growth in Satterthwaite's Trials of Contraceptive Pills and IUDs, 1959-1963," continues with the Humacao contraceptive trials. It narrates the growth of contraceptive field trials under Satterthwaite between the years 1959 and 1963. By highlighting the changing research questions and goals of the trails under Satterthwaite's supervision, the chapter argues that FDA-approval of Enovid as an oral contraceptive in 1960 was less influential to these trials than personal, professional, and local happenings. From a single contraceptive pill to many contraceptive pills and IUDs, the trials under Satterthwaite swelled during these years to include hundreds of women and new trial sites across the island. Amidst this growth, the trials remained private; no public funds or institutions affiliated with the growth of the trials in these years. As will be shown, this was because of the still-persistent public suspicion about publicly sponsored birth control methods as a tool of colonial domination by the mainland US.

Chapter Four, "Neither and Both: Theorizing, Accounting, and Narrating Participants' Experience in the Contraceptive Field Trials in Puerto Rico, 1957-1963," centers counting all the participants and analyzing the few qualitative sources available on participants' experience of the trials. This chapter looks across all of the contraceptive trials in Puerto Rico through 1963 to take stock of who, and how many women, consumed experimental contraceptives in the trials. Although deceptively simple, the question of how many individuals participated in the trials is a question that has been largely ignored by scholars. As I discuss, though, seeking seemingly uncomplicated facts about the number opens up a way to understand the multi-dimensional meanings of the trials from participants' perspectives. I will offer, then, a reframing of who participates, a reexamination on the role participants play in the creation of medical knowledge, and an evaluation of the power dynamics of participant interviews.

Chapter Five, "On Becoming a Public 'Cafeteria of Contraceptives': Birth Control Programs, the Population Council, and Return of Contraceptive Research to the Capital Area, 1963 to 1966," examines how tests shifted from field trials of specific contraceptives to evaluation of the likelihood of a public provision of birth control in 1963-1966. This chapter harkens back to trials of Enovid in Río Piedras in 1957, a time when publicly-funded and -advertised birth control program, let alone trials of new contraceptives, could not be sustained in the capital region of Puerto Rico. By the beginning of 1966, however, Satterthwaite and others were establishing a publicly-funded birth control program in the metropolitan area of San Juan and across the island. Additionally, these programs offered some of the contraceptives tested by Satterthwaite and her colleagues with private sponsorship, suggesting an unmistakable, if gradual, shift toward the general public's acceptance of birth control as a Puerto Rican project and practice. By following Satterthwaite's integration into the University of Puerto Rico and Department of Health, this chapter delineates this historical shift in Puerto Rico concerning birth control and its tests.

CHAPTER ONE

ATTEMPTING TO TEST IN MODERNIZING RÍO PIEDRAS: PROFESSIONAL DEVELOPMENT, FAMILY LIFE, AND GENDER IN THE FIRST FIELD TRIALS OF ENOVID IN PUERTO RICO, 1940s TO 1957

In the winter of 1954-1955, Puerto Rican, married couples piled into the atriums of local schools to participate in guided discussions on the "Puerto Rican Family." Master's students from the School of Medicine at the University of Puerto Rico (UPR) recruited the couples to attend these evening sessions. The couples in attendance might have patronized Department of Health clinics prior to the seemingly random knocks on their doors by the graduate students. If these couples lived near Río Piedras, a city in the metropolitan area of San Juan, and utilized public clinics for their healthcare needs, they might have received guidance from the Northeast Regional Director of the Department of Health, Edris Rice-Wray, a physician from the US mainland. If the couples did not live in Río Piedras, they had the option to visit Department of Health clinics in their respective region, private hospitals and clinics, or private physicians' offices to address their health needs. Regardless of how and where these couples received medical care prior to the sessions on the Puerto Rican family in 1954-1955, they arrived at those meetings because someone like Iris Rodríguez, a social worker and Master's student in the program of Health Education at UPR, successfully convinced them of the merit of discussing family relations.[1]

The Puerto Rican Family seminars of 1954-1955 consisted of three, one-hour sessions. In the second meeting, the invited couples watched the Puerto Rican Department of Health film, *Roots of Happiness*.[2] The film showcased a fictional family consisting of adolescent Juanito,

[1] Hill, Stycos, and Back, *The Family and Population Control,* x, 35, 275-278.
[2] Angeles Cebollero and María E. Díaz, "Action Research as a Method in Public Health Education," *American Journal of Public Health* 47, no. 10 (October 1957): 1266; Hill, Stycos, and Back, *The Family and Population Control,* 261-265.

teenage sister Petra, youngest brother Jesús, baby Conchita, and their loving parents.[3] The graduate student leaders encouraged the participating couples to see themselves and their neighbors in the starring family of *Roots of Happiness*.[4] Demographically, the similarity between the attendees and Juanito's family was readily apparent. Like the couples, the *Roots of Happiness* family did not live in San Juan proper nor its burgeoning metropolitan area. Juanito's and the couples' communities were semi-rural, but not isolated.[5] For example, Juan Tomás, Juanito's father, worked in agriculture alongside other men from his community, and his workplace was close to his family's home. Juan Tomás' worked so close to the family home that Juanito often ate lunch with his father in the fields Juan Tomás tended. This depiction, father and son eating together, bonding as they took a break from labor and learning, sent a clear message to the viewers of *Roots of Happiness*. Juan Tomás' gainful employment and proximity to home enabled a nurturing relationship between he and his children. Other scenes of *Roots of Happiness* demonstrated that Juan Tomás' job facilitated a collaborative partnership between he and his wife, María. The fictitious couple's ability to healthfully rear and educate their children was evidenced multiple times in the twenty-five minute film through depictions of loving embraces, plentiful meals, and leisure time spent together as a family. If the couples viewing the film had any question as to the cause of such familial success, the film narrator summed it up for them by way of an agricultural metaphor:

> Young trees and young children will need careful attention for a long time. A wise man never plants more trees than he can care for. Fewer trees, well-spaced, properly cultivated, will grow better than many trees planted too close together. It is a foolish man, who brags, 'look how many trees I have planted,' forgetting that he may not be able to care for them properly, forgetting how much water young trees need.[6]

---

[3] *Roots of Happiness*, presented by Department of Health—Puerto Rico (New York: Sun Dial Films Inc., 1953), http://resource.nlm.nih.gov/101685926.
[4] The session leaders were the Master's students who had recruited the couples. Hill, Stycos, and Back, *The Family and Population Control,* 276.
[5] Cebollero and Díaz, "Action Research as a Method in Public Health Education," 1267.
[6] *Roots of Happiness*, 15:42.

Through carefully crafted metaphors, group discussions, and persuasion tactics, the film and facilitated group discussions of 1954-1955 promoted the benefits of family planning for Puerto Rican families of the mid-1950s.

This chapter narrates the first successful, large-scale field trials of Searle's Enovid in Puerto Rico. These important trials began in Río Piedras in 1956 and lasted for a year at the discretion of the private, Puerto Rican organization Profamilia with guidance from the Massachusetts' research team under Gregory Pincus. In 1957, Pincus' team from the mainland US effectively took control of the Río Piedras trials. To explain why the Río Piedras trials were fairly autonomous for solely a year, this chapter examines the trials in the context of Puerto Rico's national modernization project, shaped in tension with US colonialism.

The field trials occurred against the backdrop of accelerating economic, political, and social changes in Puerto Rico.[7] In the 1930s and 1940s, Puerto Rican politicians, scholar-activists, and lay people began reconsidering and reconceptualizing Puerto Rico's agriculture-driven economy in the wake of massive unemployment. Many ideologies percolated on the island and in the diaspora during those years on how to correct Puerto Rico's failing economy, but the framework of modernization and industrialization by way of a new form of integration into the mainland US economy predominated by the late-1940s. No longer, argued modernization and industrialization proponents, should Puerto Rico solely provide the primary goods and agricultural antecedents for production. Puerto Rico should become a site for the manufacturing of goods. These ideas were epitomized by politician Luis Muñoz Marín and his party, *Partido Popular*

[7] Briggs, *Reproducing Empire*, 109-141; López, *Matters of Choice*,15-17; Marks, "'Cage of Ovulating Females,'" 233-235; Marks, *Sexual Chemistry*, 101-106; Ramírez de Arellano and Seipp, *Colonialism, Catholicism, and Contraception*, 109-129; Schoen, *Choice & Coercion*, 204-214; Tone, *Devices and Desires*, 220-227.

Democrático (Popular Democratic Party, PPD).[8] Specifically, the PPD's economic program, *Operación Manos a las Obra* (Operation Bootstrap) began in the late 1940s to create a "'productive modernity' based on the attraction of U.S. governmental and private capital for rapid industrialization, construction of infrastructure, and provision of social services."[9] An export-centric form of developmentalism, Operation Bootstrap resulted in the "more than one new factory a week [being] inaugurated … [However], as more US companies opened up, Puerto Rican-owned factories … were driven out of business … US factories created 37,300 new jobs, but the job losses among Puerto Rican manufacturers totaled 16,600."[10] The tension of decreasing local ownership of businesses and factories to achieve industrialization was exacerbated by the fact that the new jobs created by Operation Bootstrap in the 1950s and 1960s disproportionately employed women in light-manufacturing, not male breadwinners. This disparity was "in spite of [the PPD's] official public policy to promote more jobs for Puerto Rican men. The industries attracted by export-oriented incentives [relied] extensively on women workers," and resulted in approximately five-percent drop in labor force participation amongst men between 1950 and 1960.[11] During this same period, women increased in percentage of total employment on the island.[12]

The PPD's and Operation Bootstrap's failure to increase male breadwinners in the years of the field trials of Enovid in Río Piedras was all the more startling since, as Eileen J. Suárez

[8] For an overview of the political and economic debates of the 1930s through 1948, see, César J. Ayala and Rafael Bernabe, *Puerto Rico in the American Century: A History Since 1898* (Chapel Hill: The University of North Carolina Press, 2007): 95-116, 136-161.
[9] Eileen J. Suárez Findlay, *We Are Left Without A Father Here: Masculinity, Domesticity, and Migration in Postwar Puerto Rico* (Durham, NC: Duke University Press, 2014): 9.
[10] Juan Gonzalez, *Harvest of Empire: A History of Latinos in America*, revised edition (New York: Penguin Books, 2011): 253.
[11] Palmira N. Ríos, "Export-Oriented Industrialization and the Demand for Female Labor: Puerto Rican Women in the Manufacturing Sector, 1952-1980," *Gender and Society* 4, no. 3 (Sept. 1990): 322.
[12] Ríos, "Export-Oriented Industrialization and the Demand for Female Labor," 323-324. For overviews of Operation Bootstrap, see, Ayala and Bernabe, *Puerto Rico in the American Century*, 187-194; Findlay, *We Are Left Without A Father Here,* 57-61; 64-67; Emilio Pantojas-García, *Development Strategies as Ideology: Puerto Rico's Export-Led Industrialization Experience* (Boulder, CO: Lynne Rienner Publishers, Inc., 1990): 61-95.

Findlay and others have argued, the PPD's "populist politics in Puerto Rico [was] a deeply masculinist project."[13] Muñoz Marín's and the PPD's political power relied on promises of homeownership, modern families cared for by housewives, financially upheld by employed fathers, and a restoration of the "national family's dignity and honor by bringing it prosperity and protecting it from abuses by more powerful parties—such as the infamous sugar corporations or the US government. Instead of exploitation, [the PPD and Muñoz Marín] promised partnership and mutual respect between men of different classes and between the United States and Puerto Rico."[14] Such a sentiment rallied recently enfranchised women, as well as men, to support the new Puerto Rican constitution to become the *Estado Libre Asociado de Puerto Rico* (Free Associated State of Puerto Rico, colloquially the Commonwealth of Puerto Rico) that cemented the new colonial relationship between the US and Puerto Rico.[15]

A similar ethic of reshaping Puerto Rico animated smaller-scale, yet equally consequential, projects targeted at private life on the island. As politicians and civilians alike imagined a new Puerto Rico and economy, they found that the Puerto Rican family and its members, the units of economic production, merited examination and revamping in order to achieve an industrial modernity. For these actors, modernization did not solely rely on the advent of factories, but also on the creation of smaller, planned families in Puerto Rico and diasporic locations. One emigration program promoted the ideal of a modern and judicious family as beneficial to aspiring migrants. The Department of Labor-Migration Division used images of migrating families, rather than individuals, to emphasize the importance of preparation. The Migration Division encouraged all

[13] Findlay, *We Are Left Without A Father Here,* 9.
[14] Findlay, *We Are Left Without A Father Here,* 47.
[15] For an overview of the 1952 constitution and Commonwealth, see, Ayala and Bernabe, *Puerto Rico in the American Century*, 164-178. For a local example of women's key role in the PPD, see, Mary Frances Gallart, "Political Empowerment of Puerto Rican Women, 1952-1956," in *Puerto Rican Women's History: New Perspectives*, eds. Felix Matos-Rodriguez, Linda Delgado (Armonk, NY: M.E. Sharp, 1998) 227-252.

members of a migrating family to learn English and for those old enough to acquire trade-skills prior to moving stateside.[16] In their pamphlet *¿Qué Hace Esta Familia Puertorriquena?* (How Is This Puerto Rican Family Doing?), the Migration Division showed a Puerto Rican family enjoying communal activities on the island because they shared the Spanish language with their neighbors. Non-English speaking Puerto Rican families in the mainland US, on the other hand, could not do the simplest of activities like welcoming new friends into their home because the family did not speak the language of their adopted home. These families had failed to plan.[17] Though planning in the Migration Division's efforts meant intentional learning and judicious action, the same ethic of planning, measured action, and advertising Puerto Rico's modernity underlaid family planning and demographic conversations on the island. Within this milieu of creating a modern Puerto Rico, public and private organizations engaged theories of overpopulation and created family planning programs to contribute to the ground-level refashioning of Puerto Rico in the 1940s and 1950s.

The centrality of family planning and population ideas within public and private projects in Puerto Rico directly pertains to the field trials on Enovid. By linking the Río Piedras trials to other projects of the era, I aim to address the colonial nature of these medical ventures without reifying top-down colonial determinism. Diverse Puerto Ricans and mainland Americans considered and debated family planning, population control, and contraception in the context of modernization and industrialization efforts of the nation. They wondered, could efforts to modify Puerto Rican families and their dynamics facilitate the transformation of Puerto Rico and its economy to hasten a modern nation? These actors' answers differentially mobilized colonial and class differences to advocate for family planning and to develop Enovid. To fully consider these

[16] Clarence Senior to Apreciado Amigo, 13 November 1956, box 21, folder 1, Adaline Pendleton Satterthwaite Papers, Sophia Smith Collection, Smith College, Northampton, Mass. Hereafter APS Papers.
[17] *¿Qué Hace Esta Familia Puertorriqueña?* (New York: Commonwealth of Puerto Rico, Migration Division-Department of Labor, 1956), box 21, folder 1, APS Papers.

processes, we must carefully examine where family planning and population control projects unfolded in Puerto Rico. Initially, the Puerto Rican state and others turned to public organizations, like UPR and the Department of Health, to realize a new Puerto Rican family via social interventions. Ground-level architects of family-oriented programs were often public employees, but were also affiliated with private organizations, like Profamilia. The architects' tenuous connections to the state, however, ultimately curtailed what they could achieve in the area of family planning. When public outlets hit roadblocks, researchers pivoted to private organizations to continue research on contraceptives and the Puerto Rican family. This shift was precisely what happened in the trials in Río Piedras.

To clarify the context, this chapter focuses on the connections between personal and professional aspirations in two key female professionals who carried out the trials in the shifting settings. Ground-level actors' personal and professional journeys intimately shaped the field trials of Enovid in Río Piedras as well. The national and colonial facets of the trials cannot be understood without examining the lives of the trial leaders in Río Piedras: Edris Rice-Wray and Iris Rodríguez. The eventual medical director of the 1956 tests, Rice-Wray came to Puerto Rico in search of prestigious, professional opportunities, as well as economic security and independence, at a time when women of Rice-Wray's class and race were not supposed to work outside the home. Rice-Wray balked prescribed gender roles by moving to Puerto Rico after divorcing her husband. Yet, Rice-Wray remembered moving to Puerto Rico for other reasons. She went to Puerto Rico because she viewed the island as in desperate need of physicians and thus more permissive and hospitable to her professional goals.[18] For Rice-Wray, Puerto Rico's colonial status made it sufficiently

[18] Edris Rice-Wray, "Oral History of Edris Rice-Wray," interviews by Ellen Chesler and James Reed around 1978 and 14 March 1987, Edris Rice-Wray Oral History, Sophia Smith Collection, Smith College, Northampton, Mass., 44-47. Hereafter ERW OH.

different from her home in Illinois to desire and need her in positions that enabled her to break mainland gender boundaries. She took her first post at the Department of Health of Puerto Rico in the late 1940s. Based out of the Department of Health's clinic and training center in Río Piedras, Rice-Wray gained funding to pursue additional education.[19] The Department of Health allowed Rice-Wray to gain a Master's in Public Health at the University of Michigan, but the degree did not equate to a medical residency nor confer a formal, medical specialty upon her. Instead, Rice-Wray specialized her daily practice of medicine through continual engagement with women's health issues through a lens of public health. In the 1950s, Rice-Wray contributed to the Family Life Studies (FLS), a UPR-RP research project focused on issues of reproduction and family stability, due to her Department of Health affiliation and working knowledge of reproduction and public health.

The trials of Enovid generated new professional development and social mobility opportunities for social worker I. Rodríguez's like the they did for Rice-Wray. Prior to the tests in Río Piedras, I. Rodríguez worked at least two state agencies, the Puerto Rican Housing Authority (PRHA) and either the Department of Health, Department of Education, or the Foreign Operation Administration.[20] Because of I. Rodríguez's employment at public agencies, training as a social worker, and connection to health policy and programs, she gained state funds for post-

[19] Briggs, *Reproducing Empire*, 138; ERW OH, 46; Marks, "'Cage of Ovulating Females,'" 235; Marks, *Sexual Chemistry*, 101; Ramírez de Arellano and Seipp, *Colonialism, Catholicism, and Contraception*, 112. Tone does not highlight Rice-Wray's position with the Department of Health in *Device and Desires*, and instead focuses on her later affiliations with Profamilia and UPR. See, Tone, *Devices and Desires,* 222.

[20] For I. Rodríguez's employment at the Puerto Rican Housing Authority, see, Edris Rice-Wray, "Field Study with Enovid as a Contraceptive Agent," in *Proceedings of a Symposium on 19-Nor Progestational Steroids*, foreword by Irwin C. Winter (Chicago: Searle Research Laboratories, 1957), 78; Edris Rice-Wray, "Study Project of SC-4642," box 58, folder 23, Margaret Sanger Papers (unfilmed), Sophia Smith Collection, Smith College, Northampton, Mass. Hereafter MS-Unfilmed. For I. Rodríguez's employment at other Puerto Rican agencies, see, Cebollero and Díaz, "Action Research as a Method in Public Health Education," 1265; Hill, Stycos, and Back, *The Family and Population Control,* 35.

undergraduate training at UPR-RP in the field of Health Education.[21] As a student, she led some of the FLS's outreach programs and honed her understanding of the communities and families she served. Her training in Health Education and FLS affiliation also led to her job with Profamilia, the Puerto Rican family planning organization. First through the FLS and then Profamilia, I. Rodríguez moved closer to the center of the burgeoning family planning projects of 1950s Puerto Rico as a researcher.

In this chapter, I focus on the FLS and these two women's contributions to the project in order to delineate the connection between the trials of Enovid in Río Piedras and other Puerto Rican family planning projects. I also correlate the FLS and trials of Enovid to the ethos of modernization and transformation in Puerto Rico during this time. Scholars have clearly connected the Río Piedras trials to earlier birth control programs and contraceptive research in Puerto Rico.[22] However, the existing literature does not link the FLS and Enovid trials, nor does it consider the FLS as a training ground for the Enovid researchers in Río Piedras.[23] And yet, narrating Rice-Wray's and I. Rodríguez's involvement in the FLS allows us to better understand their relationship within the long stretch of the trials that extended well beyond the ones in Río Piedras. The methodological parameters of the FLS hint at the interprofessional dynamics that aided and complicated the two women's later collaboration in the trials of Enovid. As a physician and social

[21] Cebollero and Díaz, "Action Research as a Method in Public Health Education," 1265; Hill, Stycos, and Back, *The Family and Population Control,* 35.

[22] Briggs, *Reproducing Empire*, 135-136; Marks, "A 'Cage of Ovulating Females," 227-236; Marks, *Sexual Chemistry*, 96-101; Ramírez de Arellano and Seipp, *Colonialism, Catholicism, and Contraception*, 109-115.

[23] Briggs and Ramírez de Arrellano both address the FLS and Río Piedras trials in their works. However, Briggs and Ramírez de Arrellano frame the two projects as similar, but distinct, examples of the growing importance of overpopulation to colonial power or the Puerto Rican government's public silence but private support of birth control and overpopulation, respectively. Raúl Necochea López focuses exclusively on the FLS, but his framework of the FLS as a "key site of contestation and accommodation regarding family planning between local and foreign actors" best encompasses the dynamics of the FLS and trials of Enovid. See, Briggs, *Reproducing Empire*, 120-121; Ramírez de Arellano and Seipp, *Colonialism, Catholicism, and Contraception*, 95-96; Raúl Necochea López, "The Puerto Rico Family Life Study and the Cold War Politics of Fertility Surveys," in *Peripheral Nerve: Health and Medicine in Cold War Latin America*, ed. Anne-Emanuelle Birn and Raúl Necochea López (Durham, NC: Duke University Press, 2020): 110, 109-127.

worker laboring in different arenas to develop of oral contraception, tensions emerged over whose work mattered. Despite the strain between them, both women fundamentally shaped the trials in Río Piedras. The historical invisibility of these women's contribution to medicine does injustice to their actual work. Both women were ground-level architects of the trials because they generated foundational knowledge on Enovid and how to best conduct contraceptive research in the field. Recognition of these women's important contributions, however, does not change the fact that they benefited from racialized, classed, and colonial views of Puerto Rican homes, families, and their limitations.

Although state and professional agencies of the era were largely supportive of family planning and birth control, the trials in Río Piedras were nonetheless conducted through the private agency, Profamilia. Scientific articles, personal memories of the trials, educational materials distributed in Puerto Rico during the 1950s, and the relevant secondary literature mostly present Río Piedras as a hospitable location for the trials of Enovid. Personally, professionally, and ideologically, the Puerto Rican state and professionals laboring on the island seem amicable and encouraging of new forms of birth control. Why, then, did the trials of Enovid in Rio Piedras under Rice-Wray and I. Rodríguez fail to gain governmental support by 1957? As this chapter shows, personal experiences and professional collaborations, entangled with an increased national scrutiny over public allocation of resources and opinion, played key roles in the trials' failure to gain the state's support. This, in turn, led to the relatively quick end of the trials under Rice-Wray and I. Rodríguez.

Edris Rice-Wray: Seeking Professional Recognition and Personal Independence

In 1978, Rice-Wray was seventy-four years old and settled into retirement in her adopted home of Cholula, Puebla, Mexico. Over twenty years had passed since she served as the medical

director for the first, successful iteration of field trials of Enovid. Scholars like Ellen Chesler sought to document the momentous advent of the trials and birth of the pill by interviewing aging architects like Rice-Wray. Chesler's questions to Rice-Wray made clear that she recognized Rice-Wray's work as influential to the realization of oral contraception and birth control research broadly.[24] As such, Chesler focused on Rice-Wray's ground-level leadership of the trials in Río Piedras.

Chesler appeared eager to find out how Rice-Wray had recruited women to take the experimental pill.[25] To answer Chesler's question on participant enrollment, Rice-Wray contextualized Puerto Rican women's desire for a reversible form of contraception by discussing sterilization practices in Puerto Rico before the advent of Enovid. Rice-Wray explained that, as she remembered, affluent women went to their private physicians and working-class Puerto Rican women to publicly funded, Department of Health clinics in order to "deliver in the hospital. And if they were in a hospital they could ask for a sterilization afterwards; three days later would be the sterilization. So it was very common and very popular."[26]

Rice-Wray correctly depicted sterilization as common amongst Puerto Rican women, but her interpretation of sterilization as "popular" glossed over the complicated history of sterilization in Puerto Rico. The prevalence of sterilization amongst Puerto Rican women on the island and mainland arose from personal decisions, made in coercive situations, amidst a host of national and

[24] According to the transcripts, Ellen Chesler interviewed Rice-Wray in 1978 and James Reed interviewed her in 1987. However, the date of interviews is disputable because Satterthwaite's oral history is part of the Schlesinger-Rockefeller project, and she encouraged James Reed to interview Rice-Wray in 1974. Chesler also worked with the oral history project. See, Adaline Pendleton Satterthwaite, Family Planning Oral History Project Interviews, 1973-1977, OH-1; T-25; M-138; A1-3, Interview XX:. Schlesinger Library on the History of Women in America, Radcliffe Institute for Advanced Study, 18-19, hereafter APS OH; ERW OH, 1.
[25] ERW OH, 62-64.
[26] ERW OH, 63. For hospital versus home births during the 1950s, see, Isabel M. Córdova, *Pushing in Silence: Modernizing Puerto Rico and the Medicalization of Childbirth* (Austin, TX: University of Texas Press, 2017): 49-83.

international programs that disproportionately directed women of color to sterilization.[27] Nonetheless, Rice-Wray interpreted the preponderance of sterilization as evidence of Puerto Rican women's desire to control their reproduction. Rice-Wray shared her former secretary's experiences to demonstrate the problems of female sterilization in mid-twentieth century Puerto Rico and link these issues to the trials in Río Piedras.[28] Rice-Wray explained:

> I remember being startled because my little secretary was only 26, had two children and was going to be sterilized…I was kind of horrified and I thought, "Well, you may be sorry, because…you might lose your children, you might marry again and want children," and there was no way to stop them. It was a habit. I mean it was a thing that they did, and it was accepted and the women were determined not to have more children, and they didn't want them. So you see there was plenty of motivation [for contraception].[29]

Rice-Wray's memories make apparent her belief that Puerto Rican women desired a means to control how and when they gave birth. Additionally, Rice-Wray's use of the diminutive "little secretary" and possessive language of "my" suggest her hierarchical view of health workers. Clearly in Rice-Wray's view, the secretary was subordinate to her professionally and possibly in personal terms, as well.

Rice-Wray's discussion of Puerto Rican marriages hint at her idea that Puerto Rican marriages were primarily a procreative bond and thus fragile. Because of her association of marriage and reproduction, Rice-Wray likely reasoned that a reversible form of contraception was necessary to sustain partnerships. Wives need not always be pregnant, but pregnancy needed to be an option to maintain Puerto Rican marriages. Rice-Wray's linking of marriage stability and need

---

[27] Briggs, *Reproducing Empire*, 142-161; Gordon, *The Moral Property of Women*, 342-347; López, *Matters of Choice*, 142-155; Ramírez de Arellano and Seipp, *Colonialism, Catholicism, and Contraception*, 134-148; Schoen, *Choice & Coercion*, 197-216. For a documentary account, see, *La Operación*, dir. Ana María García.

[28] Rice-Wray's qualms with sterilization aligned with the ideologies of 1950s modernizers, not feminist and nationalist critiques of the 1970s. For the mobilization of sterilization campaigns as a means to critique colonialism in Puerto Rico, see, Fernández, *The Young Lords*, 260-269; Gordon, *The Moral Property of Women*, 344-347; Nelson, *Women of Color and the Reproductive Rights Movement*, 121-126. For Puerto Rican modernizer's support of sterilization, at least privately, as an option, see, Briggs, *Reproducing Empire*, 148-152; Ramírez de Arellano and Seipp, *Colonialism, Catholicism, and Contraception*, 138-145.

[29] ERW OH, 63.

for a new contraceptive suggest how racialized views of gender and families structured her involvement in the trials of the first birth control pill.[30] Although the relative lack of personal sources from Rice-Wray prevent a full delineation of her thoughts on sterilization, the few available sources suggest that she entertained racialized, colonial, and gendered ideas of Puerto Rican families and reproduction.[31] These ideas, in turn, fomented her recruitment of the trials of Enovid to Río Piedras. Interestingly, however, sources by Rice-Wray more abundantly discuss her personal experiences and desire to be a specialized physician as catalysts for her involvement in contraceptive trials. Becoming the medical director of the trials of Enovid in Río Piedras was part of her life quest to reach the highest echelons of medical prestige as she tried to balance family obligations and navigate barriers to female physicians in the mid-twentieth century.

Rice-Wray's desire to specialize predate her tenure in Puerto Rico. However, it was the opportunities provided to her as a public health director in the Department of Health in Puerto Rico that helped her realize her goals of specialization. Family obligations and economic insecurity intimately shaped Rice-Wray's professional development prior to her arrival in Puerto Rico. Rice-Wray married a businessman during her medical education at Northwestern University in Chicago, and she set her sights on having a child as soon as she finished her degree. Part of Rice-Wray's impetus for this timeline was her male classmates' insistence that she could not graduate and have a child.[32] By the final year of her medical education in 1932, Rice-Wray was happily pregnant and on track to graduate. She proudly shared with Chesler that many of her male colleagues were

[30] Scholars have explored this theme in the trials, but not from the perspective of the ground-level architects. See, Briggs, *Reproducing Empire*, 156-158; Córdova, *Pushing in Silence*, 6-7, 56-57; López, *Matters of Choice*, 17; Ramírez de Arellano and Seipp, *Colonialism, Catholicism, and Contraception*, 141-142; Schoen, *Choice & Coercion*, 208-217.
[31] Rice-Wray's personal collection did not become available until 2019, after the research stage of this dissertation. For the finding aid, see, Edris Rice-Wray Papers, Harvard Medical Library, Francis A. Countway Library of Medicine, Boston, Mass., https://id.lib.harvard.edu/ead/med00694/catalog
[32] ERW OH, 33.

mesmerized by her dual accomplishments, "So, as the boys sa[id], 'And she had it!' How'd she ever bring it out…how'd she ever do it on schedule?"[33] Motherhood, however, introduced barriers to Rice-Wray obtaining a residency after completing medical school and thus specializing.[34] At a time when women felt social pressure against attending medical school, let alone practicing, going on to a specialized residency likely represented too much transgression of not only gender, but also class. She might be a physician and mother, but in Illinois, a specialized-physician-mother went too far beyond appropriate middle-class femininity.[35] Social pressures and cultural attitudes prevented Rice-Wray from specializing directly after medical school, but so, too, did economic need and the dynamics of her marriage. Rice-Wray needed to begin working as soon as possible.

Rice-Wray's began her professional career in general medicine at nearly the same time she began motherhood. Although she was happy to receive her male peers' praise for having done it all "on schedule," Rice-Wray's tone in her oral history suggested that general practice frustrated her. Unhappy but resigned to the realities of her era, Rice-Wray rhetorically asked, "But what can you do if you have a baby? There's conflict."[36] Paradoxically, Rice-Wray's marriage and her role as a mother did set her on a path to focus her practice on women's health and issues of reproduction, albeit without specializing in gynecology nor obstetrics.[37]

---

[33] ERW OH, 34.
[34] ERW OH, 35.
[35] For female medical students' experiences navigating internships, residencies, and specialization in the 1930s, see, Kenneth M. Ludmerer, *Let Me Heal: The Opportunity to Preserve Excellence in American Medicine* (Oxford, UK: Oxford University Press, 2015): 181-184; Kenneth M. Ludmerer, *Time to Heal: American Medical Education From the Turn of the Century to the Era of Managed Care* (Oxford, UK: Oxford University Press, 1999): 82-89, 94; Ellen S. More, *Restoring the Balance: Women Physicians and the Profession of Medicine, 1850-1995* (Cambridge, MA: Harvard University Press, 1999): 108-111; George Weisz, *Divide and Conquer: A Comparative History of Medical Specialization* (Oxford, UK: Oxford University Press, 2006): 193-195.
[36] ERW OH, 35.
[37] The American Board of Obstetrics and Gynecology (ABOC), the organization that certifies specialization in this field by way of examination, was created in 1930. Edris Rice-Wray did not sit for the ABOC exam. Ludmerer, *Time to Heal*, 88.

Rice-Wray needed an extra income in order to keep her family financially afloat in the early days of her career. Her husband, as she explained, "never could support [the family]. So, he never did more than pay for more than half the expenses even when he was working."[38] Evidently, then, her husband's business was not successful enough to support a family of three.[39] Rice-Wray's husband's inability to provide a family wage represented failure for a middle-class, white man, even in the economic trials of the 1930s. A pinnacle of union advocacy and working-class identity in the first decades of the twentieth century, the family wage placed economic security and prosperity at the feet of husbands and fathers. The husband alone was deemed the breadwinner and tasked with earning sufficient wages to sustain the family, while the wife was placed as lead of domestic, private life.[40] Hence, in the era of the family wage, Rice-Wray's need to finance the family strained her marriage.[41] Conflict also arose because Rice-Wray desired to labor outside the home as a professional, independent of her family's financial need. A middle-class wife who willingly working outside the home as a professional compounded the strain of her husband's inability to support the family.[42] Unlike other suburban mothers in Evanston, Illinois, Rice-Wray was not the wife to "take [her] husband to the train, and…put him on the train, and…take the kids to school,…and go get the laundry and…go to the super and all that stuff…the wives were

[38] ERW OH, 44.
[39] Rice-Wray's first daughter was born in 1933, and her second daughter arrived in 1939. ERW OH, 36.
[40] For the contestations and negotiations over the family wage in Chile, see, Karin Alejandra Rosemblatt, *Gendered Compromises: Political Cultures and the State in Chile, 1920-1950* (Chapel Hill: The University of North Carolina Press, 2000): 59-94.
[41]Dorothy Sue Cobble, *The Other Women's Movement*: *Workplace Justice and Social Rights in Modern America* (Princeton, NJ: Princeton University Press, 2004): 116-119; Linda Gordon, *Pitied But Not Entitled: Single Mothers and the History of Welfare* (Cambridge, MA: Harvard University Press, 1994): 53-59; Heidi Hartmann, "Capitalism, Patriarchy, and Job Segregation by Sex," *Signs* 1, no. 3 (Spring 1976): 137-169. For
[42]ERW OH, 41. For a discussion of how men and women argued against women's employment if the husband had a job during the Great Depression, see Alice Kessler-Harris, *A Woman's Wage: Historical Meanings and Social Consequences*, updated edition (Lexington, KY: University Press of Kentucky, 2014): 66-74. For how New Deal Era programs like Social Security and old-age insurance upheld the male breadwinner, see, Alice Kessler-Harris, *In Pursuit of Equity: Women, Men, and the Quest for Economic Citizenship in 20th-Century America* (Oxford, UK: Oxford University Press, 2001): 132-141.

doing."[43] Less than twenty percent of white women held consistent employment during the 1930s.[44] The financial tension within Rice-Wray's marriage, coupled with her transgression of prescribed middle class femininity, facilitated the couple's ultimate divorce and encouraged Rice-Wray to seek out as many sources of income as possible.

As her marriage deteriorated, Rice-Wray took on additional jobs beyond her commitments as a general practitioner in Evanston. Rice-Wray staffed pop-up, women's health clinics in Chicago that were sponsored by the Illinois Birth Control League (IBCL) and located at Hull House and other parts of the city.[45] Rice-Wray's clinics brought in some, if not copious, amounts of money to supplement her primary job. Even in her private practice, though, Rice-Wray found that women specifically came to her to discuss their reproductive health. Whether assisting Northwestern University coeds in Evanston or working-class women seeking birth control from IBCL programs, she began to ponder maternal health issues beyond her own with more frequency. To be certain, Rice-Wray did not gain credentials in obstetrics and gynecology, but she accrued experiential knowledge about the possibilities and limits of contraception during her time as a clinician in Chicago. In this way, she began to specialize her medical practice informally.[46]

Amidst her work in reproductive health clinics in the Chicago area, Rice-Wray divorced her husband in the early 1940s. Her marriage's dissolution further pushed her to seek out positions that helped her augment her income. Despite her added economic precarity, Rice-Wray did not abandon her professional goals. She retained her aim to increase her prestige as a physician via specialization. She felt "embarrass[ed], frankly, not to have a specialization, because everybody

[43] ERW OH, 42.
[44] Kessler-Harris, *In Pursuit of Equity*, 138.
[45] Chesler, *Woman of Valor*, 226-227; Diana C. Haslett, "Hull House and the Birth Control Movement: An Untold Story," *Affilia: Journal of Women and Social Work* 12, no. 3 (Fall 1997): 261-277; Hajo, *Birth Control on Main Street*, 37, 91-92, 145-147.
[46] ERW OH, 37-39.

had them."[47] The confluence of World War II's impact on job opportunities for women in the United States, Rice-Wray's divorce, and her notions of the world beyond Chicago altered Rice-Wray's calculation of how to achieve economic stability as a single mother and medical specialization in the 1940s.

As scholars have shown, World War II changed employment opportunities for women in the United States as men joined the war effort. White women who were married, middle-class, and/or older were welcomed to the workforce in order to fill the vacancies left by enlisting men and to address the growing demands of a wartime economy. The active recruitment of these groups of women starkly contrasted to the 1930s rhetoric which aimed to prevent these same women from wage labor. To be certain, concerns about how women could effectively balance family obligations as they moved onto the factory floor persisted, but such anxieties existed alongside wartime propaganda celebrating their labor as part of the war effort.[48] Middle-class Black women, as well as working-class and single women of all races, had worked prior to the outbreak of the second World War. However, the changing home front economy did provide new opportunities for them in higher paid jobs than they previously possessed, despite postwar attempts to move them to pink-collar jobs.[49] Even though many of the newly available jobs to women related to industrial production, Rice-Wray found that "when the men went, all the practice fell to me. So I cleaned up when the boys were away."[50]

---

[47] ERW OH., 44.
[48] Melissa A. McEuen, *Making War, Making Women: Femininity and Duty on the American Home Front, 1941-1945* (Athens, GA: The University of Georgia Press, 2011): 181-184, 187-190; Elaine Tyler May, *Homeward Bound: American Families in the Cold War*, 20th anniversary edition (New York: Basic Books, 2008): 66-68.
[49] Cobble, *The Other Women's Movement*, 13-15; Elizabeth R. Escobedo, *From Coveralls to Zoot Suits: The Lives of Mexican American Women on the World War II Home Front* (Chapel Hill: The University of North Carolina Press, 2013): 73-101; Marilyn E. Hegarty, *Victory Girls, Khaki-Wackies, and Patriotutes: The Regulation of Female Sexuality during World War II* (New York: New York University Press, 2008): 110-127; McEuen, *Making War, Making Women*, 184-187.
[50] ERW OH, 43.

Why then, might Rice-Wray, yearning for economic stability and greater control of her professional trajectory, step away from increased income at her private practice by going to Puerto Rico? First, Rice-Wray might have desired a fresh start, in a new place, that did not highlight her new divorcee status. The context of women's employment in World War II also facilitated her switching jobs. Rice-Wray might have rationalized that more employment opportunities would also be open to professional women like for women entering into factories and military service. Second, Rice-Wray likely conceived of nations outside the United States as fundamentally different, more permissive, and in need of a physician, regardless of her status as a woman. In Rice-Wray's mind, more opportunities existed because cultural norms were different and places around the world were in desperate need of American assistance. She envisioned Puerto Rico as being on the periphery of this US-centered world, a place where opportunity might develop in ways inaccessible in Illinois.[51] No absolute rationale manifests in Rice-Wray's memories concerning her assumptions. However, her actions and their context suggest her belief that traveling abroad to work might provide a specialized position and economic security.

A few other facets clarify why Rice-Wray moved to Puerto Rico and accepted the specific job she did. After her divorce, Rice-Wray began learning Spanish. A Spanish-speaking country in which she could use her language skills, then, had its perks. Second, Rice-Wray's jobs in Chicago inculcated in her a love for clinics over private practice. To be certain, Rice-Wray initially began clinic work to stabilize her finances, but overtime she gained fulfillment working in community-focused clinics. Third, Rice-Wray possessed a bit of a rebellious streak, a desire to know and

[51] ERW OH, 44. Many works have highlighted how women used colonized, peripheral, and occupied spaces to balk their own prescribed gender norms. Examples include, Sarah A. Curtis, *Civilizing Habits: Women Missionaries and the Revival of French Empire* (Oxford, UK: Oxford University Press, 2010); Elizabeth Harvey, *Women and the Nazi East: Agents and Witnesses of Germanization* (New Haven, Conn.: Yale University Press, 2005); Mire Koikari, *Pedagogy of Democracy: Feminism and the Cold War in the U.S. Occupation of Japan* (Philadelphia: Temple University Press, 2008).

experience life beyond her inherited realm. She found her Chicago suburbs and the mentality of its community members, "terribly isolationist…that [mainland Americans] didn't have to be involved in the rest of the world. And it was stifling."[52]

Because of professional goals and personal experiences in World War II-era Chicago, Rice-Wray wrote to agencies all over Latin America seeking employment. However, each nation-state to whom she wrote required her to take additional coursework or sit for licensing exams prior to accepting patients. Unwilling to delay seeing patients, Rice-Wray continued to look for other employment opportunities outside of Chicago. Serendipitously, a Puerto Rican friend in Chicago wrote on her behalf to the Department of Health in Puerto Rico. After a series of exchanges, the Department of Health in Puerto Rico offered her the directorship for the Tuberculosis (TB) Sanitarium without a specialty in public health nor extensive experience with the disease. With this offer, Rice-Wray moved to Puerto Rico in 1948.[53] Yet, Rice-Wray never led the TB Sanitarium in Puerto Rico because of staffing changes in the Department of Health prior to her arrival. Instead, she became the medical supervisor of the North District health clinics. She took this position explicitly due to finances, but also because it appeared to add another layer of prestige and an opportunity for specialization. She remembered:

> one doctor said, 'well why don't we make her Supervisor of the North District?' And I said, 'what does that mean, supervisor of the north district?' 'Well, it's a hundred more dollars a month.' And I said, 'that's great, I'll take it.' So they changed me to a public health doctor. It was very common, informal. But then after a year and a half, the Puerto Rican government gave me a scholarship to study public health [at] the University of Michigan.[54]

The Puerto Rican government rewarded Rice-Wray her with more prestigious positions in the Department of Health after she completed her studies in 1950 at the University of Michigan.

[52] ERW OH, 45.
[53] ERW OH., 45.
[54] ERW OH, 46.

In the 1940s, Rice-Wray could not have known that the Puerto Rican government would provide her two of her deepest desires: a means to credentialed specialization and more economic recourse.[55] Moreover, she could not have anticipated that the Puerto Rican government's investment in her education would assist in her becoming an innovator in family planning and contraception by rendering her the medical lead of the first, large-scale trials of Enovid in Puerto Rico. Rice-Wray's path towards becoming the ground-level, medical director of the trials was winding and accidental. However, Rice-Wray's journey to Puerto Rico illustrates how her personal aspirations coalesce with her professional objectives. Both were circumscribed by the 1950s gender expectations in the United States, and furthered by social and cultural norms unique to Puerto Rico. Upon completion of her Master's of Public Health, Rice-Wray earned a promotion in the Department of Health. Guillermo Arbona, Director of the Division of Public Health in the public agency, appointed Rice-Wray as director of the island's Public Health Field Training Center in Río Piedras.[56] Rice-Wray's promotion introduced her to social workers like I. Rodríguez, nurses, and physicians who came in for continuing education before being deployed to clinics and communities across the island. As head of public health training in a government-run organization, Rice-Wray also aimed to improve the provision of maternal health and family planning services at a structural level. Rice-Wray had always found her clinical work in reproductive health rewarding, but her new position enabled her to shift her focus to effecting change through policy and program suggestions. She did this through affiliating with emerging, birth control groups in the 1950s, a kind of experience that would make her particularly useful in the Enovid trials years later.[57]

---

[55] Public Health was not a board-certified specialty until 1948. I use "credentialed specialization" to recognize Rice-Wray's Master's of Public Health and differentiate it from board certification. Ludmerer, *Time to Heal*, 88.
[56] Guillermo Arbona, *Memorias: Periplo Profesional de un Arquitecto de la Salud Pública en Puerto Rico* (San Juan, PR: La Editorial Universidad de Puerto Rico, 2007): 52, 54-55; Rice-Wray, "Field Study with Enovid," 78-85; ERW OH, 46-47.
[57] ERW OH, 55-56.

As this section has demonstrated, Rice-Wray's aspiration for professional prestige and fiscal security brought her to Puerto Rico. Gender prescriptions for middle-class, white women curtailed Rice-Wray's ability to serve as a specialized physician within the United States and caused problems in her marriage. As will be evidenced later in this chapter by examining the day-to-day operations of the trials of Enovid in Río Piedras, Rice-Wray's professional drive and character shaped the conduct of the trials of Enovid in 1956. However, neither Rice-Wray's personal character nor professional zeal singularly enabled the trials in Río Piedras nor her earlier access to government-sponsored educational opportunities. Rice-Wray envisioned her professional opportunities in Puerto Rico as distinct from her options in the metropole, but the Department of Health's investment in her training was not unique in Puerto Rican contexts. Rather than an exceptional instance of support for a mid-level public employee, Rice-Wray was one of many professionals in Puerto Rico to receive state-sponsored continuing education and training during the 1940s and 1950s. Rice-Wray's and others' educational opportunities arose from shifts within Puerto Rican government, politics, and educational institutions. Before examining the trials in Río Piedras, then, it is important to pause in the years just prior to the Enovid trials to investigate Rice-Wray's surroundings as part of sociopolitical changes taking place in Puerto Rico.

The next section introduces the changing environs of Puerto Rico in order to delve into how public employees, like Rice-Wray and social worker I. Rodríguez, became enmeshed in government-affiliated, if not explicitly endorsed, research projects prior to the trials of Enovid. Though not linear forbearers to the field trials, projects conducted by UPR, its affiliates, and other public institutions explored the family and reproduction in Puerto Rico. These studies served as de facto trainings for the ground-level architects of the trials of Enovid in Río Piedras.

Public Ventures in Fertility: The Family Life Study (FLS)

UPR and other public agencies like the Department of Health expanded as part of the revisioning of Puerto Rico under the PPD and Muñoz Marín in the 1940s and 1950s. The PPD, most famously through its economic program Operation Bootstrap, recruited American industries to the island as a means of realizing industrial modernity and creating a new relationship with the United States.[58] Puerto Rico's export-driven industrialization was bolstered by populist and gendered rhetoric found in other state-led development agendas throughout Latin America. Like some Latin American populists of the time, the PPD argued that economic transformation required an investment in public institutions, a new national consciousness, and an increased role for the state.[59] However, the PPD's version of industrialization by way of state-led development and populism differed in important ways from similar programs in Argentina, Brazil, and Mexico. Whereas Puerto Rico actively welcomed mainland US investment and companies, populist governments in Latin America sought to grow their domestic industries through import-substitution and increased economic separation from the US.[60] Regardless, the PPD and Puerto Rican government did not myopically focus on the island's economy. At the same time that PPD

[58] For Muñoz Marín's and the PPD's paternalism, see, Findlay, *We Are Left Without A Father Here*, 25-58.

[59] For the debate on the ramifications of Operation Bootstrap, compare, Ayala and Bernabe, *Puerto Rico in the American Century*, 179-181, 187-194; Michael Lapp, "The Rise and Fall of Puerto Rico as Social Laboratory, 1945-1965," *Social Science History* 19, no. 2 (Summer 1995): 169-199; A.W. Maldonado, *Luis Muñoz Marín: Puerto Rico's Democratic Revolution* (San Juan, PR: La Editorial Universidad de Puerto Rico, 2006): 276-28; Marcia Rivera, "The Development of Capitalism in Puerto Rico and the Incorporation of Women into the Labor Force," in *The Puerto Rican Woman: Perspectives on Culture, History, and Society*, second edition, ed. Edna Acosta-Belén (New York: Praeger, 1986): 40-43; Helen I. Safa, "Female Employment and the Social Reproduction of the Puerto Rican Working Class," in *The Puerto Rican Woman: Perspectives on Culture, History, and Society*, second edition, ed. Edna Acosta-Belén (New York: Praeger, 1986), 88-93.

[60] For a gender analysis of populist programs and industrialization in Latin America, see, Eduardo Elena, *Dignifying Argentina: Peronism, Citizenship, and Mass Consumption* (Pittsburgh: University of Pittsburgh Press, 2011): 154-199; Daniel James, *Doña María's Story: Life, History, Memory, and Political Identity* (Durham, NC: Duke University Press, 2000); Karen Kampwirth, ed., *Gender and Populism in Latin America: Passionate Politics* (University Park, PA: Penn State University Press, 2010); Jocelyn H. Olcott, *Revolutionary Women in Postrevolutionary Mexico* (Durham, NC: Duke University Press, 2005); Rosemblatt, *Gendered Compromises*; Joel Wolfe, "'Father of the Poor' or 'Mother of the Rich'? Getúlio Vargas, Industrial Workers, and Constructions of Class, Gender, and Populism in Sao Paulo, 1930–1954," *Radical History Review*, no. 58 (1994): 80–111.

officials like Teodoro Moscoso welcomed American companies to the island, Chancellor Jaime Benitez of the UPR and Secretary of Health Juan A. Pons diligently worked to accrue local and international funds for the expansion of their respective public institutions.[61] Benitez, in particular, facilitated the development of new organizations within UPR to provide the theoretical and practical services necessary to complement the advent of industrialization and "modernity" to Puerto Rico.

Within the milieu of modernizing Puerto Rico through national institutions, *Centro for Investigaciones Sociales* (Social Science Research Center, CIS) was created in association with the College of Social Sciences at UPR-RP in 1945.[62] The CIS was an autonomous center that was neither the sole arbiter of social scientific research at UPR nor singularly staffed by the College of Social Sciences' faculty. The CIS possessed direct links to UPR's administration and the Puerto Rican government that influenced the center's research agenda.[63] CIS's projects interrogated the concerns of a Puerto Rican government aspiring to a radical transformation of society, as well as embodied the mid-twentieth century belief that academic experts could and should ascertain the means for social change.[64] Additionally, the CIS was a source of ideological tension between faculty and students, deployed discriminatory pay practices based upon researchers' national identity and/or place of educational training, and favored scholars aligned with the PPD.[65] CIS

[61] Arbona, *Memorias, 68-75;* Guillermo Arbona and Annette B. Ramírez de Arellano, *Regionalization of Health Services: The Puerto Rican Experience* (Oxford, UK: Oxford University Press, 1978): 17-19; Lapp, "The Rise and Fall of Puerto Rico as Social Laboratory," 177-179; A.W. Maldonado, *Teodoro Moscoso and Puerto Rico's Operation Bootstrap* (Gainesville, FL: University Press of Florida, 1997): 81-102.
[62] Lapp, "The Rise and Fall of Puerto Rico as Social Laboratory," 178.
[63] For the diversity of perspectives within UPR's social science faculty, see, Jorge Duany, "¿Modernizar la Nación o Nacionalizar la Modernidad? Las Ciencias Sociales en la Universidad de Puerto Rico durante la Década de 1950," in *Frente a La Torre: Ensayos del Centenario de la Universidad de Puerto Rico, 1903-2003*, eds. Silvia Alvarez Curbelo and Carmen Rafucci (San Juan, PR: La Editorial Universidad de Puerto Rico, 2005), 176-207.
[64] Briggs, *Reproducing Empire*, 118.
[65] Ayala and Bernabe, *Puerto Rico in the American Century*, 203-205; Duany, "¿Modernizar la Nación o Nacionalizar la Modernidad?," 179-182; Lapp, "The Rise and Fall of Puerto Rico as Social Laboratory," 169-199; Raúl Necochea López, "The Puerto Rican Family Life Study," 110-129.

directors never hesitated from showing their alliance with PPD goals and ideals. Their research centered "population pressure, industrialization, the distribution of economic benefits, culture fusion and conflict, and federal relations with the American union," all of which pertained to various PPD passions.[66] Despite the close relationship between the CIS and Puerto Rican government, institute directors did not see the CIS as exclusively political nor scholarly. As the second CIS director Millard Hansen explained to donors, "the attempt is made to select projects which avoid alike the immediate practical utility often desired by government agencies and the purely general scientific interest often displayed scholars."[67] He used the framework more explicitly to preface the CIS's FLS project that spanned the 1950s.

The FLS is one of the most widely recognized CIS ventures because it hints at a central tension of the PPD's modernization efforts.[68] The PPD and its government believed that modernization and industrialization would revolutionize Puerto Rico. However, officials also knew that modernization required more than building factories. The Puerto Rican population needed to change in character and in size. Emigration was publicly discussed as related to Operation Bootstrap.[69] However, the PPD's explicit support for contraception and population control as an accompaniment to emigration constantly shifted. Whereas Senator Muñoz Marín of the 1930s and early 1940s openly supported birth control, Governor Muñoz Marín and his

---

[66] Millard Hansen, "The Family in Puerto Rico Research Project," in *Approaches to Problems of High Fertility in Agrarian Societies: Papers Presented at the 1951 Annual Conference of the Millbank Memorial Fund*, foreword by Frank G. Boudrea and Clyde V. Kiser (New York: Millbank Memorial Fund, 1952), 53.
[67] Hansen, "The Family in Puerto Rico Research Project," 53-54.
[68] Briggs, *Reproducing Empire*, 116-122, 155-156; Lapp, "The Rise and Fall of Puerto Rico as Social Laboratory," 181-182; Necochea López, "The Puerto Rico Family Life Study," 111-115; Ramírez de Arellano and Seipp, *Colonialism, Catholicism, and Contraception*, 95-96; 125.
[69] Jorge Duany, *The Puerto Rican Nation on the Move: Identities on the Island and in the United States* (Chapel Hill, The University of North Carolina Press, 2002): 166-176; Findlay, *We Are Left Without a Father Here*, 90-117; Lugo Ortiz, "Sterilization, Birth Control, and Population Control," 87-93; Luis Muñoz Marín, "The Commonwealth of Puerto Rico-A House of Goodwill" (speech, Annual Convention of the International Ladies Garment Workers' Union, Atlantic City, NJ, May 18, 1956); Ramírez de Arellano and Seipp, *Colonialism, Catholicism, and Contraception*, 82-92.

government took a more tepid stance. As Muñoz Marín explained to an American, family planning researcher, "I am not afraid to fight anybody, but I prefer not to fight it if necessary. That's why I speak about the 'battle of production' instead of birth control, but what I mean is the same thing: a lack of equilibrium between population and resources."[70] Muñoz Marín's statement was neither excoriating nor a resounding endorsement of contraception. Instead, his ambivalent stance allowed for auxiliary public institutions and private agencies to pursue investigations into how family dynamics and compositions might assist in the restructuring of Puerto Rico. The CIS was sufficiently removed from the inner circles of the PPD government to allow for studies of population control, like the FLS, in the 1950s. The FLS cannot substantiate a conscious population control effort by the PPD, but rather supports Annette B. Ramírez de Arellano's formulation of a "policy of private support for and public disavowal of birth control" by the Puerto Rican state in the 1940s and 1950s.[71]

Hence, my analysis of the FLS highlights its entanglements within a complex web of agents considering birth and population control in Puerto Rico. My review of the FLS details how the study was a collaborative effort across public and private agencies. This is important as the FLS can be connected to the subsequent trials of Enovid in Río Piedras. Specifically, Rice-Wray and I. Rodríguez, the ground-level architects of the Enovid trials of 1956, assisted in two stages of the CIS's longitudinal study *The Family and Population Control*, a subset of the FLS.[72] By attending to how these two women became staffed the FLS, my analysis complicates an implicit

[70] Christopher Tietze, "Report #19 to Clarence Gamble," October 9, 1946, quoted in Ramírez de Arellano and Seipp, *Colonialism, Catholicism, and Contraception*, 97. Also quoted in, Laura Briggs, *Reproducing Empire*, 115. The Governor's Office released a similar statement to *El Mundo*, one of the major newspapers of Puerto Rico, in 1949. The formal statement is quoted in, William J. Kelly, *A Cost-Effectiveness Study of Clinical Methods of Birth Control: With Special Reference to Puerto Rico* (New York: Praeger Publishers, 1971): 49.
[71] Ramírez de Arellano and Seipp, *Colonialism, Catholicism, and Contraception*, 97. A similar argument appears in, Lugo Ortiz, "Sterilization, Birth Control, and Population Control," 75-78.
[72] Hill, Stycos, and Back, *The Family and Population Control*, ix-x.

binary deployed in the history of reproductive research on the island. Scholars have often distinguished social scientific research on the Puerto Rican family and population from medical research on contraception happening on the island.[73] And yet, as I show, social scientific researchers and medical researchers were not two separate camps exchanging ideas, but instead a coalition of professionals studying reproduction from all angles. At least some Puerto Ricans of the 1950s cared whether social scientific and contraceptive research were being carried out by public or private agencies.[74] In practice, however, a clear divide between public and private backing did not exist in the FLS nor clearly in the later trials of Enovid in Río Piedras. Both Rice-Wray and I. Rodríguez held state-funded and privately financed jobs. Hence, the FLS served as a training ground for both architects even before the official start of the trials of Enovid in 1956.

Spearheaded by academics like Reuben Hill on sabbatical to the CIS, the FLS sought to reframe conversations of population dynamics and underutilization of birth control by Puerto Ricans "from a societal problem to an individual family problem."[75] Hill and his CIS collaborators pursued the individualization of population problems through practical means. The CIS team "wanted to test ways in which different types of possible programs could be introduced inconspicuously within … existing agency facilities … to test their effectiveness in producing change in families exposed to them."[76] Between 1951 and 1958, the FLS progressed from a pilot study to a one thousand family survey, then concluded with an experiment in which a single community was exposed to two forms of educational propaganda.[77] The survey and field

[73] Briggs, *Reproducing Empire*, 115-141; Córdova, *Pushing in Silence*, 51-57; Necochea López, "The Puerto Rico Family Life Study," 124-127; Ramírez de Arellano and Seipp, *Colonialism, Catholicism, and Contraception*, 95-123.
[74] Lugo Ortiz, "Sterilization, Birth Control, and Population Control," 96-97; Marks, "'Cage of Ovulating Females," 236; Marks, *Sexual Chemistry*, 105-106; Ramírez de Arellano and Seipp, *Colonialism, Catholicism, and Contraception*, 116; Rice-Wray, "Study Project of SC-4642," MS-Unfilmed, 3-4.
[75] Hill, Stycos, and Back, *The Family and Population Control,* 40.
[76] Hill, Stycos, and Back, *The Family and Population Control,* 253.
[77] For the earlier CIS study of the family, see, J. Mayone Stycos, *Family and Fertility in Puerto Rico* (New York: Columbia University Press, 1955).

experiment required a diverse cast of participants and professional collaborators. Researchers were recruited from the CIS, other UPR programs, government offices, and private agencies. The FLS team recruited patrons from nine Department of Health centers and two municipal hospitals for the survey.[78] The field experiment followed in 1954-1955. FLS researchers thought "a population living in rural … country … and of eighth grade or less education intact families, where the youngest child was less than five years old, where there was no indication of infertility and no regular use of standard birth control methods (condom, diaphragm, jelly, or rhythm), and where the wife was not pregnant," was ideal.[79] The FLS research pulled CIS affiliates, students from UPR's College of Social Science, professionals from the Department of Health, and graduate students from the School of Medicine to build a diverse team of established and emerging research professionals. In particular, the alliance amongst the CIS and School of Medicine "was the first experience for both staff and the students in working in cooperation."[80] Through these new alliances, Rice-Wray and I. Rodríguez became involved in the survey and experimental portions of the FLS.

In 1952, Rice-Wray began meeting with Puerto Ricans and Americans in Puerto Rico to discuss the "population problem" on the island. As other historians have illustrated, there existed a connection among family planning, birth control, and population control in the 1950s, though the exact nature of the relationship differed place to place.[81] For one, Rice-Wray told Chesler that the "family planning association that we set up in Puerto Rico, we *were* concerned with population

[78] Hill, Stycos, and Back, *The Family and Population Control,* ix.
[79] The field experiment ultimately encompassed a wider swath of family types in a single community due to desired sample size, Hill, Stycos, and Back, *The Family and Population Control,* 258.
[80] Cebollero and Díaz, "Action Research as a Method in Public Health Education," 1268.
[81] For a sampling of the vast literature, see, Nicole C. Bourbonnais, *Birth Control in the Decolonizing Caribbean, 1930-1970* (New York: Cambridge University Press, 2016): 76-127; Nilanjana Chatterjee and Nancy E. Riley, "Planning an Indian Modernity: The Gendered Politics of Fertility Control," *Signs* 26, no. 3 (Spring 2001): 811-845; Gordan, *The Moral Property of Women*, 279-291; Tiana Norgren, *Abortion Before Birth Control: The Politics of Reproduction in Postwar Japan* (Princeton, NJ: Princeton University Press, 2001): 36-52.

control because the population was growing very rapidly and the island was very small and we wanted to do something about it."[82] Trained to serve the individual in medical school and attend to group dynamics in public health, Rice-Wray joined Emilio Confesí, Millard Hansen, José Janer, Catalina Lube, and J. Mayone Stycos to form an action group to create concrete suggestions for future birth control programming and population control in Puerto Rico.[83] The 1952 action group derived from the *Asociación de Estudios Poblacionales* (Association for Population Studies), an antecedent to Profamilia.[84] The action group aimed to promote a state-sponsored birth control service. As they explained to Muñoz Marín in a letter,

> The problem can only be solved by a program founded upon decisions of the highest political level … The population is growing so rapidly that families and public institutions are unable to provide adequate maintenance, schools, health protection, and jobs for the new members of the community. Sexual continence, industrialization and migration, all of which might reduce the gap between the number of births and the number of deaths, are insufficient for this purpose. Only a vastly increased and effective program of birth control can slow the swift growth of the population.[85]

The action group, however, failed to inspire the PPD to develop a state sponsored birth control program. The PPD's inaction directed the group to look elsewhere for support. Hence, after training in public health, Rice-Wray worked in public and private ventures on the island in the 1950s, eventually joining the newly formed Profamilia as its medical director. Evidently, then, Profamilia arose, in part, due to a lack of a "government sponsored insular wide program of birth

---

[82] ERW OH, 59-60.

[83]For the published works of some of the signees, see, Emilio Cofresí, *Maltusianismo o Neomaltusianismo: Nuestro Gran Problema* (San Juan, PR: Editorial Cultural, 1968); Catalina Lube and Angeles Cebellero, "Puerto Rico Launches an Island-Wide Program of Health Education," *The High School Journal* 30, no. 3 (May 1947): 129-130.

[84] Briggs, *Reproducing Empire*, 132; Carmen M. Rivera Céspedes, "Recuento Histórica de PROFAMILIA," January 14th, 2003, Organizational Records of Asociación Puertorriqueña Pro Bienestar de las Familias, Clínica Celestina Zalduondo, San Juan, Puerto Rico, 5, hereafter Profamilia Papers; Ramírez de Arellano and Seipp, *Colonialism, Catholicism, and Contraception*, 94-95.

[85] Emilio Confesí, Millard Hansen, Edris Rice-Wray, and J. Mayone Stycos to Luís Muñoz Marín, "Memorandum on the Population Problem," 16 February 1953, folder 206.1, box 1815, Oficina del Gobernador, Tarea 96-20, Parte 2, Archivo General de Puerto Rico, Instituto de Cultura Puertorriqueña, San Juan, Puerto Rico.

control" in the 1950s.[86] Rice-Wray still hoped for a public tackling of the population issues. If direct engagement with the highest echelons of Puerto Rican government could not generate a response to the population issue, then maybe a more indirect venture might generate results. With this likely in mind, Rice-Wray and others from across the island became involved in the FLS.

Rice-Wray did not author any of the FLS publications, but she shaped the FLS by consulting on over one thousand surveys conducted through the Department of Health. First, Rice-Wray conducted the FLS's survey in the health center to see how her patients responded to being approached for an interview in the clinic. Rice-Wray later counseled graduate students affiliated with the FLS on how to position themselves within the clinic to optimize participation. It is likely that these earlier experiences led to the strategic placement of interviewers within the health clinics. FLS interviewers found that a specific spatial arrangement "not only secured 3,000 pre-list interviews in a short period of time, but [enabled] intimate questions in what seemed like part of the out-patient routine."[87] Rice-Wray also used Department of Health letterhead for written communications requesting clinic patients to participate in the surveys to further assist in legitimacy.[88]

In the experimental stage of the FLS, Rice-Wray served as a source of medical knowledge for interviewers going into the field. Rice-Wray helped lead a three-day training session and "lectured the group at her health center, explaining techniques of contraception, the biology of reproduction, and an explanation of the attempts being made within the Department of Health to reduce the Commonwealth's high fertility rate."[89] Hill feared that "to hear a continental professor talking about these problems might leave the Puerto Rican with the idea that these were academic

[86] Profamilia began in 1954. Emilio Confesí, *et al.*, "Memorandum on Population Problem in Puerto Rico."
[87] Hill, Stycos, and Back, *The Family and Population Control,* 37.
[88] Hill, Stycos, and Back, *The Family and Population Control,* ix, 33-38.
[89] Hill, Stycos, and Back, *The Family and Population Control,* 414.

problems imported by an outsider, rather than ones with which Puerto Ricans themselves were concerned."[90] In the earliest days of the FLS, Hill naively thought that having a Department of Health physician, rather than himself, providing the lectures would sufficiently allay fears of the FLS as a colonizing project by mainland academics. Quickly, however, Hill realized that strong connections to state agencies threatened the longevity of the project and generated criticisms from the PPD and those critical of the PPD government.

I. Rodríguez solely appears in the FLS's acknowledgements as part of a list of student "health educators" involved the experimental stage.[91] Hence, I. Rodríguez's role in the FLS requires a deeper look into the health educators to intuit her experiences and contributions. As describred in *The Family and Population Control*, Rice-Wray most intimately worked with interviewers in the survey and experimental stages of the study, not the health educators. I. Rodríguez served as a health educator within the selected community for the FLS experiment, so she did not necessarily participate in the training sessions ran by Rice-Wray. The experimental portion of the FLS required two sorts of field agents between 1954 and 1957: health educators to carry out the propaganda campaigns on reproduction and the family (1954-1955), and interviewers to assess the effects of the educational programs (1955-1957). Scholars to this point have focused primarily on the interviewers who came from the CIS and College of Social Sciences of UPR.[92] However, the health educators possessed connections to governmental agencies of Puerto Rico and School of Medicine.

[90] Hill, Stycos, and Back, *The Family and Population Control,* 414.
[91] Hill, Stycos, and Back, *The Family and Population Control,* x; Lapp, "The Rise and Fall of Puerto Rico as Social Laboratory," 169-199; Necochea López, "The Puerto Rico Family Life Study," 124-127; Duany, "¿Modernizar la Nación o Nacionalizar la Modernidad?," 176-207.
[92] Lapp, "The Rise and Fall of Puerto Rico as Social Laboratory," 181-182; Necochea López, "The Puerto Rico Family Life Study," 119-124.

Between 1953 and mid-1954, the CIS reached out to the Department of Public Health in UPR's School of Medicine to recruit master's students in the school's Health Education program to staff the experiment.[93] The FLS brought together three units of the university (the CIS, College of Social Science, and School of Medicine) and involved representatives from governmental agencies. The health educators "were on fellowship appointments from the local Department of Health and Department of Education and the Foreign Operation Administration."[94] Hence, FLS health educators like I. Rodríguez held positions within national organizations, studied at the UPR School of Medicine due to public fellowships, and worked alongside social scientists from the CIS and College of Social Science. This composite program shows how the Puerto Rican state was not reticent to invest in a wide array of public workers like Rice-Wray and I. Rodríguez.

By agreeing to participate in the FLS, the program in Health Education and their graduate students created their own course to prepare for fieldwork. The graduate students developed some of the FLS's educational program for families because I. Rodríguez and twelve other graduate students desired to put their training into action and to learn reflective techniques.[95] For the Health Education program directors and graduate students, participation in FLS was offered as a springboard for their professional development and future actions in their community. Hill and his colleagues hoped participation in the program would imbue "continued interest in family planning…[and assure] for Puerto Rico a group of health educators who will cooperate actively with any future program in family planning."[96]

---

[93] Cebollero and Díaz, "Action Research as a Method in Public Health Education," 1265.
[94] Hill, Stycos, and Back, *The Family and Population Control,* 35. The FLS served as both continuing education for practicing professionals like I. Rodríguez and as a training ground for future health professionals. In, Cebollero and Díaz, "Action Research as a Method in Public Health Education," 1265.
[95] Cebollero and Díaz, "Action Research as a Method in Public Health Education," 1267.
[96] Hill, Stycos, and Back, *The Family and Population Control,* 265.

After completing their graduate course, I. Rodríguez and her fellow graduate students turned to conducting the study in pre-selected communities in semi-rural Puerto Rico. The actual fieldwork consisted of graduate student-led, educational programs between February and May of 1955.[97] The aspiring health educators engaged communities either though "a series of three meetings or three pamphlet distributions."[98] I. Rodríguez's specific assignment to the meeting cohort or pamphlet distribution cohort cannot be confirmed from the existing FLS literature, but experiences gained from either endeavor provide insight into her influences prior to the trials of Enovid in Río Piedras. I. Rodríguez's work as a FLS health educator proceeded in one of two manners. As a member of the pamphlet cohort, I. Rodríguez would have learned the skills necessary for cold calling participants. She would have honed her ability to have succinct, culturally acceptable, conversations on the possibly sensitive topics of reproduction and birth control.[99] She would have also learned the importance of knowing the comings-and-goings of families because "only in extreme cases did she leave a pamphlet with a neighbor" rather than the family she was tasked with recruiting.[100] If I. Rodríguez worked on a three-person team for the meetings portion of the field experiment as she likely did, she would have mastered similar cold-calling skills. Meeting leaders had to ensure "the first contact was always a direct visit by the group leaders, who introduced themselves, described the meetings on family problems which were going to be held, and invited both husband and wife to the meeting."[101] Serving as a meeting leader would have allowed I. Rodríguez to hone skills that would eventually be influential to the trials of

[97] Cebollero and Díaz, "Action Research as a Method in Public Health Education," 1267.
[98] Hill, Stycos, and Back, *The Family and Population Control,* 263.
[99] Hill, Stycos, and Back, *The Family and Population Control,* 266-273.
[100] Hill, Stycos, and Back, *The Family and Population Control,* 273.
[101] Hill, Stycos, and Back, *The Family and Population Control,* 276.

Enovid. Specifically, she would have learned how to help community members intuit how birth control might improve their future in Puerto Rico.

The short film *Roots of Happiness*, the film that opens this chapter, provides a clear example of how health educators guided meeting attendees to understand the importance of birth control. *Roots of Happiness* was shown in the second meeting. The film juxtaposes two families negotiating semi-rural life: Juanito's happy, openly communicative family and an unnamed, much larger, and more destitute family. Juanito's whole family, but his mother specifically, is presented as happy and prosperous. The film implies that Juanito's familial bliss and success arise from appropriately spaced children by way of agricultural metaphors about well-spaced trees and properly tended crops. Juanito's mother and father could nurture their children to be successful adults because the parents made plans on when to have children. The unnamed mother, on the other hand, had "too many children, too much fighting, too much anger…[which] made [her] a nagging, bitter wife, and … the husband a selfish bully."[102] As meeting discussions likely covered, family stability, healthy marriages, and prosperous children hinged on the judicious decision making of parents.

Whether facilitating front-porch discussions of pamphlets or leading group meetings, clear linkages present between I. Rodríguez's time as a FLS health educator and her later engineering of the trials in Río Piedras. In the FLS, I. Rodríguez learned the necessary skills to connect with community members and convince them of the importance of family planning. She was the face of new birth control options and a new sort of family. Similarly, Rice-Wray's involvement in the FLS an important step in her transition towards a career in family planning in Puerto Rico that began in the Department of Health and culminated with her leading the field trials Enovid. Beyond

[102] *Roots of Happiness*, 15:42.

the personal and professional connections, one additional facet of the FLS helps contextualize why the trials were publicly linked to Profamilia rather than the public organizations.

The FLS was staffed and carried out by professionals with clear connections to public agencies. As the study concluded and the leaders began to interpret the data, one might assume that the findings would identify national organizations as the future purveyors of family planning in Puerto Rico. Such national investment in birth control programs had been the goal of the action group just a few years prior. Yet, *The Family and Population Control*, the published version of this part of the FLS, did not identify any public organization as the best path forward for birth control in Puerto Rico. Rather, the tome identified the Profamilia. Hill wrote,

> This private agency is peculiarly adopted to undertake pioneering projects which established public agencies will not be equipped or authorized to carry out. It is the most flexible of all the agencies…considered, and may be best used to fill the gaps left by other agencies. Especially, however, experimentation, survey research, and exploitation of the mass media are open to a private agency with its own independent source of funds.[103]

Hill's support of private agencies like Profamilia as the mantle bearers of birth and population control appears incongruous with the CIS's goals. Recent insights from historian Raúl Necochea López explain why Hill might have emphasized the private Profamilia rather than the Department of Health or other public agencies. As Necochea López shows, "The FLS nearly ended in disaster when university authorities, under pressure from PPD leaders, threatened to censor the project's final report in 1958."[104] As high-level PPD politicians learned of the FLS's explicit suggestion that population control was necessary for societal uplift and modernization, they applied pressure to the CIS to tame Hill's findings to avoid political backlash. Even among the promoters of modernization projects, overt support for population and birth control programs

[103] Hill, Stycos, and Back, *The Family and Population Control,* 387.
[104] Necochea López, "The Puerto Rico Family Life Study,", 124.

remained combustive.[105] A few factors help explain why PPD officials attempted to quell any proclamation that the government desired population control and family planning programs, despite the government's private support for such program. First, anything that provoked the image of Puerto Rico receiving directions from the US mainland sparked the ire of the *Partido Independentista Puertorriqueño* (Puerto Rican Independence Party, PIP), a prominent minority party in Puerto Rico politics. [106] The government also feared Hill's suggestions would incur vocal protests from the Catholic clergy.[107] Thus, PPD leaders sought to minimize threats to their power by obscuring the connection between their government and birth control programs. The PIP did not need additional fodder to fuel their argument that the PPD was US colonialism under a local guise, and the Catholic clergy did not need more reasons to distance themselves from the PPD. Additionally, we must consider who in Puerto Rico were most likely to read Hill's *The Family and Population Control*. Although the study itself focused on rural communities, the FLS's results were most accessible to people in the capital area. When Hill submitted his part of the FLS for publication in 1958, there had already been public condemnation in a capital newspaper for the trials of Enovid in Río Piedras and their possible connection to Puerto Rican state agencies.[108] In the capital area, the PPD needed to keep birth control and population control rhetoric at arm's length.

Hill ultimately gained support from the CIS and UPR to publish *The Family and Population Control,* but university admonishments and attempts to curtail the FLS's findings likely

[105] Necochea López, "The Puerto Rican Family Life Study," 124-126.
[106] The PIP formed in 1946 from PPD defectors and other pro-independence groups over Muñoz Marín's abandonment of independence as a viable option for Puerto Rico. Ayala and Bernabe, *Puerto Rico in the American Century*, 157, 201-202.
[107] Briggs, *Reproducing Empire*, 115.
[108] The famed article appeared in *El Imparcial* (*The Impartial*)*,* the second largest newspaper in Puerto Rico at the time. Marks, *Sexual Chemistry*, 105; Ramírez de Arellano and Seipp, *Colonialism, Catholicism, and Contraception*, 116; Tone, *Devices and Desires,* 223. For a comparison of *El Mundo's* (*The World*) and *El Imparcial's* stance on birth and population control, see, Lugo Ortiz, "Sterilization, Birth Control, and Population Control," 232-242.

encouraged him to throw his support to Profamilia. Additionally, some of Hill's FLS collaborators helped start Profamilia. Rice-Wray served as the first medical director of Profamilia, and I. Rodríguez was a social worker at the organization during the mid-1950s. The tensions surrounding the publication of the Hill's part of the FLS suggest at least some reasons why Rice-Wray and I. Rodríguez emphasized their Profamilia affiliation during the conduction of the trials of Enovid and why Profamilia, an organization whose mission initially centered researching new contraceptives, could not sustain the trials for more than a year under the two former FLS participants.[109]

The Río Piedras Trials of Searle's Enovid Under Rice-Wray and I. Rodríguez

The first large-scale, field trials of Enovid began in April 1956 under Rice-Wray's and I. Rodríguez's direction. The structure of the trials necessitated a physician to provide medical guidance and observation and a social worker to recruit and follow up with participants. In Río Piedras, social worker I. Rodríguez served the crucial role of engaging participants. As ground-level medical lead, Rice-Wray used her medical and public health acumen to answer safety and efficacy questions on Enovid.[110] By analyzing the scientific literature on the trials and architects' personal remembrances, this section argues that I. Rodríguez's professional experience and local knowledge affected the trials of Enovid in Río Piedras just as much as Rice-Wray's medical expertise did.[111]

To attend to the foundational labor of Rice-Wray and I. Rodríguez, this section more completely narrates the day-to-day doing of medical science in Río Piedras and the professional

[109] Rivera Céspedes, "Recuento Histórica de PROFAMILIA," 5.
[110] Pincus *et al*., "Fertility Control with Oral Medication," 1333-1346; Rice-Wray, "Field Study with Enovid," 78-85; ERW OH.
[111] Briggs, *Reproducing Empire*, 138; Marks, "A 'Cage of Ovulating Females,'" 237; Marks, *Sexual Chemistry*, 105; Ramírez de Arellano and Seipp, *Colonialism, Catholicism, and Contraception*, 113-115; Schoen, *Choice & Coercion*, 209; Tone, *Devices and Desires,* 222.

dynamics between the two women. These two women's relative absence from the history of the trials did not occur because their work radically differed or was less valuable than that of their male colleagues. To the contrary, as Naomi Oreskes illustrates in her article on geological field work, women's contributions to scientific knowledge are under-appreciated because science and medicine are often understood as a terrain mastered by solitary, often masculine, minds acting as a beacon to future knowledge.[112] Likely, then, the story of how two, female professionals collaborated to create medical science has been underdeveloped due to gendered assumptions of medical research. The location of Rice-Wray's and I. Rodríguez's research in Puerto Rico, a US colony, further explains the relative silence surrounding their contributions. Traditionally, scientific and medical discovery derived from colonized places have been interpreted though the lens of agential colonizing scientists and passive colonized lands or people. The metropole is the place of interpretation and synthesis, while the colony is the site of data extraction and observation. In a traditional rendering of Rice-Wray's and I. Rodríguez's contributions to the science of contraceptives, then, they need only to be discussed as collectors of information to be interpreted by male physicians and scientists in the US. This is not what happened.

M. Susan Lindee's and Warwick Anderson's framing of colonial science prove useful to addressing Rice-Wray's and I. Rodríguez's contributions and the power dynamics of creating medical knowledge in colonized places. In excavating the complicated relationships between American and Japanese scientists studying survivors at Hiroshima, Lindee defines "colonial science as science, conducted by outsiders, that depends on local knowledge, particularly when that knowledge is invisible to the colonizers themselves."[113] Rice-Wray depended upon I.

[112] Naomi Oreskes, "Objectivity or Heroism? On the Invisibility of Women in Science," *Osiris* 11, no. 1 (1996): 90.
[113] M. Susan Lindee, *Suffering Made Real: American Science and the Survivors at Hiroshima* (Chicago: The University of Chicago Press, 1994): 20.

Rodríguez's specific knowledge of communities in Río Piedras. At other times, Rice-Wray is the ground-level insider to women's experiences on the pill in Puerto Rico, crafting participants' reactions so that male colleagues might take women's complaints seriously. Both I. Rodríguez and Rice-Wray render their respective research insights comprehensible to collaborators in Puerto Rico and the mainland US. Hence, their work illuminates how medical science happens in the colony, one of Anderson's key insights in *The Collectors of Lost Souls*. Anderson demonstrates how D. Caleton Gajdusek, an American physician, transformed Fore people's brains into kuru brains, the object of his research inquiries. This transformation occurred in the "bush laboratory" of Papua New Guinea, not in the US. It was in the bush laboratory of Papua New Guinea that Gajdusek "applied his tools to the transformation and de-animation of Fore body fluids and tissues—they came in as persons and left as things."[114] The making of scientific insight occurred as part and parcel of the colonized landscape of Papua New Guinea rather than being on pause until the dissociated body parts reached US laboratories.

As shown in the previous section, by 1956 I. Rodríguez and Rice-Wray both had ties to the Department of Health in Puerto Rico and Profamilia. They both had experience with birth control programs via the FLS, which was shaped by the balancing of outreach to public and private supporters. Despite their dual appointments in state and private agencies, Profamilia sponsored their work on Enovid.[115] This distinction—employment with the Department of Health but contraceptive research through Profamilia—defied the scholarly consensus about the public and private divide in Puerto Rican social programs of the era. Both professionals nimbly deployed their publicly- and privately-funded careers in their daily work.

---

[114] Warwick Anderson, *The Collectors of Lost Souls: Turning Kuru Scientists into Whitemen* (Baltimore: The John Hopkins University Press, 2008): 108-109.
[115] Arbona, *Memorias,* 136; ERW OH, 58; Pincus et al., "Fertility Control with Oral Medication," 1335; Rice-Wray, "Field Study with Enovid as Contraceptive Agent," 79.

I. Rodríguez used her expertise from social work, experience in public agencies, and insight gained in the FLS to propagate the trials. In addition to her health education work in the FLS, her time with the Housing Authority and other public agencies made her a staple in outreach programs, specifically in new housing developments throughout Río Piedras[116] Providing care, she learned the comings and goings of these communities and formed professional relationships with the families. Using these connections at the public housing structures of *Residencial Manuel A. Perez* and *Residencial Nemesio R. Canales*, she recruited the experimental subjects that enabled the trials of Enovid.[117] Yet, I. Rodríguez's familiarity with the new communities arose from the PPD's project to alter living conditions and family relations amidst industrialization. The Puerto Rican state had razed large swaths of working class Puerto Ricans' houses in rural and urban areas to create its idea of proper, modern homes and families for an industrial populace. Whether knocking on doors for the FLS or the field trials, I. Rodríguez recruited participants from neighborhoods that the PPD had erected as "a badge of familial economic stability [and] an undeniable sign of the Puerto Rican's populace's move into whitened modernity."[118]

I. Rodríguez's tenure in public agencies and time with the FLS acquainted her with trials participants, but it was her affiliation with Profamilia that enabled her to enter the homes and interview possible trial participants. Specifically, she used her affiliation with Profamilia to explain to prospective participants how and why they should participate. As Rice-Wray detailed at the *Symposium on 19-Nor Progestational Steroids*,

---

[116] Rice-Wray, "Field Study with Enovid as Contraceptive Agent," 78; Rice-Wray, "Study Project of SC-4642," MS-Unfilmed, 1-2.
[117] Rice-Wray, "Field Study with Enovid as Contraceptive Agent," 78. Names of housing complexes identified through, *La Operación*, directed by García; Ana María García, conversation with Kathryn D. Lankford, December 21, 2016.
[118] Findlay, *We Are Left Without a Father Here*, 77. For a discussion of the discourses surrounding homes and industrialization under the PPD and early stages of Operation Bootstrap, see the entirety of Findlay's chapter, "Building Homes, Domesticity Dreams, and the Drive to Modernity," in *We are Left Without a Father Here*, 59-89.

> The worker introduced herself as the executive secretary of the Family Planning Association of Puerto Rico. She explained that it was a private agency such as the 'National Foundation for Infantile Paralysis' or the 'Cancer League' and had no connection with the government of Puerto Rico. It was made clear that the objective of the association was to help mothers and fathers to plan their families so that they do not have more children than they can properly take care of, and also so that they can have their children when they want them.[119]

Distinguishing program affiliation not only set I. Rodríguez "as something respectable" in the eyes of residents in Residencial Manuel A. Perez and Residencial Nemesio R. Canales but made recruitment "much easier than [they] thought. Much easier."[120] For her respectable work, I. Rodríguez was likely compensated around $2,400 annually.[121]

Here, it is imperative to note an important distinction that animated the trials in Río Piedras: the difference between physician and social worker. Both provided essential medico-scientific labor and equally shaped the trials, but their roles, contributions, and relationships with participants clearly differed. Rice-Wray's position as a physician brought the money and institutional backing to the trials, but it was I. Rodríguez's training as a social worker and experience as a health educator that brought in the necessary participants and got the first successful trials off the ground. I. Rodríguez went door-to-door in two housing developments, interviewing around two-hundred families. Once granted entrance to a home, she sat down with the family, characterized family structures in her personal log for the trials, and queried as to the family's interest in family planning. I. Rodríguez then reported to Rice-Wray which families would be suitable for the experimental group, and Rice-Wray tabulated the results.[122] From this angle, one of participant engagement as a form of colonial science as defined by Lindee, I. Rodríguez provided an insider's

[119] Rice-Wray, "Field Study with Enovid as a Contraceptive Agent," 79.
[120] ERW OH, 62.
[121] Profamilia sought to affiliate with Planned Parenthood in 1954 and requested $2,400 to pay the salary of a social worker. Edris Rice-Wray to William Vogt, March 6, 1954, box 58, folder 23, MS-Unfilmed.
[122] Pincus *et al.*, "Fertility Control with Oral Medication," 1333-1335; Rice-Wray, "Field Study with Enovid," 79; Rice-Wray, "Study Project of SC-4642," MS-Unfilmed, 1-2.

interpretation to Rice-Wray.[123] Her constitutive role in directing the trials is furthered by the fact that she altered how and when patients became involved.

I. Rodríguez initially traversed the Río Piedras communities monthly to provide refills, take notes on their experiences, and seek out new participants for the study. Persistent recruitment was essential due to the high attrition rates in 1956, though other women and their families readily filled the vacated slots. I. Rodríguez quickly convinced Rice-Wray of the futility of doing monthly return visits because of the difficulties she encountered.[124] I. Rodríguez's participants had lives that often meant they were not present when she dropped in, and she wanted to maximize her working hours and minimize her no-show reports. As I. Rodríguez learned as a health educator in the FLS, it was imperative to make direct contact with participants rather than to rely on neighborly reminders of an official visit.[125] The personal, intimate relationship was imperative, but also time consuming. There were many families to be served by I. Rodríguez and time could not be wasted in superfluous check-ins. Hence, at the suggestion of I. Rodríguez, Rice-Wray extended prescriptions for longer periods of times and lessened return visits from monthly to bi-monthly. Though seemingly counterintuitive to the creation of bonds between social worker and participants, fewer, yet more substantive, check-ins created the necessary bonds to enable the continuation of the trials. I. Rodríguez's advocacy for a changed schedule altered the research methodology of the trials of Enovid in Río Piedras. By successfully justifying the need for bi-monthly visits to Rice-Wray, I. Rodríguez clearly did more than serve as a passive observer and conduit for information. Like Gajdusek in the bush laboratory of Papua New Guinea, I. Rodríguez

[123] Lindee, *Suffering Made Real*, 20.
[124] Pincus *et al*., "Fertility Control with Oral Medication," 1335; Rice-Wray, "Field Study with Enovid," 80-81; Rice-Wray, "Study Project of SC-4642," MS-Unfilmed, 4-5.
[125] Hill, Stycos, and Back, *The Family and Population Control,* 273.

made medical breakthroughs in the housing developments of Río Piedras.[126] Her insights provided essential information for publications on the trials that delineated problems encountered by worker and participants.

Participants' preference for fewer, yet more substantive, check-ins with I. Rodríguez was likely conditioned by the changing rates of employment amongst working-class women in the first phase of Operation Bootstrap. Despite the patriarchal rhetoric of restoring dignity to men by way of industrial employment espoused by the PPD in the 1940s and 1950s, the earliest phases of Operation Bootstrap brought "light manufacturing" factories to the island by way of US-owned companies that disproportionately employed women at lower wages than men.[127] This meant that working-class women, like those visited by I. Rodríguez in Río Piedras, "were the first group of Puerto Rican workers," rather than middle-class women, "to feel the full impact of the development experience" and often spent much of their working day not at home, but at the factory.[128] "The success of Operation Bootstrap was such that … almost sixty percent of the new jobs were held by women, leaving most of the male unemployment unaffected."[129] Hence, I. Rodríguez might have altered her routine to accommodate participants' changing daily lives. Shifts in employment also encouraged working women to try Enovid to help mitigate the double burdens of paid- and domestic-work. Not only that, but as Ramírez de Arellano detailed, Profamilia

[126] Anderson, *The Collectors of Lost Souls*, 107-112.
[127] Puerto Rico was exempted from the federal minimum-wage standards as the fifty states from 1941 to 1983. For a history on how the "colonial minimum wage" arose from labor disputes in Puerto Rico, see, Anne S. MacPherson, "Birth of the U.S. Colonial Minimum Wage: The Struggle over the Fair Labor Standards Act in Puerto Rico, 1938–1941," *Journal of American History* 104, no. 3 (December 2017): 656-680.
[128] Carmen A. Pérez-Herranz, "Our Two Full-Time Jobs: Women Garment Workers Balance Factory and Domestic Demands in Puerto Rico," in *Puerto Rican Women and Work: Bridges in Transnational Labor*, ed. Altagracia Ortiz (Philadelphia: Temple University Press, 1996): 140.
[129] Ríos, "Export-Oriented Industrialization and the Demand for Female Labor," 329.

targeted working women in factories to maximize the number of women contacted for information on contraception.[130]

Rice-Wray did not work as regularly with participants as I. Rodríguez because of her clinic-based role in the trials. She relied on I. Rodríguez to detail the experiences within the neighborhoods of Río Piedras. I. Rodríguez identified problems encountered in the research protocol, including: the daunting physical labor required to meet with all the participants, participants' lives not correlating to scheduled visits, and how missed pills and changing menstrual cycles for participants caused biological irregularities.[131] These problems required a change in the conduct of the trials in Río Piedras. As Rice-Wray explained, "If visits were planned so that a group could be visited in the same area on the same day, it was much easier… This work involved a great deal of physical exertion."[132] Participants' preference and experience mattered for the eventual efficacy of Enovid, but so, too, did social workers' experiences.

Rice-Wray oversaw the quantitative aspects of the trials of Enovid. More sparingly than I. Rodríguez, though, she also came to know trial participants. Rice-Wray went at least a few times to participants' homes. More commonly, however, Rice-Wray engaged participants by performing more invasive, medical tests in the Profamilia clinic:

> In the course of the investigation, many of the participants came to the office of the Family Planning Association, or of an affiliated physician, for pelvic examination. At this time, an endometrial biopsy was taken and blood drawn for hemoglobin determinations, bleeding time, and clotting time. A limited number of individuals also furnished urine for assays of certain steroids.[133]

Rice-Wray felt the need to clarify that her research, be it the sporadic visits to participants' homes or more frequent clinic visits by the participants, was occurring away from the Department of

[130] Ramírez de Arellano and Seipp, *Colonialism, Catholicism, and Contraception*, 140-142.
[131] Rice-Wray, "Field Study with Enovid," 80-81.
[132] Rice-Wray, "Field Study with Enovid," 81.
[133] Pincus et al., "Fertility Control with Oral Medication," 1334.

Health and national laboratories. Too close a connection to the PPD government and national organizations was impossible for 1950s Puerto Rican birth control programs and the trials. Profamilia had to sponsor the trials of Enovid in order to facilitate the trials' continuance.

It might seem that Rice-Wray was a distant boss, solely a figurehead attached to the experiments. In her role as medical lead, though, Rice-Wray intimately shaped how the trials ran and participants' experiences. For example, consider Rice-Wray's evolving relationship with the women who served as control group participants in Río Piedras.[134] I. Rodríguez first interviewed control group participants in their homes, then shared her findings with Rice-Wray. As such, Rice-Wray encountered the initial control group as files of social histories and data points. These control group participants' tabulated experiences served as the comparison point from which Rice-Wray evaluated the safety of Enovid as a contraceptive. If birth rates went down amongst participants taking Enovid as compared to the control group with minimal adverse reactions, the pill could be deemed safe and evaluated for efficacy.

The studies in Río Piedras grew and diversified, both for participants taking Enovid and control group participants. By September 1957, two-hundred and sixty-five women had taken Enovid containing ten milligrams of norethynodrel for contraceptive purposes in Río Piedras.[135] However, new participants did not represent a swelling of Rice-Wray's and I. Rodríguez's case load. New participants were required to maintain a full research load of approximately one-hundred and thirty Enovid users each month.[136] For personal and physiological reasons, women entered and left the Río Piedras studies frequently. Control group participation, however, was additive. As the research goal shifted from primarily illustrating Enovid's contraceptive potential to more fully addressing

[134] Rice-Wray, "Field Study with Enovid," 85.
[135] Pincus *et al.*, "Fertility Control with Oral Medication," 1333.
[136] Pincus *et al.*, "Fertility Control with Oral Medication," 1335.

the safety of the pill, a new control group of participants arose in the trials that almost exclusively interacted with Rice-Wray. Rice-Wray drew the blood and compiled blood profiles of twenty-six Profamilia patients who had never been on Enovid, suggesting a growing need to illustrate the lack of negative side effects.[137] Control group participants were no longer solely used as a social comparison.

As a result of this extended work, Rice-Wray became known by the trial participants in Río Piedras and internationally as legitimizer of the trials. Indeed, it was up to Rice-Wray to render I. Rodríguez's, participants', and her own work legitimate in the eyes of collaborators in Massachusetts and across the globe. She co-authored papers, presented at international conferences, corresponded with her colleagues, and ran intermediary with various funding agencies. Though it is inaccurate to characterize Rice-Wray's labor as distant, her scientific papers and memories demonstrate that she distinguished, and differently valued, the work she performed as medical director compared to I. Rodríguez's social work with the trials. Mimicking the contours of colonial science knowledge production suggested by Lindee, Rice-Wray depicted I. Rodríguez's contributions as provision of raw data that needed to be interpreted by herself.[138] As portrayed by Rice-Wray, I. Rodríguez, like female participants, provided the material, whereas her own intellect made the information "legible" and useful for the international audience.[139] Rice-Wray's delineation of physician's and social worker's contributions in the trials most clearly appears in the language she uses to describe I. Rodríguez, as well as further substantiates my argument that professional drive and specialization intimately shaped Rice-Wray's actions.

---

[137] Pincus *et al*., "Fertility Control with Oral Medication," 1341.
[138] In particular, see how American scientists relieved heavily on Japanese midwives and mothers for the conduction of their genetic studies. Lindee, *Suffering Made Real*, 83-101.
[139] James C. Scott, *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed* (New Haven, CT: Yale University Press, 1998): 3-4, 183-184.

Rice-Wray did not write her scholarly articles in collective voice, nor did she identify the social worker with whom she collaborated in Río Piedras as she offered her oral history. Rather, she used third person language like "the social worker" or "worker" to detail how I. Rodríguez shaped the trials.[140] Rice-Wray's depersonalization of I. Rodríguez's contributions adds another layer to the historical invisibility of women in science and medical knowledge production discussed by Oreskes.[141] The role of collaboration, specifically women's collective labor, had little space in the cultural milieu of scientific and medical discovery that reified solitary men laboring to create a better future through innovation. The same social values of medical science uplifted interpretation, rather than data collection, as the true endeavors of research. Hence, by coding the social worker's contribution as collection of data in the housing communities, Rice-Wray created a hierarchy within her papers that suggested that she, not I. Rodríguez, generated meaningful results. Rice-Wray's language in her papers largely portrayed herself as a single figure pushing forward the medical science of norethynodrel, thus recreating silences historically experienced by other researchers of her gender.[142] To be certain, best practices for scientific publication and presentation of the time encouraged passive voice, but there was slippage in this practice for Rice-Wray. When Rice-Wray wrote on the distribution of the pill to participants, first-person collective voice entered into her description of the trials. The unnamed worker became, "We began giving the medication early in April."[143] Though other portions of the publication make clear that I. Rodríguez did this work, this crucial portion of the trials begets a collective sense in Rice-Wray.

[140] ERW OH, 62; Rice-Wray, "Field Study with Enovid," 78-82; Rice-Wray, "Study Project of SC-4642," MS-Unfilmed, 1-4.
[141] Oreskes, "Objectivity of Heroism?," 87-113.
[142] Rice-Wray, "Field Study with Enovid," 78-82; Rice-Wray, "Study Project of SC-4642," MS-Unfilmed, 1-4.
[143] Rice-Wray, "Field Study with Enovid," 79.

At least in these moments, Rice-Wray likely envisioned herself as the leader and I. Rodríguez as her follower.

Rice-Wray's language demonstrates a tangible reality of the day-to-day of the trials and suggests some of the power dynamics within the trials. I. Rodríguez determined who participated in the trials of Enovid. Her essential role in selecting participants alters earlier understandings of the trials of Enovid. Using her knowledge of the community, training as a social worker, and experiences as a health educator in the FLS, the executive secretary of Profamilia recruited, identified, and selected the women who became the trial participants for Enovid in Río Piedras. I. Rodríguez who sat in the homes of participants and determined if the woman was eligible for the pill. She guided participants selected to test Enovid through the confusing regimen description.[144] Not only did professionals in Puerto Rico dictate how the trials progressed, but an allied health worker, a Puerto Rican woman, created the experimental participant pool in a way that mainland researchers could not.

Rice-Wray's third-person reference to "the worker" also suggests how allied health workers were viewed in the Río Piedras trials by their co-workers and the general view of the hierarchical structure of medical knowledge production in the 1950s. Rather than an agential person worthy of mention by name, I. Rodríguez, a professionally trained woman, was solely "a worker" in the artifacts of this monumental trial. She was a worker, easily replaceable and not contributing any specific skills. Rice-Wray, likely, was treated to some degree in a similar manner by Pincus and his colleagues in the mainland US. Yet, Rice-Wray replicated this dynamism in her discussion to her colleagues in the states and internationally within her publications. Second, Rice-Wray's distancing of herself from I. Rodríguez by way of "the worker" resonates with her

[144] Rice-Wray, "Field Study with Enovid," 79; "Study Project of SC-4642," MS-Unfilmed, 2.

aspiration to climb the prestige ladder within medicine. If Rice-Wray's models of physician and researcher success were solitary figures, she, too, needed to work alone. Third, deidentification of I. Rodríguez created a colonial division in the presentation of the research and helped to hide the critical role Puerto Rican professionals played in the trials for later generations. As the dynamic between Rice-Wray and I. Rodríguez illustrates, an intersectional approach to the invisibility of women in medicine is necessary.[145] Gendered politics of medical and scientific research obscured the rich contributions of both Rice-Wray and I. Rodríguez. Yet, I. Rodríguez's work was further obscured because of her identity as a social worker of Puerto Rican origin. Sexism coalesced with professional politics over who conducted legitimate research and colonialist attitudes to triply hide the foundational work of I. Rodríguez in the development of the first birth control pill.[146]

Despite these power disparities and professional tensions, Rice-Wray and I. Rodríguez led the trials in Río Piedras for about a year under the umbrella of Profamilia. As Rice-Wray proudly noted in her oral history,

> we had programs; we had ___tablets, we had condoms, we had other alternatives and we had one project where we sent a nurse out to the homes to see if it would be more effective. We took it to them. We did a lot of things besides … Well don't think that just because Pincus came we turned to the pill and that was all we had."[147]

The trials of Enovid in Río Piedras under Rice-Wray and I. Rodríguez were short lived. Due to changing directions of the Department of Health and critical publicity of the trials in a

[145] Sumi Cho, Kimberlé Crenshaw, and Leslie McCall, "Toward a Field of Intersectionality Studies: Theory, Applications, and Praxis," *Signs* 38, no. 4 (Summer 2013): 785-810; Patricia Hill Collins, "Intersectionality's Definitional Dilemmas," *Annual Review of Sociology* 41 (March 2015): 1-20.
[146] Soto Laveaga highlights a similar imperial dynamic between US, European, and Mexican scientists in developing the means to commercially produce steroid hormones. She does not provide a gender analysis. Soto Laveaga, "The Conquest of Molecules," 312; Soto Laveaga, *Jungle Laboratories*, 39-70.
[147] ERW OH, 67.

newspaper, Rice-Wray left her positions at the Department of Health and Profamilia.[148] Manuel Paniagua inherited Rice-Wray's medical director position at Profamilia after her departure, and Profamilia changed in two key aspects. Due to financial funding from mainland American Joseph K. Sunnen, Profamilia shifted to testing EMKO contraceptive foam. Second, Celestina Zalduondo became the executive director of the agency. Under her leadership, Profamilia shifted its operation model to one almost exclusively run by volunteers rather than paid employees.[149] Because of these changes, Pincus and his associates in Massachusetts absorbed direct responsibility for the Enovid trial participants.[150] The trials constricted to mostly consist of periodic check-ins with long-term users of Enovid in Río Piedras. The fate of I. Rodríguez after the trials is even more obscure in the scattered records. It is unclear if she continued at Profamilia or assisted with the monitoring of long-term Enovid users in Río Piedras after 1957.

How might one explain the equally rapid ascent and near-complete evaporation of Rice-Wray's and I. Rodríguez's leadership of the first human trials of Enovid between 1956 and 1957? The central themes discussed in this chapter— female medical workers' personal drive for professional recognition, the blurred line between the PPD's government and privately sponsored birth control programs, and the tensions in medicine generated by colonialism and gender dynamisms—suggest possible reasons for both Rice-Wray and I. Rodríguez to be rendered obscure

[148] Arbona, *Memorias,* 136-137; Briggs, *Reproducing Empire*, 138; ERW OH, 58; Marks, *Sexual Chemistry*, 105-106; Ramírez de Arellano and Seipp, *Colonialism, Catholicism, and Contraception*, 116; Rice-Wray, "Field Study with Enovid," 80.
[149] Arbona, *Memorias,* 137-142; Briggs, *Reproducing Empire*, 123-124; Ramírez de Arellano and Seipp, *Colonialism, Catholicism, and Contraception*, 124-132; Rivera Céspedes, "Recuento Histórica de PROFAMILIA," 7-8; Celestina Zalduondo, "Extensive Use of the Volunteer in a Family Planning Program," paper presented at the Third Regional Conference of the International Planned Parenthood Federation—Western Hemisphere Region, Barbados, West Indies, April 20, 1961, box 58, folder 23, MS-Unfilmed; Celestina Zalduondo, " A Family Planning Program Using Volunteers as Health Educators," *American Journal of Public Health* 54, no. 2 (February 1964), 301-307.
[150] Pincus *et al*., "Fertility Control with Oral Medication," 1333-1346; Pincus *et al.*, "Effectiveness of an Oral Contraceptive," 81-83.

in the history of Enovid. Accordingly, the trials and evidence to the actions on the ground in Río Piedras became a strikingly under-examined subject.

Rice-Wray's desire for increased specialization and professionalization led her to Puerto Rico and the island's Department of Health in the 1940s. These same traits intimately shaped the trials and Rice-Wray's relationship with social worker I. Rodríguez. Rice-Wray likely possessed an implicit understanding that peripheral and colonized spaces might allow her to move beyond the dictates of her middle-class, white, femininity and to the role of specialized medical professional. Unknowingly, she arrived in Puerto Rico at a time in which the nation increasingly invested in growing a professional class. Rice-Wray earned a Master's in Public Health, heralded a health center and professional training campus near the capital, assisted in university-backed and state-acknowledged research on the Puerto Rican family via the FLS, and ultimately acted as the ground-level medical lead for the trials. Similarly, I. Rodríguez accessed further education because of the Puerto Rican government's investment in local professionals, which in turn led to her to the FLS and facilitated her subsequent contribution to the trials of Enovid. Yet, Rice-Wray's urge to grow professionally was not satiated by her experiences on the island. She left Puerto Rico in 1957 to take a fellowship with the World Health Organization (WHO), travelling and advising in Latin America on issues of family planning. She rather quickly settled in Mexico to build birth control clinics funded by international agencies and against the Mexican state's wishes. She even continued contraceptive research outside the purviews of Pincus and his affiliates in Massachusetts; she published as first author for many more years.[151] From a general physician in

[151] Rice-Wray's last scientific article was published in 1973. For her pursuits after Puerto Rico, see, Edris Rice-Wray, "The Provoked Abortion—A Major Public Health Problem," *American Journal of Public Health*, 54, no .2 (February 1964): 313-321; Edris Rice-Wray, Cristina Avila, and Juvenal Gutiérrez, "Norgestrel and Ethynyl Estradiol: A New Low-Dosage Oral Agent for Fertility Control, " *Obstetrics & Gynecology* 31, no. 3 (March 1968): 368-374; Edris Rice-Wray, Héctor Márquez-Monter, Jaime Gorodovsky, "Chromosomal Studies in Children Born to Mothers Who Previously Used Hormonal Contraceptives: A Preliminary Report," *Contraception* 1, no. 1 (January 1970): 81-85.

the United States, to the clinical lead in national health centers and researcher in Puerto Rico, to fellow of an international organization, Rice-Wray's medical career surpassed the chidings she received in medical school as an aspiring physician. Her career as a researcher advanced beyond that of a thanked consultant, but not an author, in the FLS publication. As medical director of Profamilia and ground-level lead for the Río Piedras trials of Enovid, she ascended to presenter at international conferences and author on scholarly papers integral to the approval of the first pill. In Mexico, she conducted research with funds directed to her and due to her work; she authored as she saw fit. Rice-Wray's ascent in the medical profession and as a researcher would have been impossible without the contributions of I. Rodríguez.

Personal and professional motivations partially explain Rice-Wray's departure from Puerto Rico, but they do not fully substantiate the seeming disappearance of the trials from Río Piedras. However, the PPD's ambiguous stance on birth control, as evidenced by the fate of the FLS, does. So, too, do the tensions of colonial science and its knowledge production. Secondary literature and Rice-Wray's oral history point to public outing of the trials in Río Piedras in 1956. The newspaper *El Imparcial* linked the trials to the Department of Health rather than Profamilia. Because of this erroneous connection, the newspaper interpreted the trials as evidence of neo-Malthusianism on the part of the PPD government and suggested that Enovid was part of colonialist plot by mainland Americans. Clarifications had to be made in Puerto Rican newspapers and across organizations that the trials were not state-endorsed. Despite this clarification, some women did drop out of the trials.[152] The ensuing tension likely encouraged Rice-Wray's ultimate departure. As typical of the time, governmental and public support for birth control only extended as far as it could be dissociated from state policy. Clearly, modernization and industrialization in the capital area could

[152] ERW OH, 58; Marks, *Sexual Chemistry*, 105-106; Ramírez de Arellano and Seipp, *Colonialism, Catholicism, and Contraception*, 116; Rice-Wray, "Field Study with Enovid," 80.

not abide even the suggestion of a state-endorsed population or birth control program. Yet, as the next chapter illuminates, there were other avenues to evaluate the possibility for birth control as a means to modernity in other parts of Puerto Rico. As the trials in Río Piedras effectively came to a close in 1957, a second arc of trials began on the rural, eastern end of Puerto Rico in Humacao. The Humacao trials, ran through a protestant hospital in a more remote part of the island and directed by professionals with no ties to public agencies in 1957, did not pose the same threat to the PPD and state agencies as the trials in Río Piedras had.

CHAPTER TWO

REALIZING RURAL POSSIBILITIES FOR ENOVID: PROTESTANT MISSIONARIES, GENDER, AND POPULATION CONCERNS ON THE GROUND IN THE HUMACAO TRIALS OF ENOVID, 1952-1958

The field trials of Enovid began in Río Piedras, but these initial trials in the metropolitan area proved insufficient for the international, medical-science enterprise. As the previous chapter illustrated, the trials under Edris Rice-Wray's and Iris Rodríguez's supervision did not surpass more than one-hundred and thirty trial participants a month due to participant drop-out tendered by personal reasons and political pressures. These tensions also shaped staff departures.[1] Hence, the relatively small participant group in Río Piedras only provided sufficient information for suggestive, rather than conclusive, findings on the efficacy of Enovid as a contraceptive agent. The FDA-approval of Enovid as a menstrual disorder treatment in 1957 made it easier for additional researchers to access the pill and facilitated the creation of new field trials in Puerto Rico, and elsewhere, to supplement the early findings. The scope of Enovid research also began changing in 1957. Mainland US researchers' goal of cementing their hypothesis that Enovid was as an effective contraceptive in the long- and short-term continued, but they also wanted to know if participants' experiences hinged on social factors. Specifically, mainland US scientists and their collaborators began to examine if Enovid was acceptable to poor women in urban and rural settings. Within this context, a new field trial began in 1957 on the eastern end of Puerto Rico in Humacao municipality.[2]

---

[1] Rice-Wray, "Field Study with Enovid," 80; Pincus *et al*., "Fertility Control with Oral Medication," 1335. Pincus *et al*. reported that two-hundred and eleven women had taken Enovid in Río Piedras by the time Searle applied for FDA-approval of the pill as a contraceptive. The discrepancy in the participation in Río Piedras introduces new questions on the contours of the trials there that cannot be answered in this dissertation. Pincus *et al.*, "Effectiveness of an Oral Contraceptive," 82.

[2] A smaller set of field trials also began in Port-au-Prince, Haiti. Briggs, *Reproducing Empire*, 136; Marks, *Sexual Chemistry*, 103; Pincus *et al.*, "Effectiveness of an Oral Contraceptive," 82-83; Gregory Pincus, John Rock, and Celso R. García, "Field Trials with Norethynodrel as an Oral Contraceptive," in *Proceedings of the Sixth International Conference on Planned Parenthood: Family Planning, Motivations and Methods* (February 14-21, 1959): 216;

Approximately thirty miles from Río Piedras, Humacao was a world apart from the burgeoning metropolitan area in the late 1950s. During this time, greater San Juan directly grappled with the ramifications of modernization and industrialization such as the increasing presence of mainland US factories that provided jobs but almost no tax revenue to the government, the rise of female labor participation concomitant to a decrease in male labor participation in these plants, and emigration campaigns. Humacao, however, remained mostly rural and relatively unchanged by state-sponsored projects during this time.[3] Whether in geography, economics, or the pattern of everyday life, Humacao fundamentally differed from Río Piedras in the late 1950s. Yet, Humacao did not exist completely outside the conditions that portended the PPD's discourses of modernization, industrialization, and rehabilitation of Puerto Rican families. First, the failure of agriculture and rural household economies in the 1930s and 1940s was a precondition for programs like Operation Bootstrap and the populist reimagining of the ideal Puerto Rican man as a factory worker. Rural voters overwhelmingly supported and voted for the PPD during this time.[4] Humacao, a rural municipality surrounded by hills to the west and the Caribbean Sea to the east, experienced at least some of the economic hardships that created fertile ground for the rise of the PPD.[5] Second, although Humacao did not transform into an industrial economy at this time, the municipality was a likely target for PPD campaigns around issues of home and family relations.

Ramírez de Arellano and Seipp, *Colonialism, Catholicism, and Contraception*, 117; Adaline Pendleton Satterthwaite, "Contraceptive Clinical Trials In Puerto Rico," *Population is the People: A Quaker Reader*, June 3, 1998, box 21, folder 9, APS Papers, 3;

[3] The exception is emigration. Humacao and all parts of Puerto Rico experienced out-migration as part of Operation Bootstrap. For recent works that challenge the urban-focus of Puerto Ricans leaving the island and settling in urban areas by focusing on Puerto Ricans in Michigan, see, Delia Fernández, "Becoming Latino: Mexican and Puerto Rican Community Formation in Grand Rapids, Michigan, 1926-1964," *Michigan Historical Review* 39, no. 1 (Spring 2013): 71-100; Delia Fernández, "Rethinking the Urban and Rural Divide in Latino Labor, Recreation, and Activism in West Michigan, 1940s-1970s," *Labor History* 57, no. 4 (Oct. 2016): 482-503; Findlay, *We Are Left Without A Father Here*, 90-117.

[4] Findlay, *We Are Left Without A Father Here*, 34-38.

[5] Findlay, *We Are Left Without A Father Here,* 50-58; Ríos, "Export-Oriented Industrialization and the Demand for Female Labor," 321-337.

The PPD sought to tutor rural Puerto Ricans into modern domestic bliss. PPD agents and media campaigns encouraged rural Puerto Ricans across the island, including Humacao, to "create an orderly domestic space, with animals penned outside and tools and kitchen utensils tucked away in distinct places, … [end] the long-standing practices of people and animals freely moving in and out of rural homes, …[cease] serving themselves whenever hungry out of a common pot of food, warmed over an open flame."[6] Such tutelage, Eileen J. Suárez Findlay argued, allowed "all rural families, no matter how poor … [to] aspire to an orderly, honorable life, free of racial stigmatization, filled with simple material comforts."[7] Such images in Humacao also likely created the discursive space for rural Puerto Rican women to consider, and seek out, contraceptives. Despite the presence of modernization and industrialization ideas in Humacao, this chapter illustrates, the municipality's differences from Río Piedras partially explain why the trials came to Humacao and ultimately became home to some of the most substantive trials of Enovid.[8]

Adaline Pendleton Satterthwaite, a physician from the mainland US, began directing the Humacao field trials of Enovid in 1957. In rural Humacao, Satterthwaite received scientific guidance and financial support from colleagues outside the island. Scholars have delineated Satterthwaite's connection to state-side actors like Gregory Pincus and Clarence J. Gamble and have begun to characterize how these partnerships shaped the trials. These same scholars have been less attentive to how ground-level architects navigated their mainland-partnerships and conducted the everyday work of running a field trial.[9] Satterthwaite worked in concert with social

[6] Findlay, *We Are Left Without A Father Here*, 76.
[7] Findlay, *We Are Left Without A Father Here*, 77.
[8] Clarence J. Gamble to Adeline Pendleton, Noemí Rodríguez, and Elizabeth MacDonald, February 26, 1959, box 50, folder 819, Clarence Gamble Papers, Center for the History of Medicine, Francis A. Countway Library of Medicine, Harvard University, Cambridge, Mass., accessed March 21, 2021, https://collections.countway.harvard.edu/onview/files/original/3d96a84f0ca2605ae62af42f26acebd5.jpg; Pincus *et al.*, "Effectiveness of an Oral Contraceptive," 82.
[9] Briggs, *Reproducing Empire*, 136-140; Gordan, *The Moral Property of Women*, 286-288; Marks, "'Cage of Ovulating Females," 233-238; Marks, *Sexual Chemistry*, 101-16; Ramírez de Arellano and Seipp, *Colonialism,*

workers of both mainland and Puerto Rican ancestries to distribute the pill and describe Puerto Rican women's experience with Enovid. Missionary Betty MacDonald, a white social worker from New York, and Noemí Rodríguez, a social worker from Humacao, provided essential labor to realize the characterization of Enovid.[10] Mainland Americans funded the three women's work, yet a small, protestant hospital—Ryder Memorial Hospital—served as the base and provided the clinical space for the trials.[11] The collective labor of physicians and social workers in Humacao directly enabled the accumulation of participant information, which was necessary for FDA-approval of Enovid as the first oral contraceptive in 1960. Their experiences within the halls of Ryder and larger community intimately shaped the trials. Personal experience, the setting of a rural, protestant hospital, and the daily work performed by all three women in Humacao provided necessary complements to mainland US scientists' aspirations in pursuit of developing the pill.

This chapter describes how the trials of Enovid arrived to Humacao in 1957 and evolved during the first two years of the tests by focusing on the ground-level actions and experiences of the professional women running the trials. Satterthwaite and N. Rodríguez come to the fore of this chapter. MacDonald also contributed to the earliest trials, but she played a less instrumental role because her primary job was as the social worker for Ryder, not for the field trials.[12] This chapter ends in 1959 because the Humacao team introduced lower dose Enovid (five-milligrams norethynodrel) as an option for their participants that year. The introduction of low-dose Enovid

Catholicism, and Contraception, 112-123; Schoen, *Choice & Coercion*, 208-216; Tone, *Devices and Desires* 222-224; Elaine Tyler May, *America and the Pill*, 29-32.

[10] Archival sources indicate that MacDonald and N. Rodríguez had at least semi-regular correspondence with mainland American backers. For example, see, Gamble to APS, N. Rodríguez, and MacDonald, Feb. 1959, Gamble Papers.

[11] N. Rodríguez was never paid by the hospital, though she was familiar with Ryder administrators. See, John A. Smith to APS, September 10, 1960, box 10, folder 6, APS papers.

[12] The subsequent chapter postulates how MacDonald worked in the trials through a review of interprofessional tensions.

marked an important turning point in the fields trials of contraception.[13] By examining the period between 1957 and 1959, this chapter contextualizes the agential role of ground-level health care workers in recruiting and transforming the tests of Enovid against the desires and assumptions of mainland US collaborators. Satterthwaite and N. Rodríguez navigated a complex power dynamic that balanced individual aspirations and knowledge of the communities they served alongside the input and funding provided by distant collaborators.

Satterthwaite's oral histories and personal reflections on the trials, as well as the scientific literature on the trials through November 1958, serve as the primary source base. Such a source base offers a glimpse into the mundane and personal nature of the creation of medical-science, but also recreates some silences about medicine-in-the-making along professional lines. Satterthwaite donated her personal artifacts to Smith College, thus much of the history of the trials and stories of her ground-level collaborators derive from her perspective and interpretation of her colleagues. Nonetheless, more composite trajectories of Satterthwaite and N. Rodríguez are ascertained from these sources and begin to fill a narrative hole in the history of the first birth control pill.

Despite the personal nature of this some of this chapter's source base, motivation remains difficult to elucidate from historical actors. Yet, Satterthwaite left hints as to why she desired a reversible form of contraception for Puerto Rico. Specifically, Satterthwaite, or Doctora Penny as her patients called her, sought out new contraceptives and directed the trials in Humacao due to her views of Puerto Rican femininity, masculinity, family dynamics, and her associated concern over the use of sterilization as a form of contraception in Puerto Rico. As Chapter One has shown, Rice Wray shared some of Satterthwaite's concerns over issues of gender and reproduction in

[13] Participants took ten milligram Enovid that was ninety-eight-and-a-half percent norethynodrel (synthetic progesterone/progestin) and one-and-a-half percent synthetic estrogen until 1959. Hale H. Cook, Clarence J. Gamble, and Adaline Pendleton Satterthwaite, "Oral Contraception by Norethynodrel," *American Journal of Obstetrics and Gynecology* 82, no. 2 (August 1961): 439; Junod and Marks, "Women's Trials," 112.

Puerto Rico. Yet, the relative paucity of Rice-Wray's personal sources limits the view into her notions of gender and reproduction. Satterthwaite, on the other hand, was a voracious letter writer and maintained copies of letters to families and friends. From these artifacts and the scientific literature on the trials of norethynodrel, personal experience and professional drive, racialized and classed notions of gender and reproduction, and changes in Puerto Rico intimately shaped Satterthwaite's path to the field trials and animated her actions as she worked to develop oral contraception. As for N. Rodríguez, this chapter partially replicates silences in relation to her motivation to work the trials, even as it attempts to delineate her contributions. In the earliest iterations of the trials of Enovid, N. Rodríguez more directly interacted with participants than did Satterthwaite due to experimental design. She surely had her own reasons for wanting to recruit and work with women taking Enovid. Because of the lack of sources, however, this chapter will not be able to offer conclusive observations about N. Rodríguez's motivations for the trials.

By putting Satterthwaite's personal accounts of the trials in conversation with the published literature on the trials, however, a sketch of how N. Rodríguez engaged participants in trials manifests. N. Rodríguez was a social worker possibly affiliated with the Department of Health prior to her tenure with the trials and became involved in the Humacao trials due to mainland funds.[14] N. Rodríguez was never directly employed by Ryder nor a missionary, so she likely did not share social circles with Satterthwaite prior to the trials. N. Rodríguez never appears by name in Satterthwaite's personal correspondences at the time of the trials. Satterthwaite only explicitly names N. Rodríguez in scientific articles and later-in-life remembrances of the trials.[15] Hence, the story that emerges on N. Rodríguez is one of professional distance and glimpses into her work.

[14] APS OH, 20-21.
[15] Cook, Gamble, and Satterthwaite, "Oral Contraception by Norethynodrel," 445; Adaline Pendleton Satterthwaite and Clarence J. Gamble, "Conception Control with Norethynodrel," *Journal of the American Medical Women's Association* 17 (1962): 802; Satterthwaite, "Contraceptive Clinical Trials," APS Papers, 4; APS OH, 20-21.

The historical invisibility of women in science and medicine was exacerbated for N. Rodríguez due to the dynamics of colonial science, much like it was for I. Rodríguez in Río Piedras.[16]

The trials of Enovid in Humacao were intimately shaped by colonialism in ways similar and dissimilar to those in Río Piedras. First, Satterthwaite's rationalization for the need of contraceptives arose from her colonial logics that Puerto Rican femininity, masculinity, and family-structures needed reforming. She may have possessed these notions prior to her tenure at Ryder, but those ideas did not remain unchanged. Her understanding of Puerto Rican gender norms and differences evolved as she worked in Ryder and the surrounding community. Julia Kristeva's and Anne McClintock's theorization of abjection provides a useful framework by which to understand the interplay of colonialism and gender in Satterthwaite's constant recreation of difference amongst herself and the women she served.[17] Second, like in Río Piedras, the trials in Humacao did not arise solely due to top-down colonialism. Multiple actors of differing identities effectively created the trials as a colonizing project premised on their respective understanding of a Puerto Rican "other." Hence, Fernando Coronil's insight in "After Empire: Reflection on Imperialism from the Américas" proves useful in highlighting how diverging versions of colonial differences coalesce to justify the trials in a colonial context. He argues, "The essential analytical premise is that imperial formations, whether colonial or not, involve variable systems of difference between dominant and subaltern subjects; discerning *what* these differences are and *how* they are constituted under specific imperial situations serve to establish a comparative reference … What makes a difference is…the systematic production of unequal subjects."[18] The field trials in

[16] Oreskes, "Objectivity of Heroism?," 87-113.
[17] Julia Kristeva, *Powers of Horror: An Essay on Abjection*, trans. Leon S. Roudiez, Reprint edition (New York, NY: Columbia University Press, 1982): 4-9; Anne McClintock, *Imperial Leather: Race, Gender and Sexuality in the Colonial Contest* (New York: Routledge, 1995): 71-74.
[18] Fernando Coronil, "After Empire: Reflection on Imperialism from the Américas," in *Imperial Formations*, ed. Ann Laura Stoler, Carole McGranahan, and Peter C. Perdue (Santa Fe: School for Advanced Research Press, 2007): 254-255.

Humacao were more than a unilateral imposition of mainland goals onto passive Puerto Ricans. Similarly, the rural nature of Humacao allowed for different colonial scripts to justify the trials than those in Río Piedras. Satterthwaite and others deployed images of rural Puerto Rican otherness to both facilitate women's reproductive control and legitimize their work in the trials. Such scripts were made possible by the everyday work of N. Rodríguez in the homes of these rural women that created an intimacy not equally realized in the Río Piedras.

Scholars like Laura Briggs, Iris López, Annette Ramírez de Arellano, and Johanna Schoen argue against strict dichotomies of domination-supplication, choice-coercion, and colonizer-colonized in regards to contraception and reproduction in Puerto Rico during the mid-twentieth century. However, they do not fully explore the myriad ways clinicians and social workers in Humacao flout such binary distinctions due to their primary source base.[19] Satterthwaite's personal collection, a key source base for such lines of inquiry, only became available in 2013. Hence, this chapter attends to Satterthwaite's views of her adopted home to build upon earlier scholars' insights about the limits of dualism in medical innovation in colonial contexts. This chapter's source base also enables an examination of the subjective, such as personal and professional relationships, in analyses of medicine. Both as a person and professional, Satterthwaite responded directly, albeit through the perspective of a mainland physician, to the local realities of Humacao. Whereas Rice Wray grappled with the demands inherent to Río Piedras in the mid-1950s, Satterthwaite contextualized her work as a physician, the trials of Enovid, and the relationships she developed in both, within the dynamics of a smaller, rural community. Unlike Rice Wray in the capital area, Satterthwaite did not have to respond to pro- or anti-PPD newspapers in Humacao criticizing the field trials of Enovid to strangers. If the newspapers of the municipality ran any such

[19] Briggs, *Reproducing Empire*, 136-138; López, *Matters of Choice*, 16-18; Ramírez de Arellano and Seipp, *Colonialism, Catholicism, and Contraception*, 117-119; Schoen, *Choice & Coercion*, 210-213.

articles, Satterthwaite and her colleagues could quickly and directly respond because they knew much of the community. Hence, this chapter expands my argument in Chapter One by examining the health professionals who drove the field trials of Enovid in Humacao during the late 1950s. Like in Río Piedras, the making of Enovid is better understood through a careful examination of ground-level workers in their particular localities.

The first section narrates Satterthwaite's return to Puerto Rico in 1952 after years of medical missionary work in China, the death of her husband, and a year living in the United States. As she forged her path as a single, working mother, she contended with understanding herself in comparison to her notions of the women she served. The second section pauses on the well-established prevalence of sterilization in Puerto Rico and how Satterthwaite mobilized this phenomena to justify the clinical trials in Enovid.[20] At times, Satterthwaite was most concerned about Puerto Rican women's reproductive needs, and at other times she focused on tropes of overpopulation. Satterthwaite wove both concerns— women's access to reliable contraception and colonial views of the overpopulating other—to reason the pill was necessary because of the fundamentally flawed nature of Puerto Rican marriages. Satterthwaite alone did not perpetuate the trials; she worked in concert and at odds with other professionals in Humacao and abroad. Building on this analysis, the third section shows how the earliest field trials of Enovid in Humacao proceeded at the intersection of distant and local goals. It compares the Humacao trials to the relatively short-lived trials under Rice Wray and I. Rodríguez in Río Piedras trials in order to suggest why the trials in Humacao ultimately lasted longer. Taken together, both Río Piedras and

[20] For a sample of the literature on sterilization in Puerto Rico between the 1940s and 1960s, see, Briggs, *Reproducing Empire*, 142-161; *La Operación*, directed by García; López, *Matters of Choice*, 3-19; Lugo Ortiz, "Sterilization, Birth Control, and Population Control," 70-115; Harriet B. Presser, *Sterilization and Fertility Decline in Puerto Rico*, Greenwood Press edition, (Westport, Conn.: Greenwood Press Publishers, 1976): 23-58; Ramírez de Arellano and Seipp, *Colonialism, Catholicism, and Contraception*, 134-148.

Humacao, as well as the professional women who ran the field trials, made FDA-approval of Enovid possible in 1960.

Envisioning Rural Patients and Self in Humacao: Adaline Pendleton Satterthwaite as Physician

Satterthwaite pondered moving to Humacao in 1951 as she worked at the Women's Medical College Hospital in Philadelphia after years of medical service outside the mainland United States. From 1944-1946, Satterthwaite served as an Obstetrical and Gynecological Resident at Presbyterian Hospital in San Juan. While at Presbyterian Hospital, she met and married William (Bill) Satterthwaite. Satterthwaite and her husband shared a conviction on global health and missionary work, so they went to Beijing, China, in 1947 to purse positions that attended to the spiritual and physical health of the people. Unlike B. Satterthwaite, however, Satterthwaite possessed advanced training in medicine; B. Satterthwaite had a degree in mechanical engineering and certificate in practical nursing. Satterthwaite relied on her medical degree to provide services and train practical workers in maternal healthcare as part of her missionary service.[21] Satterthwaite had received her medical degree from the University of California after Stanford University suggested to her that it was imprudent to train a woman who would ultimately return to the domestic sphere to raise children. Although Satterthwaite did not have a child during medical school, she rebuked such limits on her dual passions of medicine and eventual motherhood.[22] When B. Satterthwaite and she decided to pursue missionary work in China, their young son David

[21] Bill was a conscientious objector and spent World War II making and fitting prosthetics in the Caribbean. The Satterthwaites met on the Virgin Islands, and spent the first two years of their marriage living separately. Adaline Pendleton Satterthwaite, "Curriculum Vitae," n.d., box 3, folder 2, APS Papers, 1; APS OH, 4-10; Adaline Pendleton Satterthwaite, "A Physician's Journey Towards Reproductive Health," n.d, box 18, folder 7, APS Papers, 1-2.
[22] Satterthwaite, "Curriculum Vitae," 1; APS OH, 3.

accompanied them. B. Satterthwaite died during their tenure in China, yet Satterthwaite and David did not return to the states immediately.[23]

Satterthwaite was committed to serving the people in China as long as it was safe for she and her child. Satterthwaite was empathetic to, if not politically aligned with, the revolution in China. Only upon China's entrance into the Korean War did Satterthwaite question their ability to remain abroad and began looking for a job in the United States. She secured the post in Women's Medical College Hospital. Unfortunately, the job did not involve missionary duties.[24] By December 1951, Satterthwaite had plans to return to missionary medicine outside the mainland US and take David with her. She notified her family of her plans by letter:

> Next May, after a year in the U.S. we are going back to Puerto Rico. I was honored that my former colleagues at Presbyterian Hospital in San Juan wanted us to return there. However, I now realize that in the next few years David needs more of my time than I could give him and do that job the way it should be done. So I've accepted the offer of the Ryder Memorial Hospital Staff in Humacao to take a part-time job there. Since this hospital is under the Congregational-Christian Home Board, it will be a rather simple matter to be loaned from the Foreign to the Home Board for a period of three years, after which time we shall reconsider foreign service elsewhere. Furthermore in San Juan there are many well-trained Puerto Rican specialists so the real challenge is to go to the smaller towns and rural areas where the need is greater.[25]

From this letter, it is clear how Satterthwaite elected to become the obstetrician and gynecologist at Ryder Memorial Hospital in 1952. Presbyterian Hospital in San Juan certainly possessed advantages over Ryder in rural Humacao, and Satterthwaite knew those perks first-hand. Presbyterian enabled her to gain experience in obstetrical surgery as a resident in the mid-1940s, something she had not had access to at her internship in the mainland US. Satterthwaite enjoyed more flexibility in deciding where she lived, worked, and loved her son as compared to many other

[23] Unlike Rice Wray, Satterthwaite gave birth to David years after she graduated medical school. APS OH, 4-7.
[24] APS OH, 10-13; Satterthwaite, "Curriculum Vitae," 1.
[25] Adaline Pendleton Satterthwaite to Family, December 1951, box 10, folder 4, APS Papers. A copy of this letter is also included in, *Homenaje a la Doctora Adaline Pendleton*, December 12, 1965, box 21, folder 10, APS Papers.

professional women of the time.[26] Unlike Rice Wray who was not given opportunities for specialized training in the 1930s, Satterthwaite participated in a rotating-internship at Los Angeles County General Hospital between 1941-1943, as well as three residencies in obstetrics and gynecology.[27] Satterthwaite did not list board certification in obstetrics and gynecology on her curriculum vitae, but her work in residencies marked her as a specialist, if not a board certified one, during this time. [28] As Kenneth Ludmerer showed in his histories of US medical education, the 1930s and 1940s witnessed the ascendency of graduate medical education (internships and residences) and emergence of board exams as the culmination for specialization. Only after World War II did the combination of residency plus board certification become the sole means to the honorific of specialist amongst recent medical school graduates.[29]

Satterthwaite chose Ryder as the best fit for her needs as a single mother and specialist in obstetrics and gynecology. She equally valued her jobs as mother and medical professional. In the excess of one hundred letters she wrote to her family while in Humacao, she detailed her routine at Ryder as much as she shared stories of her time with David. She decidedly embraced motherhood and career. Although Satterthwaite gained more opportunities for graduate medical education in the 1940s than did Rice Wray in the 1930s, both women operated in a society that only begrudgingly recognized white, middle-class women's presence in the workplace. The career-oriented woman was not the feminine archetype. Mainland US cultural values concerning mothers

[26] In one study, approximately eighty-seven percent of women physicians of Satterthwaite's generation worked full or part time, but their day-to-day experiences varied greatly from that of male colleagues. More, *Restoring the Balance*, 190, 200-205.
[27] According to More, less than ten percent of hospitals offering residencies in 1940 had a female resident. More, *Restoring the Balance*, 111.
[28] Rotating internships were broad practicums in a hospital. In addition to Presbyterian, Satterthwaite served as Assistant Resident at Margaret Hague Maternity Hospital (1943-944) and Resident at Women's Medical College Hospital (1951-1952). Ludmerer, *Let Me Heal*, 97-98; Ludmerer, *Time to Heal*, 82; Satterthwaite, Curriculum Vitae, 1; APS OH, 4.
[29] Ludmerer, *Let Me Heal*, 122-128, 137-145; Ludmerer, *Time to Heal*, 79-101.

as workers had changed by degrees between the early 1940s of Rice-Wray's arrival in Puerto Rico and the early 1950s when Satterthwaite planned to move there. Yet, both physicians "confronted the major dilemma of all women professionals in twentieth-century America—the demand to be productive professionals and 'well adjusted' wives."[30] Hence, positions that allowed for long-term development in motherhood and profession were limited in the mainland US for Satterthwaite like they had been for Rice Wray a decade earlier. When Ryder offered Satterthwaite a part-time position, she anticipated that she could thrive both as a physician and the sole care-provider to her son. Satterthwaite navigated the dual demands of professional women by allowing time with son via part-time work. At the same time, she challenged the gender norms of her class by furthering her professional development as an obstetrician and gynecologist. In this regard, she was perhaps a step ahead of Rice Wray at the start of her time in Puerto Rico.

Satterthwaite's 1951 letter also points to her desire to be needed by the people to whom she provided medical care, and this conviction directed her to Ryder. Satterthwaite did not want to further inundate San Juan with physicians because she believed the area had ample medical services. She wanted to assist in a medically underserved area, and she envisioned Humacao to be such a place. Satterthwaite's differentiation of San Juan and Humacao demonstrates her perception of fundamental difference between urban and rural communities, as well as Puerto Ricans versus mainland Americans. San Juan, about which Satterthwaite was acquainted, provided rich resources such as "well-trained Puerto Rican specialists."[31] Humacao, which later collaborators described as home to one of the "most impressive" slum areas and its rural population, did not have access to

[30] More, *Restoring the Balance*, 182. For further details on labor and motherhood in the postwar, mainland US, see, Cobble, *The Other Women's Movement*, 121-145; Tyler May, *Homeward Bound*, 82-85.
[31] APS to Family, December 1951.

as many medical services as the capital area.[32] Thus, Satterthwaite's move to Humacao was propelled her desire to be needed by her medical constituency.

Satterthwaite, like Rice Wray as she eyed new professional opportunities in the 1940s, perceived places outside the continental US to need her more than communities in the mainland. For both women, the implicitly-coded other of Puerto Rico was always more indigent than mainland Americans. However, Satterthwaite more explicitly valued serving a disadvantaged population and possessed a more nuanced view of Puerto Rico than Rice Wray prior to her respective relocation. Unlike Rice Wray, Satterthwaite did not view Puerto Rico as homogenous.[33] This nuanced view allowed her to reason that urban San Juan, with UPR School of Medicine so close and plenty of well-trained physicians, needed her less than rural Humacao.

The position at Ryder also afforded Satterthwaite the opportunity to return to a third type of labor: missionary work. Ryder was a protestant hospital, funded largely by mainland Americans, on a predominantly Catholic island. The hospital operated in accordance to their mission—*Lealtad a Dios Por Medio Del Servicio a Los Hombres* (Allegiance to God though Service to Men)—and housed a prominent chapel on its campus.[34] Devoutly protestant, Satterthwaite viewed Ryder as just the sort of institute that would allow her to fulfill her spiritual and professional needs; she could serve as a beacon of protestant virtue at the hand of her medical expertise. Serving in a religiously backed institution also likely provided Satterthwaite a veil of protection from gendered criticism for working as a professional and raising her child alone. As Sarah A. Curtis demonstrates for Catholic nuns in the outreaches of the French Empire, "The ability of Catholic nuns to

[32] Clarence J. Gamble to Margaret Sanger, July 22, 1957, as quoted in Ramírez de Arellano and Seipp, *Colonialism, Catholicism, and Contraception* 117.
[33] For Rice-Wray's views of Puerto Rico prior to her move, see, ERW OH, 44-51.
[34] Ryder Hospital's Información Para Pacientes, Familiares y Amigos, n.d., box 21, folder 2, APS Papers; Puerto Rico Evangélico, Notes on Ryder Hospital, November 1957, box 21, folder 2, APS Papers.

transgress certain gender norms was intimately linked to their participation in an old and respected institution, the female religious order, which appeared to embody traditional values."[35] Satterthwaite was not part of a homosocial group like the French nuns of the 1800s, but Ryder was a respected, religious organization.

Humacao proves an even more interesting choice for Satterthwaite considering her staunch views of Catholicism. In private letters to family, Satterthwaite often attached the adjective "rabid" to Catholics, especially if the mentioned person countered any of Satterthwaite's work.[36] In another letter to her family, Satterthwaite shared the highlights of a bible study session in which the featured speaker, a former nun and still-practicing doctor, celebrated her departure from a Venezuelan convent.

> [The former nun] had been widowed and had already received a doctor's degree before she went to the convent—but what she learned there completely turned her against the Catholic church in which she had been reared. She escaped to Columbia where she joined the Baptist church. Since that time she has travelled all over Central and South America and Spain telling her experiences.[37]

Satterthwaite wrote this letter and spoke of "rabid Catholics" during her tenure in Humacao. Yet, Ryder's status as a protestant, missionary hospital in a predominantly Catholic region might have solidified Satterthwaite's decision to move to Humacao.[38]

Satterthwaite chose to leave Philadelphia in 1952 for the position at Ryder due to a combination of personal and professional reasons. Satterthwaite's reasons for returning to Puerto Rico in the early 1950s importantly resembled some themes within Edris Rice-Wray's decision to move in the 1940s. Both physicians navigated their class and gender identities as it related to

---

[35] Curtis, *Civilizing Habits*, 8.
[36] Satterthwaite used the phrase "rabid Catholics" throughout her life, but began using scare-quotes around the word rabid in the 1980s. Adaline Pendleton Satterthwaite to Family, March 27, 1959, box 10, folder 5, APS Papers. For Satterthwaite's incorporation of scare quotes, see, Satterthwaite, "Contraceptive Clinical Trials," APS Papers.
[37] Adaline Pendleton Satterthwaite to Family, February 23, 1958, box 10, folder 5, APS Papers.
[38] In her oral history, Satterthwaite emphasized that, "In those days, the only way, really, to get overseas was with some type of religious or service organization." APS OH, 8.

appropriate spaces and ventures of middle-class, white women of the mid-twentieth century. However, Satterthwaite's richer personal collection allows clearer delineation of her motivations. Professional aims tinged with colonial logics facilitated Rice-Wray's move to Puerto Rico. Satterthwaite's rationale for returning to Puerto Rico, on the other hand, more clearly points to her imbrication within post-World War II, US colonialism as an increasingly modernist project.

The broad contours of relationship between U.S. healthcare workers and scientists and modernization efforts across the globe in the second half of the twentieth-century is well established, though more work is necessary on these dynamics in Latin America and the Caribbean.[39] Anne-Emanuelle Birn's and Raúl Nechochea López's recent anthology, *Peripheral Nerve*, takes up this vein of inquiry, but argues that US presence was not hegemonic in the region. To the contrary, "Latin American experience offered instances of imposition, adaptation, exploration, resistance, and even rejection, producing societal laboratories for implanting and maneuvering around the period's contrasting health ideologies."[40] In the case of Puerto Rico, Briggs finds less maneuvering. Instead, she argued that, "In the context of the Third World decolonization and the Cold War, development became an anti-Communist policy, and one of the first places it was tried was in the 'laboratory' of Puerto Rico."[41] Satterthwaite's desire to "better" Puerto Rico by offering her skills in medicine, reproduction, and anatomy situate her in Briggs' depiction of imperial logics. Satterthwaite envisioned that her labor as an obstetrician and gynecologist aided in the development and modernization of Puerto Rico. Her work to improve the health of Humacao's citizenry would stabilize the populace to allow for a brighter, more

[39]U.S. scientists and medical professionals policy of no-treatment for survivors of the atomic bombs in Japan but welcoming of female survivors to the US for plastic surgery illustrate the nimble ways medicine and science is deployed to rationalize US presence. Lindee, *Suffering Made Real*, 143-165; David Serlin, *Replaceable You: Engineer the Body in Postwar America* (Chicago: University of Chicago Press, 2004): 57-110.
[40] Anne-Emanuelle Birn and Raúl Necochea López, eds., *Peripheral Nerve: Health and Medicine in Cold War Latin America*, (Durham, NC: Duke University Press, 2020): 217.
[41] Briggs, *Reproducing Empire*, 18.

modern, future. Even Satterthwaite's protestant faith, a continual undergirding of mainland American policies, can be rationalized as part of U.S. modernization projects.

Satterthwaite's unique impetus to move to Humacao can also be seen as anomalous to this generalization. In the era of what Elaine Tyler May calls "domestic containment," Satterthwaite's move seems antithetical to her contemporary gender prescriptions.[42] Satterthwaite labored as a doctor and spent much of her day away from her son, David. She was not confined to a domestic role and took her son to a rural, supposedly under-resourced, community. Humacao was contradictory to the image of suburban bliss espoused by middle class whites in the 1950s and not an ideal place to raise a child according to many. In this light, it is important that Satterthwaite looked for part-time work as a way to protect her maternal role. She could rescue her motherhood by limiting her professional activities to a few hours a week. Hence, Satterthwaite represents an ambivalent manifestation of 1950s, middle class, mainland U.S. femininity. Satterthwaite's individual, if ambivalent, upholding of femininity enabled her to pursue a colonial project in Humacao. Professionally, she understood her responsibility as an obstetrician as integral to protecting and stabilizing nuclear families in Puerto Rico.[43] This balancing act of transgression—laboring outside the home yet insistent on the importance of her own family and a family-oriented society—furthered the project of development in Puerto Rico by "strengthening" the Puerto Rican family by providing healthcare. Through labor, she could attend to and "improve" the mothers and families of Puerto Rico at the same time she challenged the U.S. discourse of stay-at-home, middle class, motherhood.

[42] May describes domestic containment as the increased importance of a nuclear family and strict gender roles as a way to maintain the moral strength of the U.S. in the post-WWII era. In particular, women were encouraged to stay within the home and dedicate their time solely to the domestic space and their children in particular. Tyler May, *Homeward Bound*, 15-18.
[43] Satterthwaite, "Contraceptive Clinical Trials," APS Papers, 4.

Satterthwaite's motives for moving to Humacao are paradoxical, yet US developmentalist and colonialist projects during the mid-twentieth century are replete with such incongruities. One contemporary example derives from US-occupied Japan in the 1940s and 1950s. Mainland US women traveled to Japan with the goal of implementing gender reform projects in order to "liberate" Japanese women from what they perceived as the restrictions of backward-Japan. Therefore, U.S. women in Japan during the occupation, "clearly participated in U.S. colonialism by disseminating Cold War discourse of femininity and domesticity and promoting the Americanization of post-war Japan."[44] Satterthwaite fits into this description because she, too, hoped to better the lives of her patients in Humacao by working to create stable, nuclear families. Yet, it is notable how American women in Japan also challenged US hegemony by actively laboring and working in gender reform programs: "American women also subverted the dominant structure of power, as their participation in gender reform visibly contradicted Cold War notions of women and domestic containment."[45] So, too, did Satterthwaite as she labored as professional, most of the day away from her son at Ryder.

Satterthwaite's motivations for taking the post at Ryder indicates her familiarity with development-driven logics. Yet, her actions and concerns during her tenure at Ryder are not solely an example of mainland US colonialism. The early 1950s were the pinnacle of modernization and industrialization projects espoused by the Puerto Rican state, especially as it related to notions of masculinity. Satterthwaite's arrival in 1952 even coincides with the ratification of a new constitution for Puerto Rico and establishment of the Commonwealth. Furthermore, Satterthwaite developed concerns about overpopulation and female sterilization as she labored in Humacao, not prior, suggesting Puerto Rican influence on her thinking. Thus, Satterthwaite's understanding of

[44] Koikari, *Pedagogy of Democracy*, 5.
[45] Koikari, *Pedagogy of Democracy*, 5.

Puerto Rican women's reproduction requires an examination of a ground-level, localized, and personal rationale much as Rice-Wray's eventual role in the clinical trials of Enovid in Río Piedras necessitates a review of the longer family-planning projects happening in and around the island's capital during the 1940s and 1950s.

Satterthwaite quickly realized that the demands of her job at Ryder far surpassed her notions of part-time work. Despite her early rationalization that a part-time job would allow her to take good care of her son, the speed, demand, and continuously packed halls of Ryder did not seem to overly bother Satterthwaite. Just one month into her tenure at Ryder, she wrote to her family: "This afternoon we had a difficult case—an adherent ovarian cyst—in one of our very fat hospital cooks! We have an amazing amount of good surgical material here--and if we could only get a competent anesthetist the work would really be a pleasure!"[46] Satterthwaite began to worry a bit over "the many changes to [Ryder's] staff" by September 1952, but more demanding of her attention was "the population problem." "[It] is concerning us a great deal here," she wrote, "and we are doing a number of post-partum sterilizations for patients who have been having children every year. Along with this program we put a lot of emphasis on our well-baby clinic in trying to do as much health education as we can."[47]

Satterthwaite believed whole-heartedly in her mission to provide quality obstetrical and gynecological care to the patients of Ryder. Her desire to help her patients in Humacao, however, also derived from her deduction that Puerto Ricans and their institutions were constitutively poorer and less capable than their mainland U.S. counterparts. Writing to mainland donors to Ryder in 1955, Satterthwaite posited, "We must do ALL POSSIBLE to alleviate pain and eradicate disease. But we must avoid assuming so much responsibility for the local health problem that we encourage

[46] Adaline Pendleton Satterthwaite to Family, August 29, 1952, box 10, folder 4, APS Papers.
[47] Adaline Pendleton Satterthwaite to Friends at Palo Alto, September 14, 1952, box 10, folder 4, APS Papers.

sloth and indifference on the part of government agencies, institutions, and officials."[48] Satterthwaite rationalized that Puerto Rican municipal and state governments were likely to act haphazardly because she believed that Puerto Ricans in general lacked the discipline, self-control, and ethic to act with discretion and with an eye towards the future. Thus, when the insular government passed a new tax on luxury goods as part of Operation Bootstrap, Satterthwaite felt it a prudent, disciplining measure because Puerto Ricans had become "too materialistic."[49] The tax enforced, according to Satterthwaite, "the importance of choosing between reckless luxury spending and saving for the education of the family…it discourages [them] from turning in the fancy car each year and to encourage the people to take better care of the things which they have."[50]

Satterthwaite's sense of inherent Puerto Rican difference was particularly gendered. Puerto Rican men, she felt, did not conform to her ideal of 1950s masculinity. They were not, according to Satterthwaite, the dutiful husband bringing in the family wage. She often wrote to Ryder's benefactors and her family of deliveries in which she could not charge the mother much "because her husband has gone off and left her and the three children and I know she can't pay me anything."[51] Married, Puerto Rican men of Humacao also did not respect their wives enough to keep them abreast of their whereabouts as Satterthwaite thought they should. She felt as if she was "jolted into reality and again reminded of what it would be like to be married to a Puerto Rican!"[52] This particular reminder of Puerto Rican difference came when a former Ryder staff member left Humacao for an extended period. The wife "didn't have any idea how long he would be gone, etc. etc. Can you imagine it? I had thought that he was a more considerate husband. I might say I was

[48] Adaline Pendleton Satterthwaite to Friends, December 1954, box 10, folder 4, APS Papers.
[49] Adaline Pendleton Satterthwaite to Friends, February 21, 1957, box 10, folder 5, APS Papers.
[50] APS to Friends, February 21, 1957.
[51] Adaline Pendleton Satterthwaite to Friends, January 1955, box 10, folder 5, APS Papers.
[52] Adaline Pendleton Satterthwaite to Family, July 6, 1957, box 10, folder 5, APS Papers.

sort of disillusioned! But he is a typical P.R. [Puerto Rican] man."[53] Satterthwaite usually considered Puerto Rican men through the lens of family, not as individuals. For her, Puerto Rican men were most visible through their interactions with their partners and children.[54] These interactions, in Satterthwaite's opinion, were less than desirable. Satterthwaite did more than extoll the deficiencies of Puerto Rican masculinity in letters; she actively sought to reform it through her own work. Satterthwaite was not alone in her aim to reform Puerto Rican men, nor her understanding of masculinity within the framework of family. Like Satterthwaite, the PPD "sought to empower and discipline Puerto Rican men into a set of fatherly rights and responsibilities, combining exhortations to free voting and active participation in … civic organizations with promises to fathers of economic dignity, social respect, and power over homes, wives, and children."[55]

Similarly, Satterthwaite imagined Puerto Rican femininity as unsettling and in need of correction. Puerto Rican femininity of the 1950s inextricably implied motherhood, insecurity and cycles of dependency, and ultimately women's inability to extricate themselves from these cycles for Satterthwaite. Describing a thirty-five year old woman positive for tuberculosis and mother to twelve children, Satterthwaite wondered, "how can she rest with such a family and how can she protect the children from infection with such crowding!"[56] So engrained was her conflation of Puerto Rican femininity as impoverished motherhood, that Satterthwaite felt it necessary to share this depiction with protestant children in the US who had donated shoes to Humacao. Satterthwaite wrote to these children of the story of young Anita, her two older brothers, her baby sibling, and

[53] APS to Family, July 6, 1957.
[54] Satterthwaite makes exceptions for Puerto Rican men in the healthcare field, though this is a less gendered analysis and more of a consideration of professionalism in colonized spaces.
[55] Findlay, *We are Left Without a Father Here*, 5.
[56] Adaline Pendleton Satterthwaite to Unidentified, January 3, 1955, box 10, folder 5, APS Papers.

their mother traveling for miles to reach the services of Ryder and Doctora Penny. Anita's mother was pregnant and needed an operation immediately after she delivered Anita's expected sibling. So, the mother and children ventured into the center of Humacao for an appointment. Anita, according to Satterthwaite, repeatedly asked her mother in the appointment, "Is that really your dress, mother?"[57] Satterthwaite used Anita's query to explain to the mainland US children why Anita's mother had worn a new dress to Ryder. Anita's mother donned the unrecognizable garment because "to come to the clinic had required a lot of planning because no one would think of going to town in old clothes—and then, too, one had to gather together enough money to pay for the clinic fees and medicines—and [Anita's] father didn't have regular work when the sugar cane was not being cut."[58] For Satterthwaite, this vignette encapsulated the plight of Puerto Rican women: they were always impoverished mothers. Puerto Rican women were mothers so poor that a medical appointment required weeks of saving money and planning by all members of their family. Puerto Rican women were mothers so poor that Satterthwaite believed that even middle class, US children could read Anita's family story and picture Puerto Rican women as constitutively poor mothers. Once again, Satterthwaite's rendering of gender and family relations shared important parallels with the PPD's messaging. The PPD limited depictions of women to wives in order to further the masculinist rhetoric of the party and provide a means by which women could, for the party, direct their husband to vote for a better future by way of the PPD, and for themselves, make claims on their husbands to provide for them and their children.[59] Neither Satterthwaite nor the PPD,

[57] Adaline Pendleton Satterthwaite to Child Donors, May 29, 1953, box 10, folder 5, APS Papers.
[58] APS to Child Donors, May 29, 1953.
[59] Findlay, *We Are Left Without a Father Here*, 10; Mary Frances Gallart, "Political Empowerment of Puerto Rican Women, 1952-1956," in *Puerto Rican Women's History: New Perspectives*, eds. Felix Matos-Rodriguez, Linda Delgado (Armonk, NY: M.E. Sharp, 1998): 227-228, 235-236.

however, had space in their hopes for Puerto Rico's future for the fact that more women were gaining employment than Puerto Rican men.[60]

Satterthwaite furthered her understanding of Puerto Rican femininity by presenting it as utterly defined by reproduction. To explore her rendering of Puerto Rican femininity, she kept track of how many deliveries she performed. From her letters home and available hospital records, she delivered at least one child each month, usually more, while the obstetrician at Ryder. In January of 1959, she delivered forty-two babies.[61] Satterthwaite attended to forty-seven births in February and forty in March of the same year.[62] In Satterthwaite's mind, the fact that "obstetrical service continue[d] to boom" at Ryder was evidence enough of the problems encountered by Puerto Rican women.[63]

Satterthwaite explicitly detailed what she considered to be the archetypal experience of Puerto Rican women, yet she also pondered her own femininity. Satterthwaite believed that she represented a different femininity and aimed to embody such difference. Motherhood figured prominently into Satterthwaite's notions of her own and Puerto Rican femininity, but she did not characterize her own motherhood as one tempered by insecurity and over-burden. Satterthwaite's active differentiation of her femininity from Puerto Rican femininity appears covertly in her records. Despite the subtlety with which Satterthwaite conveyed these distinctions, her acts of differentiation were constant.

---

[60] Findlay, *We Are Left Without A Father Here, 30-32;* Gonzalez, *Harvest of Empire*, 290-291; Ramírez de Arellano and Seipp, *Colonialism, Catholicism, and Contraception*, 142-143; Pérez-Herranz, "Our Two Full-Time Jobs," 143; Ríos, "Export-Oriented Industrialization and the Demand for Female Labor," 323; Carmen Teresa Whalen, "Labor Migrants or Submissive Wives: Competing Narratives of Puerto Rican Women in the Post-World War II Era," in *Puerto Rican Women's History: New Perspectives*, eds. Felix Matos-Rodriguez, Linda Delgado (Armonk, NY: M.E. Sharp, 1998): 208-210.

[61] Obstetrics and Gynecology Statistical Report at Ryder, January 1959, box 21, folder 5, APS Papers.

[62] Obstetrics and Gynecology Statistical Report, February 1959, box 21, folder 5, APS Papers; Obstetrics and Gynecology Statistical Report, March 1959, box 21, folder 5, APS Papers.

[63] Adaline Pendleton Satterthwaite to Family, March 21, 1954, box 10, folder 4, APS Papers.

Figure 1: *Field trial participant, her eight children, and one grandchild, circa. 1961.* Photo Courtesy of Adaline Pendleton Satterthwaite Papers, Sophia Smith Collection, Smith College, Northampton, Mass. (Hereafter APS Papers).

Figure 2: *Adaline Pendleton Satterthwaite and David Satterthwaite, circa. 1952.* APS Papers

Figure 1, a staged photograph of a Puerto Rican woman with many children, poor, and plagued by the stresses associated with both, represented the essence of Puerto Rican femininity for Satterthwaite. However, the juxtaposition of Figure 1 and Figure 2, an image of Satterthwaite and David, illustrate striking similarities between the two families. Like the unnamed Puerto Rican mother, Satterthwaite embraces her child. By way of embrace, both women provide support and

strength for their child(ren). Both women face the camera rather than toward their child(ren) with a peaceful, yet watchful gaze, almost as if they are wondering what the future holds for themselves and their child(ren). Neither mother is fully erect, but rather sitting or kneeling to accommodate her child(ren). A husband and father are absent from both family portraits. No male partner exists for either woman to share in the joys and tribulations of parenthood. Apparent differences present in these photographs as well. Whereas the Puerto Rican woman is surrounded by eight children in what some might consider to be rags, David alone stands at the side of Satterthwaite in finely pressed clothing. A cramped and dilapidated porch acts as the backdrop for the Puerto Rican woman's family and a verdant tree-line frames the Satterthwaites' family portrait.

Satterthwaite chose to highlight the differences between her own life, femininity, and motherhood and that of Puerto Rican women rather than emphasize shared experiences in her letters to friends and family. The few, though drastic, differences between Satterthwaite and her archetypal Puerto Rican woman provided Satterthwaite with fodder to justify her femininity as distinct, and indeed better, from that of many Puerto Rican mothers. Although the justification might be easy, it is still notable that Satterthwaite's form of femininity was something she sought to inculcate in Puerto Rican women. Satterthwaite replicated distance between herself and Puerto Rican women in her letters, suggesting her persistent need, perhaps anxiousness, to maintain the distinctions. She meticulously organized her letters: half the letter dedicated to her professional experiences and observations about Puerto Rico and Puerto Ricans, the other half devoted to narrating her life with David. Satterthwaite never mentioned David or her family life in the same paragraph, let alone the same sentence, as her ponderings on her work at Ryder or larger happenings in Puerto Rico. This suggests, I argue, how Satterthwaite understood her own

femininity and motherhood, and in turn, differentiated her femininity from that of Puerto Rican women.

Satterthwaite labored both as mother and as physician, but these facets represented two discrete halves of her life. Motherhood and medicine equally animated her life in Puerto Rico, but she did not collude them. Her separation of private and public lives, as well as personal and professional lives, provided a way for Satterthwaite to further distinguish her own femininity and motherhood from that of rural, Puerto Rican women. Her intimate knowledge of these women's personal lives, garnered from her professional relationship with them, provided her the means to create such a separation. As the letter describing Anita's mother's visit to Ryder demonstrates, Satterthwaite saw no such distinctions of personal and public life for Puerto Rican women.[64] Satterthwaite wrote of Puerto Rican women's families and doings in the same paragraphs of letters as a way to further differentiate herself from women, who in many ways, shared some experiences with Satterthwaite.

Theories of abjection provide a key frame through which to elucidate why Satterthwaite emphasized the differences between Puerto Rican women of the 1950s and herself. The abject is the object that can never be the subject, the other that will never be the self. The abject represents all that the subject/self desires and understands to be always already outside and beyond its existence and definition. For Satterthwaite, the abject are Puerto Rican women. Theories of abjection, on the other hand, describe the impossibility of such an absolute binary between the abject and the subject/self. Rather than totally distinct and discrete, the object constitutes the subject; the other determines the self. Only through imagining the abject as the boundary of subject/self can the subject/self be realized. Thus, the subject/self carries the abject within itself

[64] APS to Child Donors, May 29, 1953.

concomitantly as it tries to distance itself from the abject. Satterthwaite's separation of her work at Ryder and her motherhood in letters, combined with the collusion of all aspects of Puerto Rican women's lives in her letters, represents the erection of a boundary between Satterthwaite and Puerto Rican women that may not be obvious otherwise. Satterthwaite, in a way, imagines herself at the absolute limit of Puerto Rican femininity and motherhood. Kristeva and McClintock define abjection as an active process.[65] Satterthwaite expelled Puerto Rican women from her own realm of femininity every time she wrote of the dangers of their reproduction and motherhood; every time she made note of the number of deliveries she performed each month; and every time she conflated Puerto Rican women's lives as defined solely by reproduction. Satterthwaite's imagining of Puerto Rican women and their reproductive capacity as dangerous and fearful, was essential for justifying her labor as an obstetrician in a colonized land. McClintock's argument that "abject peoples are those whom industrial imperialism rejects but cannot do without," is essential for understanding the colonial dynamics of Satterthwaite's justification of her labor in reproduction and as a missionary in Puerto Rico."[66]

Another source of fear, a characterizing feature of abjection as process, shaped Satterthwaite's impetus to differentiate herself from Puerto Rican mothers: her son.[67] Satterthwaite knew when she moved to Humacao that she would raise David in an impoverished area lacking vital resources. She knew, in fact, that she would raise him in the same community in which the women she worked to distinguish herself from also lived. She also knew, and indeed encouraged, David to invite the children of the mothers she described as impoverished into their home. The

[65] Kristeva, *Powers of Horror*, 9; McClintock, *Imperial Leather*, 71.
[66] McClintock, *Imperial Leather*, 72.
[67] "Fear having been bracketed, discourse will seem tenable only if it ceaselessly confronts that otherness, a burden both repellent and repelled, a deep well of memory that is unapproachable and intimate: the abject." Kristeva, *Powers of Horror: An Essay on Abjection*, 6.

conditions which she so wanted to be outside her own experience, and that of her son, in fact surrounded them in their everyday life in Humacao. Hence, the intimate relationship and proximity of abject people required Satterthwaite to constantly reconstruct Puerto Rican women as antithetical to her own femininity.

Satterthwaite might also have sought to distinguish herself from her patients because of her own contingent status during the Cold War. Again, Satterthwaite represented an ambivalent manifestation of prescribed middle-class femininity in the mid-twentieth century US. Her life was a balancing act if she desired to portray appropriate femininity as a perfect motherhood embodied by a widowed, professional woman. Differentiating herself as a medical professional from her patients and Puerto Rican women in general, then, could tip the scales in her favor. She could be secure in her own righteousness and correct expression of femininity if she could always construct herself as different from Puerto Rican women. They could never be part of the professional class because they were women, while Satterthwaite thrived in it despite the fact that she was a woman. Satterthwaite's ultimate participation in the colonial project of birth and population control, then, was propelled by gender and class expectations in the US mainland and Puerto Rico that she believed to sharply differ.

Contending with Sterilization and Fears of Overpopulation in Humacao

Satterthwaite's letters also suggest why she regularly wrote to her family members and others in the mainland United States about what she perceived to be the issues of Puerto Rican femininity and masculinity. She wrote about gender because she understood the largest problem facing her patients at Ryder to be family size and composition. Satterthwaite conceived Puerto Rican femininity and masculinity only through the lens of family. By constructing Puerto Rican women and men as meaningful only in relation to the family, Satterthwaite participated in and

furthered colonial thinking about Puerto Ricans. However, it is important to note that Satterthwaite's logic was not solely imported from the states. As the previous chapter on Rice-Wray, I. Rodríguez, and the earliest trials of Enovid in Río Piedras has shown, the Puerto Rican family was dually interrogated in the mid-twentieth century by mainland Americans and Puerto Ricans. Along class, racial, and educational lines, mainland Americans and Puerto Ricans pondered stereotypes of the Puerto Rican family and its ramifications for a modern Puerto Rico.

The Puerto Rican family was in danger, according to Satterthwaite, because Puerto Rican men and women drove the population problem. Simply, Satterthwaite operated under the premise that Puerto Ricans were having too many children. She agreed with Celestina Zalduondo, the Director of the Division of Public Welfare in Puerto Rico in 1955 and eventual Executive Director of Profamilia, that "the essence of the thing, the action of men and women procreating fools and insane, trying to support two or three homes when they can scarcely maintain one, is the root of all the social evils."[68] Because the size of Puerto Rican families was what most concerned Satterthwaite, she argued that:

> It is evident that it is in the field of family relations that the Evangelical Church must continue to be the lead… As I think of the Puerto Rican people; hospitable, kindly, friendly, generous, gay, and fun-loving—I feel that the key to the problem [of family relations] is a lack of discipline. They'd rather have an injection than take medicine every four hours. They'd rather have an operation than use contraceptive methods…We are going to find that there are many points at which we shall have to cut across the mores and try to inject the idea of self-discipline.[69]

[68] APS to Friends, January 1955.
[69] APS to Friends, January 1955.

Rather than inject, Satterthwaite prescribed "self-discipline" to the Puerto Rican family by providing female sterilization, specifically tubal ligation, to her female patients.[70] Thus, offering "discipline" in this case implied Satterthwaite performing sterilizations on Puerto Rican women.

Satterthwaite's letters home point to the prevalence of sterilization at Ryder, and her letters also mention the practice of sterilization elsewhere in Puerto Rico. She commented that she continued "to do a rather large proportion of post-partum ligations" as the hospital's obstetrician.[71] The numbers are even more telling. In December 1958, Satterthwaite delivered forty-five children; that same month she performed eighteen tubal ligations.[72] Of the ninety-five women who entered Ryder for gynecological or obstetric services in January 1959, twenty-five underwent tubal ligations.[73] February of the same year witnessed Satterthwaite performing twenty-nine tubal ligations.[74] In March, a total of ninety-two women visited Satterthwaite of which forty-two gave birth and twenty-five were sterilized.[75] Of the sterilizations noted by Satterthwaite between January and March of 1959, the youngest woman was twenty-eight years old and the oldest forty-three. Reflecting back on her time at Ryder, Satterthwaite estimated that "during the years I was there, [we did] around six-hundred deliveries, and about two-hundred sterilizations per year."[76]

Satterthwaite performed tubal ligations and other forms of sterilization for the entirety of her tenure at Ryder. Despite how routine these sterilizations were for Satterthwaite, she often narrated successful stories of female sterilization for her family and colleagues. Satterthwaite's frequent discussion of this practice evidences her strong interest in, as well as concern about,

[70] Tubal ligation disrupts the normal function of fallopian tubes; the sex-cells (eggs in this case) cannot flow from the ovaries to the uterus. By preventing this transmission, eggs cannot be fertilized by sperm (complementary sex cell), and conception is prevented.
[71] Adaline Pendleton Satterthwaite to Family, October 1952, box 10, folder 4, APS Papers.
[72] Obstetrics and Gynecology Discharge Report, December 1958, box 21, folder 5, APS Papers.
[73] Statistical Report at Ryder, January 1959.
[74] Statistical Report at Ryder, February 1959.
[75] Statistical Report at Ryder, March 1959.
[76] APS OH, 16.

sterilization. One success story Satterthwaite shared dealt with a family of ten children and their cows. A mother of ten children had been sterilized for a year. Prior to the surgery, the father had annually reared two calves—one to sell for money to feed his family, the other to pay "for the fee of the midwife."[77] Satterthwaite told her family that since the mother's sterilization, "the family could face the future without the fear of another mouth to feed."[78] Furthermore, the father planned to sell the second cow that year in order to "use that money for the education of [his] children or the improvement of the home."[79] Satterthwaite's portrayals of sterilization like this seemed to indicate her approval of sterilization as a means to better familial relations and the population problem in Puerto Rico. However, these narratives also suggest Satterthwaite's growing concern over the utility of tubal ligation as a solution to familial stability and overpopulation.

As previously mentioned, Satterthwaite best understood the lives of rural Puerto Rican men and women through their reproductive capacity and family composition. Because Satterthwaite conceived of Puerto Rican reproduction as excessive, she initially turned to post-partum sterilization as the best available form of contraception. This derived in part from her perception that Puerto Ricans lacked discipline, as well as her views of Catholicism. A protestant missionary, Satterthwaite felt that sterilization best fit with her Catholic, female patients because, "in a Catholic country it is easier to get operated on and confess once and for all, than to bother with a method and face the need for confessing each week."[80] As problematic as post-partum sterilization was for Puerto Rican women, Satterthwaite's conclusion of its necessity fit with her racialized and gendered understandings of Puerto Rican women. Sterilization affirmed Satterthwaite's notions of

[77] APS to Friends, September 14, 1952. In 1951, sixty-three percent of all births in Puerto Rico were attended to by midwives. Midwives served pregnant women in their homes and public hospitals, but no woman giving birth in a private hospital in 1951 was assisted by a midwife. Córdova, *Pushing in Silence*, 30.
[78] APS to Friends, September 14, 1952.
[79] APS to Friends, September 14, 1952.
[80] Adaline Pendleton Satterthwaite to Friends, November 1956, box 10, folder 5, APS Papers.

a Puerto Rican other because it prevented Puerto Rican women from furthering overpopulation, and in turn, increasing conditions of poverty without causing them to continuously commit sin. Yet, her missionary ethic—the need to convert and "inject" new social mores and spiritual direction to the people of Humacao—also enabled Satterthwaite to ponder new forms of contraception *other* than sterilization. For Satterthwaite, if her protestant mores and attitudes of self-discipline and anti-Catholicism could be injected into her patients, then new forms of reversible contraception for Puerto Rican women would also be possible and a complete cessation of reproductive capacity, which might threaten marital stability, would become unnecessary. Satterthwaite dreamt of temporary contraception because of her hope for social and religious conversion in Puerto Rico. She wanted reproductive and social change.[81] Specifically, Satterthwaite hoped for reversible birth control because of her understanding of family dynamics in Puerto Rico.

Satterthwaite perceived the family and marriage as endangered in 1950s Humacao and the rest of Puerto Rico. According to her, Puerto Rican husbands often "ran off" from their families leaving the Puerto Rican mothers and children destitute.[82] Satterthwaite's association of Puerto Rican womanhood with procreation, and in turn her belief that Puerto Rican men only married to procreate, necessitated a reversible form of birth control if marriage and the nuclear family were to prosper. Sterilization could not fully solve the population problem because it disallowed, in Satterthwaite's mind, the possibility of marriage and nuclear family formation. Reversible birth control, on the other hand, could curtail reproduction at the same time it allowed for stable families,

[81] Peru provides an interesting comparison for the role of protestants in the proliferation of birth control programs during the 1950s. Like Peru, protestants in Puerto Rico did not singularly portend the development of long-term birth control programs. Unlike missionaries in Peru, protestant efforts did result in new forms of contraceptives in Puerto Rico. See, Necochea López, "Gambling on the Protestants," 344-371.
[82] APS to Family, July 6, 1957.

and respectable womanhood and manhood. As Satterthwaite wrote years after her time at Ryder, "I was interested in having an effective temporary method to offer to women as an alternative to sterilization since marriage in Puerto Rico was unstable."[83] As seen before, Satterthwaite's "prescription" was yet another way for Satterthwaite to work closely with Puerto Rican women and simultaneously keep them at the arm's length by differentiating them from herself. Satterthwaite never suggested that she needed a temporary contraceptive for stability; only Puerto Rican women needed it.

Satterthwaite's desire for a temporary contraceptive also enabled her to differentiate herself from other physicians on the island. The diaphragm and other barrier methods were available in Puerto Rico in the 1950s, but they never gained wide-spread popularity amongst physicians nor women of Puerto Rico. Satterthwaite blamed this on physicians on the island:

> People kept telling me, oh, nobody can ever teach a Puerto Rican to use a diaphragm, they just won't learn, they won't. But I was able to teach a lot of women to use the diaphragm… The physician's attitude toward it…because he had not taught his nurse how to fit, and his nurse how to teach the patients to do it, and he himself not being willing to demonstrate…Why, it was obviously the physician's reason that it was not acceptable.[84]

This sentiment represents a new formulation of Satterthwaite's personal struggle to differentiate her own femininity from that of Puerto Rican women and justify her professional aspirations on the island. A new contraceptive could provide the boundary that separated Satterthwaite from her female patients at the same time as it enabled Satterthwaite to "heal" their dangerous womanhood to be more like her own. By participating in the development of a new contraceptive, Satterthwaite

[83] Adaline Pendleton Satterthwaite, "Reflections on Forty Years of Health Work in Asia and Latin America," circa. 1985, 2, box 18, folder 7, APS Papers. Similar sentiments may also be found in APS OH, 15; Satterthwaite, "A Physician's Journey," 2. Briggs found that Gamble, rather than individual physicians, was most to blame for the lack of access to diaphragms in Puerto Rico. Briggs, *Reproducing Empire*, 102-107.
[84] APS OH, 15-16.

could legitimize her work as a physician and distinguish herself from other physicians in Puerto Rico.

By 1955, Satterthwaite was both the interim head of staff and sole obstetrician and gynecologist at Ryder.[85] By then, she was extremely concerned with the prevalence of post-partum sterilization both in Humacao and Puerto Rico writ large. Remembering her concern, Satterthwaite later wrote that "female sterilization was…the most popular method, which was widely performed but often abused by private physicians."[86] Satterthwaite herself regularly performed sterilizations on her patients, yet she still hoped for a better, reversible form of contraception. She increasingly disliked the practice of sterilizing women because of its growing vulnerability to medical abuse, leading her to attended the 1955 Western Hemisphere Regional International Planned Parenthood Federation (IPPF) meeting to investigate means of contraception other than sterilization.[87] There, she met Gamble, the heir to the Proctor & Gamble fortune which enabled him to be a long time interlocutor in birth control programs in Puerto Rico and elsewhere.[88] After her chance meeting with Gamble, Satterthwaite wrote to her family in December 1956, explaining, "I had word from Dr. Clarence Gamble of Boston that Dr. John Rock of Harvard Medical School was looking for another place…to try out a clinical experiment on an oral contraceptive and they thought that perhaps Ryder would be the place. Dr. Gamble is willing to foot the bills and pay for my trip to Boston to confer with Dr. Rock."[89] On Christmas Day, she notified her family that, "the interview with Dr. Rock was fine… We are to make a field trial set up along the same lines as those being

[85] APS to Friends, January 1955, box 10, folder 5, APS Papers.
[86] Satterthwaite, "Contraceptive Clinical Trials," 1.
[87] Satterthwaite, "Contraceptive Clinical Trials," 2; Adaline Pendleton Satterthwaite to Lara Marks, June 3, 1998, box 21, folder 9, APS Papers.
[88] Gamble first became involved in birth control politics in Puerto Rico in 1936. Briggs, *Reproducing Empire*, 102-107; Ramírez de Arellano and Seipp, *Colonialism, Catholicism, and Contraception*, 45-47.
[89] Adaline Pendleton Satterthwaite to Family, December 3, 1956, box 10, folder 5, APS Papers.

followed at the Río Piedras clinic but using another compound."[90] By January 13, 1957, Satterthwaite was conferring with Rice Wray on the practicalities of field trials in Puerto Rico prior to Rice-Wray's departure for Mexico.[91]

Satterthwaite's and the larger Ryder community's involvement in the trials of Enovid may appear coincidental, a happenstance. If Satterthwaite had for some reason fallen ill or otherwise missed the encounter with Gamble at the IPPF conference, she might never have overseen one of the most important and debated medical inventions of the twentieth century. Yet, the inception of the field trials of Enovid at Ryder was not solely the product of serendipity. Satterthwaite had already been concerned about overpopulation. Her fear of overpopulation derived from her personal and professional needs to continually demarcate racial, reproductive, marital, and socio-economical difference of Puerto Ricans. Puerto Rican women should require access to contraceptives if the crisis of overpopulation was to be averted and her composite needs were to be satisfied. This belief tied Satterthwaite to practices of female sterilization. To decrease the burgeoning population, women's reproductive capacity had to be curtailed through any means. The most easily employed and readily available means at the time was female sterilization, paradoxically made Satterthwaite uncomfortable with the method. Her sentiments on overpopulation stemmed not from a grandiose, blanket-theory, but from her early years at Ryder where she saw overpopulation as a real, tangible, and lived experience surrounding herself. It was her day-to-day interactions with her patients at Ryder, rather than theory, which most acutely shaped her interest in contraception. Thus, Satterthwaite's dual concerns of overpopulation and female sterilization directed her not only to the IPPF meeting, but also to the field trials of Enovid

[90] From the medical literature and Satterthwaite's own letters during the trials, a new formulation of Enovid was not introduced until 1959. Adaline Pendleton Satterthwaite to Family, Christmas Day, 1956, box 10, folder 5, APS Papers.
[91] Adaline Pendleton Satterthwaite to Family, January 13, 1957, box 10, folder 5, APS Papers.

at Ryder that made her a principle investigator of the first oral contraceptive in the world. Ultimately, her involvement in the clinical trials of Enovid derived not from a mainland, US mandate, but her own concerns and morals she developed as the obstetrician and gynecologist of Ryder in the 1950s.

More Women, New Field Trials: Testing Enovid (Norethynodrel) in Humacao

Satterthwaite's desire for a temporary contraceptive intersected with shifts in the Enovid research program. By the end of 1956, Pincus and his collaborators felt secure in their preliminary findings that ingestible norethynodrel, the active progestin in Enovid, regulated ovulation in a similar manner to naturally occurring progesterone. Taking Enovid daily maintained higher levels of progesterone-like hormones and suppressed ovulation in the Río Piedras participants as long as they took the pill. Indeed, participants' experiences and the researchers' work in Río Piedras had "demonstrate[d] the action of a powerful agent for fertility control among women using it."[92] However, more women, taking the pill for longer periods of times, were necessary to adequately substantiate this claim and the safety of Enovid to the FDA, as well as to garner support amongst medical practitioners.[93] Pincus, his team, and interested third-parties like Gamble, set out to find more women willing to take the pill to accumulate conclusive data that Enovid was a viable contraceptive that posed less a health risk than pregnancy.[94] Another research goal began emerging in late 1956: assessment of the efficacy of Enovid across different populations. The research collective wanted to do more than substantiate Enovid's contraceptive ability and safety to the FDA; they wanted to evaluate how oral contraception played out in diverging locations, in different

[92] Pincus *et al*., "Fertility Control with Oral Medication," 1346.
[93] Oudshoorn, *Beyond the Natural Body*, 130.
[94] As I elaborate in Chapter Three, the FDA evaluates safety, rather than efficacy, of drugs in the 1950s and early 1960s. Researchers needed to prove that Enovid posed less a risk to women's health than pregnancy for the drug to be considered safe. Mainland researchers also changed how they represented their findings from individual women to menstrual cycles to increase data. Contrasting interpretations of the shift to menstrual cycles appear in, Junod and Marks, "Women's Trials," 140; Marks, *Sexual Chemistry*, 112; Oudshoorn, *Beyond the Natural Body, 131-132.*

"fields."[95] Retrospectively, the early information from Río Piedras demonstrated how an urban, poor group of women responded to contraception for Pincus and his Massachusetts team. Going forward, they also wanted to know how rural women engaged with contraception.[96] From the perspective of mainland researchers, then, the field trials in Humacao were initiated to serve these two purpose.[97]

The trials in Humacao did share some characteristics with the 1956 tests in Río Piedras. Like Rice-Wray, Satterthwaite worked in concert, and at times at odds, with social workers to make the field trials a reality. Like Rice-Wray, she too did much of the number crunching, more invasive medical examinations of patients, and published on the tests she oversaw. Social workers N. Rodríguez, and to a lesser extent MacDonald, performed similar work as I. Rodríguez at Profamilia. They recruited and developed more personal relationships by going into the homes of participants to distribute contraceptives. Yet, as the previous section illustrated, Satterthwaite sought out new forms of fertility control for her own reasons. Satterthwaite's personal hopes for a new, reversible contraceptive are only one way the ground-level actors in Humacao effected the course of research on Enovid as a contraceptive. By detailing how the trials of Enovid in Humacao materialized and developed in relation to shifting research goals from the mainland and ground-level interactions amongst physicians and social workers, it is clear that Satterthwaite, N. Rodríguez, and MacDonald created a distinct trial of Enovid. The trials of the first formulation of Enovid evolved to meet the needs, desires, and colonizing perspectives of actors on the ground and from abroad.

---

[95] Pincus, Rock, and García, "Field Trials with Norethynodrel," 228.
[96] Marks, "'Cage of Ovulating Females," 237; Marks, *Sexual Chemistry*, 103; Ramírez de Arellano and Seipp, *Colonialism, Catholicism, and Contraception*, 117.
[97] Pincus *et al.*, "Effectiveness of an Oral Contraceptive," 81.

Satterthwaite gained new funding to facilitate the tests of Enovid. She, like the researchers in Río Piedras, received the pills from Searle and benefited from the funds philanthropist Katharine Dexter McCormick and others provided to Pincus in Massachusetts.[98] Gamble complemented these funds by investing specifically in the Humacao trials. Gamble had watched with interest, and likely offered guidance to Rice-Wray and I. Rodríguez, but he exerted minimal influence in the Río Piedras trials.[99] In contrast, Gamble directly inserted himself into the research in Humacao. He "worked out the arrangement with the mission hospital … He paid the salary of Noemí Rodríguez … and supplied the Project with a jeep to facilitate home visits. Copies of all clinic records were sent to Dr. Gamble."[100] Hence, Gamble's funds assisted in growing the research team in Humacao. Because of him, N. Rodríguez joined with Satterthwaite to set up the fields trials.

Gamble's patronage influenced, though did not control, the initial recruitment of women to the trials by N. Rodríguez. Both Satterthwaite and N. Rodríguez had lived in the municipality for some time, but they needed more than their subjective sense of the community to begin their research. They needed to systematically characterize the area in order to identify potential trial participants and validate the research endeavor. Gamble suggested a formal census to Satterthwaite. N. Rodríguez used the donated jeep, and the salary Gamble paid her, to conduct a census of Humacao municipality.[101] She drove to families in three neighborhoods in the town and two neighborhoods beyond the town-proper in the hilly outreaches of the municipality. N.

[98] Planned Parenthood Federation of America (PPFA) provided grants to Pincus' research, but those funds paled in comparison to McCormick's direct investment into Pincus' Worchester Foundation for Experimental Biology. Accordingly, the scientific literature solely lists PPFA and Searle as the grantors, while McCormick's funds are implied through institutional affiliation at Worchester by authors. Pincus *et al*., "Fertility Control with Oral Medication," 1333; Pincus, Rock, and García, "Field Trials with Norethynodrel," 230; Tone, *Devices and Desires,* 214.
[99] Instead of directly funding the trials of Enovid in Río Piedras, Gamble connected Profamilia with Joseph Sunnen to establish their subsequent work on Emko Foam. Briggs, *Reproducing Empire*, 123.
[100] APS to Marks, June 3, 1998.
[101] APS OH, 20-21.

Rodríguez's initial survey ultimately enabled a discussion of population density of communities in the resulting papers on Enovid. Gamble's and Satterthwaite's articles, in particular, highlighted population dynamics. Gamble, for reasons different than Satterthwaite, envisioned trial participants through the colonialist lens of overpopulators that merited correcting. Gamble had been a fellow-traveler of eugenics and birth control politics for decades in the mainland US, Puerto Rico, and other countries. Like many of the mid-twentieth century, he believed "it was better to prevent poor or dark-skinned people from being born, and … maintained a quite ambivalent relationship to the idea of white, affluent women voluntarily limiting their own fertility."[102] Satterthwaite shared similar concerns about the ramifications of population size, but her ideas in the 1950s related more to family dynamics and stability in Puerto Rico than to geopolitics.[103] Regardless of their slight differences, descriptors like "1,107 persons were found living in one-story houses on 7 acres of land" served as dog whistles in Satterthwaite's and Gamble's co-authored publications to justify the need for a new contraceptive.[104] If the eventual test results could illustrate a decrease in population from the time of N. Rodríguez's survey, then Enovid posed the potential to serve a multitude of goals.

N. Rodríguez did more than count people as she traversed Humacao in the jeep; she created a sketch of the private lives of possible participants and their families as a foundation from which to evaluate the efficacy of Enovid. As she sat in community members' homes, N. Rodríguez inquired as to the woman's age, marital status, number of living children and pregnancies,

[102] Briggs, *Reproducing Empire*, 106. For Gamble's involvement in birth control politics and programs in Puerto Rico prior to the trials, see, Briggs, *Reproducing Empire*, 102-108, 122-128, 152-153; Ramírez de Arellano and Seipp, *Colonialism, Catholicism, and Contraception*, 45-56, 100-104. In the US, specifically in the South, see, Schoen, *Choice & Coercion*, 21-52. In Peru, López, "Gambling on the Protestants," 344-371.
[103] In her oral history, Satterthwaite labeled Gamble an eugenicist due to his pronatalism for individuals he deemed "good." See, APS OH, 50.
[104] Cook, Gamble, and Satterthwaite, "Oral Contraception by Norethynodrel," 438.

sterilization status, and if she cohabitated with her husband.[105] N. Rodríguez noted down the families' economic status.[106] She did not refrain from asking possibly taboo questions. She learned of the women's history of sexual activity, before and during marriage, as well as if they had ever used any form of contraception. N. Rodríguez also heard about the frequency of sex between the wife and husband.[107] At the end of the survey, N. Rodríguez then offered "all women living with their husbands, having at least 2 children, not then pregnant, and aged 40 years or less" the opportunity to take Enovid.[108] If the women accepted N. Rodríguez's offer of the norethynodrel pill, participants were not required to go to Satterthwaite at Ryder for refills. N. Rodríguez would return to the women's homes to have a quick check-in on how they were doing and provide the refills.[109] Rather than rely on the women in rural Humacao municipality to venture into Ryder, the jeep allowed N. Rodríguez to go to them. The women who accepted Enovid in their homes were the first trial participants in Humacao in April 1957. They became codified as the Rodríguez-series (R-series) in the scientific literature.

Engagement with the first trial participants in Humacao replicated a similar division of labor between clinician and social worker as was performed in Río Piedras in 1956. N. Rodríguez visited families on their porches and in their homes, provided Enovid, and accrued data on the women's experiences much like I. Rodríguez did when she met with women in Río Piedras. To fully ascertain the efficacy of Enovid amongst users, N. Rodríguez recorded if participants had missed tablets or became pregnant since her last visit.[110] Efficacy did not hinge solely on

[105] Pincus, Rock, and García, "Field Trials with Norethynodrel," 217; APS OH, 21.
[106] It is unclear if N. Rodríguez explicitly asked the families or made assumptions on their finances. Pincus, Rock, and García, "Field Trials with Norethynodrel," 217.
[107] Pincus, Rock, and García, "Field Trials with Norethynodrel," 217.
[108] Cook, Gamble, and Satterthwaite, "Oral Contraception by Norethynodrel," 438-439.
[109] Cook, Gamble, and Satterthwaite, "Oral Contraception by Norethynodrel," 439; Pincus, Rock, and García, "Field Trials with Norethynodrel," 217.
[110] Pincus *et al.*, "Effectiveness of an Oral Contraceptive," 81-82.

prevention of pregnancy. Efficacy also relied upon women's experiences on the pill. Were women happy to continue taking the pill, or did Enovid alter their physiology or social life to such an extent to make a daily pill untenable? Rice Wray had posited near the end of her tenure with the Río Piedras trials that Enovid "cause[d] too many side reactions to be generally acceptable."[111] N. Rodríguez's questions and surveys were meant to provide the information necessary to evaluate Rice-Wray's reservations. As she provided refills, N. Rodríguez asked participants about the length of their menstrual cycle, the occurrence of bleeding outside of menstruation (breakthrough bleeding) or lack of menstruation (amenorrhea), and if their menstrual flow or pain seemed different on the pill.[112] N. Rodríguez also asked participants about other aspects of their overall wellbeing, specifically as to whether they experienced "nausea, headache, dizziness, vomiting, gastralgia [belly ache], [or] malaise."[113] N. Rodríguez also took notes on the general health, any weight changes, and libido as participants took the pill for longer periods of time.[114] Satterthwaite's work with these initial participants, on the other hand, was meant to be as supervisor and interpreter of their histories. Only by exception was Satterthwaite to directly engage these participants when they came to Ryder for physical examinations. By November 1958, only thirteen women to whom N. Rodríguez had provided Enovid had also visited Satterthwaite for "a simple physical check-up, a thorough pelvic examination, and the taking of an endometrial biopsy."[115]

The R-series trials also diverged from the research parameters envisioned by Pincus and his collaborators in the mainland US.[116] These earliest efforts in Humacao somewhat countered McCormick's ideal of "a cage of ovulating females" because N. Rodríguez's participant pool were

[111] Rice-Wray, "Field Study with Enovid," 85.
[112] Pincus, Rock, and García, "Field Trials with Norethynodrel," 218-220.
[113] Pincus *et al.*, "Effectiveness of an Oral Contraceptive," 81.
[114] Pincus, Rock, and García, "Field Trials with Norethynodrel," 222.
[115] Pincus, Rock, and García, "Field Trials with Norethynodrel," 223.
[116] APS OH, 20.

not a homogenous population in a single type of neighborhood.[117] Both mainland US and ground-level researchers concurred on the necessity of more women taking the pill, but the team in Massachusetts wanted to limit undue variability within a single field trial.[118] Multiple neighborhoods in a study might counter such a goal, so ground-level researchers at least needed reliable transportation to regularly engage participants in order to mitigate fluctuations in participation.[119] Therefore, Gamble's jeep was meant to generate a form experimental control in Humacao, albeit with a much different population of the more rural poor. For Gamble, even if the participants' followed by N. Rodríguez lived in slightly different neighborhoods, they were poor in his eyes, and that was the characteristic about which he most cared.[120] As ground-level medical lead, Satterthwaite sympathized with the goal of minimizing volatility in the participant group visited by N. Rodríguez. She conceded in her oral history, "There was no question about it, this was a very convenient way for the women, and it certainly promoted good continuation rates [sic]."[121]

Satterthwaite's role as the obstetrician at Ryder reminded her that many mothers in Humacao did not have N. Rodríguez coming to their doors to provide oral contraception, however. Some of the mothers Satterthwaite served had almost no contraceptive options because she refused to sterilize women with less than three living children due to her beliefs on Puerto Rican marriage

[117] Marks, "'Cage of Ovulating Females," 221-222, 240; Marks, *Sexual Chemistry*, 98-101; Ramírez de Arellano and Seipp, *Colonialism, Catholicism, and Contraception*, 107-108.
[118] Marks, "'Cage of Ovulating Females," 223; Pincus *et al.*, "Effectiveness of an Oral Contraceptive," 81; Pincus, Rock, and García, "Field Trials with Norethynodrel," 218.
[119] García noted the importance of reliable transportation as key to the trials as well. Interview with Dr. Celso-Ramón García—Notes, September 16, 1978, box 1, folder 1, Annette B. Ramírez de Arellano Collection, Colleciones Especiales, Biblioteca Conrado F. Asenjo, Universidad de Puerto Rico—Recinto Ciencias Médicas, San Juan, Puerto Rico. Hereafter Ramírez de Arellano Papers.
[120] García and Satterthwaite both emphasized that Gamble's wealth allowed him to influence how parameter uniformity was defined in Humacao. Interview with Dr. Celso-Ramón García—Notes, 4; APS OH, 20-21.
[121] APS OH, 21.

practices and gender dynamics, as well as her own medical-ethical code of conduct.[122] Some of these women who came to deliver a baby in Ryder might have lived in the same neighborhoods that N. Rodríguez visited, but they likely belonged to a different socio-economic group than the R-series participants. As historian Isabel M. Córdova showed in *Pushing in Silence*, "In the mid- to late-1950s,… for the first time in Puerto Rican history, the number of babies born in a hospital setting surpassed that of home births."[123] For those birthing in a hospital, "most of those admitted for surgery and obstetrics came from higher-income groups."[124] The late 1950s were a moment of transition in Puerto Rico for birthing and contraceptive practices, but a transition not uniformly experienced or desired by women of Puerto Rico. Contraceptive researchers outside the island idealized rural or urban poor mothers as the quintessential trial participants and generated research protocols that targeted those groups of women.[125] Yet on the ground in Humacao, it was frequently more affluent women who gave at birth Ryder to possibly access sterilization due to constrained options, and Satterthwaite denied women's request for tubal ligation for a variety of reasons.[126]

A research agenda that disallowed some Puerto Rican women from trying Enovid was undesirable from Satterthwaite's perspective because such barriers to access would not affect the change in Puerto Rico she desired. If only the women visited by N. Rodríguez could take the pill, then there would be a gap in contraceptive access in Humacao based on class. The issue at hand was not solely about socio-economics, though. As we have seen, Satterthwaite deployed images of impoverished motherhood when it behooved her goals. The point of the trials for Satterthwaite were getting as many Puerto Rican women, who in her estimation fundamentally differed from

[122] APS OH, 15.
[123] Córdova, *Pushing in Silence*, 82.
[124] Córdova, *Pushing in Silence*, 80.
[125] As Briggs argued, the earliest trials of Enovid "[kept] with a theory of reproductive research and activism stretching back to the 1920s that working-class and colonized women required contraceptives different from those used by affluent or U.S. women." Briggs, *Reproducing Empire*, 140.
[126] APS OH, 15.

herself in regards to family stability and appropriate femininity, to try the pill. To that end, Satterthwaite began recruiting new participants at their postpartum visits to the Outpatient Clinic in May or June of 1957. These women were codified as Pendleton-series (P-series) in the scientific literature. [127] In general, participants in the P-series did come from a more well-to-do background than the R-series participants.

Surprisingly, both Gamble and Pincus' group warmed to the inclusion of relatively more prosperous Puerto Rican women because they provided a comparative frame through which to elucidate best research methods and garner more biological data on P-series participants specifically. Juxtaposition of R- and P-series participants also allowed for a more pointed analysis of the role of class without countering the implicit assumption that Enovid might address the woes of overpopulation in destitute and colonized places. Here, it is notable that N. Rodríguez's visits garnered higher retention rates in the trials. By November 1958, only twelve women of the one hundred and seventeen R-series participants had withdrawn from the trials. In the same span of time, thirty-one of the total one hundred and twenty-six P-series participants abandoned coming to Ryder's outpatient clinic to gain Enovid.[128] Despite the higher withdrawal rates, Satterthwaite's recruitment of her patients as they came in for postpartum visits had its benefits. This approach enabled that "practically every subject was given a pelvic examination before medication was initiated, and a little less than half the subjects were similarly examined at least once during medication" of the P-series participants.[129] The protocol followed by N. Rodríguez did not allow for such high rates of medical inspection of participants.

---

[127] Cook, Gamble, and Satterthwaite, "Oral Contraception by Norethynodrel," 439; Pincus, Rock, and García, "Field Trials with Norethynodrel," 216.
[128] There was approximately fourteen percent more withdrawals from the trials in the P-series than amongst R-series participants. Humacao participants continued on Enovid significantly more than the women in Río Piedras where just over fifty-percent of participants left the trials. Pincus *et al.*, "Effectiveness of an Oral Contraceptive," 82.
[129] Pincus, Rock, and García, "Field Trials with Norethynodrel," 223.

Satterthwaite's inclusion of her patients-turned-participants introduced the evaluation of class influence in contraceptive efficacy without challenging the otherness of all participants. Like in the R-series, participants who came directly to Satterthwaite had to attest to their overall physical health and answer a range of questions. In this sense, the rise of the P-series necessitated that the Río Piedras division of medical labor—social worker as information gatherer and physician as compiler and meaning maker—evaporate in Humacao. Like N. Rodríguez, Satterthwaite had to accumulate social and medical histories of the participants who entered her Outpatient Clinic at Ryder. Comparing responses across both participant populations allowed the researchers to add that the poorest participants experienced the longest menstrual cycle lengths prior to taking the pill and "that the frequency of [reactions] is highest in the groups at the highest economic levels and lowest in the groups at the lowest economic levels."[130] Pincus, Rock, and García suspected that these particular reactions—"nausea, dizziness, vomiting, headache, and gastralgia"—amongst more well-to-do participants correlated to a "psychogenic element."[131] Despite adding these nuances, researchers did not want to counter the narrative that Enovid had the potential to do political and scientific work in what they would have labeled as the Third World. As such, Pincus concluded "that the foregoing data would appear to demonstrate the finding of a highly effective oral contraceptive, usable in several different locating in the West Indies" in the same article that highlighted differences across populations.[132] The statement "West Indies" served as a signpost that the women who ingested experimental oral contraception were indeed different from those funding the trials and in need of a new contraceptive regardless of the variety of participant populations.

[130] Pincus, Rock, and García, "Field Trials with Norethynodrel," 218, quote on 221.
[131] Pincus, Rock, and García, "Field Trials with Norethynodrel," 221.
[132] The four groups were the participants in Río Piedras, both series in Humacao, and Haiti. Pincus, Rock, and García, "Field Trials with Norethynodrel," 230.

Therefore, the field trials of Enovid in Humacao quickly evolved under Satterthwaite and N. Rodríguez and took a form that differed from the Río Piedras trials of 1956. What began as N. Rodríguez going door-to-door delivering pills to participants much like I. Rodríguez in Río Piedras became a double-pronged endeavor. In this development, the clear distinctions between the responsibilities of physician and social worker collapsed. By November 1958, two-hundred and forty-three women had tried Enovid from either Satterthwaite or N. Rodríguez. N. Rodríguez reached one-hundred and seventeen of the participants by trekking Humacao municipality in Gamble's donated jeep. Satterthwaite encouraged one-hundred and twenty-six former patients to become participants in the halls of Ryder Memorial Hospital.[133]

This chapter has attended to the rise of the trials of Searle's Enovid in Humacao. Like the earlier trials in Río Piedras, on-the-ground relationships, motivations, and tensions shaped the conduct of the research venture. Satterthwaite and N. Rodríguez relied on their personal and professional experiences to get Enovid into the hands of women in Humacao and to characterize participants' time on the pill for research purposes. Similar to Río Piedras, again, the context of Puerto Rico mattered—the prevalence of sterilization amongst Puerto Rican women shaped logics and desires for reversible contraception and colonial logics and tensions shaped the conduct of the trials and relationships of the health professionals leading the Enovid tests. Unlike Río Piedras, though, the field trials of Humacao lasted beyond a single year, blurred the professional boundary between scientists and social workers, and as later chapters show, swelled to include many more participants and contraceptive agents.

The organizational sponsor of the trials, the location of Humacao on the island, and the professionals' individual dedication to the research assisted the 1957 trials' perpetuation and

[133] Cook, Gamble, and Satterthwaite, "Oral Contraception with Norethynodrel," American Journal of Obstetrics and Gynecology, August 1961.

growth. Both the Río Piedras and Humacao trials of Enovid were filtered through private organizations, Profamilia and Ryder, respectively. However, Rice-Wray's primary employment at the Department of Health allowed for the specter of state-sponsorship for the Río Piedras trials, a no-go in 1956. Satterthwaite, on the other hand, held no other job aside from her position as a missionary physician. Río Piedras' proximity to the capital and the political debates of the moment also fomented the relative brevity of those trials because the location increased the chances of the politicization of the trials. Humacao was only thirty-five miles from the capital, but distant enough to be beyond the struggles of competing political parties and activist groups in San Juan. Homed in a protestant, mission hospital on the Eastern edges of the island, then, there could be little to no room for conflation of Satterthwaite, MacDonald, N. Rodríguez, and Ryder Memorial Hospital to be seen as affiliated with the Puerto Rican state. The motivations of the trial leaders also help explain the brevity of Río Piedras trials as compared to the relative longevity of the Humacao field trials of contraceptives. Rice Wray yearned to specialize and be recognized as an expert in her profession. That hope partially drove her to the trials, but Rice-Wray's ambition also directed her to accept a WHO fellowship and other prestigious opportunities. Satterthwaite, as this chapter has shown, was no less ambitious than Rice Wray. Yet, Satterthwaite's professional motivations in the 1950s centered missionary and medical service. Her goal was to reform family dynamics in Puerto Rico by way of her medical expertise. Hence, Satterthwaite's motivations more substantively linked her to Humacao than did Rice-Wray's aspirations to Río Piedras and the island. To be certain, the trials did not begin and end with these two professional women, but understanding their crucial role in the trials allows for examining how individual aspirations and experiences, contextualized alongside multivalent power dynamics, shape the trajectory of medical research and knowledge productions. The professions, locations, and desires of the trials in Humacao struck

the perfect balance of “public silence, private support” for a sustainable birth control research program in 1950s Puerto Rico.

CHAPTER THREE

FDA-APPROVAL OF ENOVID AS A WAY STATION IN THE TRIALS OF CONCTRACEPTIVES: QUESTIONS OF EFFICACY, FUNDING, AND GROWTH IN SATTERTHWAITE'S TRIALS OF CONTRACEPTIVE PILLS AND IUDS, 1959-1963

Journalists from the mainland US trickled in to Humacao in 1961 to document how, and by whom, Enovid was characterized in the late 1950s. A candid photo from the journalists' sojourn provides a visual of where, specifically, the R-series portion of the trials occurred in Humacao. Against rolling hills, terra cotta-roofed houses ensconce a group of mainland Americans and Puerto Ricans on a neighborhood street. Three women and a man flank the photojournalist. The cameraman points his lens towards a red jeep. The jeep's driver's face is obscured, but out the back window a shock of reddish hair is visible. A clear levity lights a medical woman's face as she points the journalist towards the jeep. Another woman stands off to the side of the journalist and medical woman. She dons a yellow and orange dress and faintly smiles. She, too, looks directly at the jeep, but her positioning places her just outside the conversation between the cameraman and medical woman. This photograph documents the professional women who led the trials of Enovid in Humacao: Adaline Pendleton Satterthwaite, Betty MacDonald, and Noemí Rodríguez. Journalists descended upon the municipality in 1961 to memorialize these women's work because Enovid had been approved by the FDA as a safe contraceptive in 1960.[1]

[1] The FDA initially deemed Enovid safe for up to two years of use as a contraceptive because the data presented only represented a few years of information, yet women could potentially use to drug for much longer. Junod and Marks, "Women's Trials," 121; Tone, *Devices and Desires*, 231; Tyler May, *America and the Pill*, 34.

Figure 3: *Adaline Pendleton Satterthwaite, Noemí Rodríguez, and Betty MacDonald in Humacao in 1961*. Satterthwaite wears white, medical garb, and is pointing. N. Rodríguez is in the yellow and orange dress, and MacDonald is the jeep driver. APS Papers.

Searle sought to amend the FDA's 1957 approval of Enovid as a safe, menstrual disorder corrective using the research conducted by Satterthwaite, N. Rodríguez, MacDonald, and others from around the globe. Searle, not the professional women in Humacao nor Gregory Pincus and his team in Massachusetts, submitted the 1959 FDA application to expand Enovid's labelling to designate the pill as a safe contraceptive agent.[2] Application by Searle was a product of the mandates of the 1938 Federal Food, Drug, and Cosmetic Act governing drug regulation. As Harry Marks explained in *The Progress of Experiment*, the 1938 Act emboldened the FDA to "contribute to the public good largely by regulating what manufacturers *said* about drugs, while leaving other efforts to improve the use of drugs to medicine's scientific and professional authorities."[3] Applications by pharmaceutical houses like Searle, and the FDA's circumscribed power to solely evaluate the safety of drugs, maintained the balance of regulating drug quality without infringing

[2] Junod and Marks, "Women's Trials," 133.
[3] Marks, *The Progress of Experiment*, 73.

upon the autonomy of the medical profession to prescribe best clinical practice.[4] Companies, not physicians, had to submit their product for scrutiny. Physicians and their professional organizations, not the federal government, had ultimate discretion on how to use a drug once it was on the market. In this vein, Searle's 1959 application did not need to irrefutably prove the efficacy of Enovid as a contraceptive to the FDA.

Efficacy was a clinical, rather than marketing and safety, issue from the stance of federal regulators in 1959-1960. It was outside the purview of the FDA and solidly in the wheelhouse of physicians and medical scientists.[5] Physicians would determine the best use of Enovid in their practices and clinics. For example, the 1957 FDA-approval of Enovid required labeling that stated the pill served as an ovulation inhibitor and was safe as a menstrual disorder corrective. Individual physicians could choose how, and for what purpose, they dispensed Enovid to the five-hundred thousand American women who took Enovid prior to 1960.[6] As such, medical authorities and everyday practitioners alike relied on peer-reviewed articles, conference presentations, and anecdotes of Enovid in the field to determine if the pill was an efficacious contraceptive and appropriate for their patients, not necessarily FDA-approval before or after 1960. Researchers needed to publish and present information beyond the FDA to generate a professional consensus that Enovid was effective and reliable. The FDA did not impinge upon the dictates of medical practice until the 1962 Amendments to the 1938 Act (known colloquially as the Kefauver-Harris Amendments). The Kefauver-Harris Amendments necessitated that the FDA evaluate drug

[4] Although the FDA did not seek to regulate medical practice, government officials and therapeutic reformers did worry about physicians' ability to dispense drugs appropriately. See, Marks, *The Progress of Experiment*, 92-95.
[5] Junod and Marks point out that the FDA sent questionnaires to physicians prescribing Enovid off-label, specifically Edward T. Tyler, because Pincus' and Satterthwaite's research focused too much on efficacy to fully address the safety question. Junod and Marks, "Women's Trials," 131-133.
[6] Junod and Marks, "Women's Trials," 128; Watkins, *On the Pill*, 36.

efficacy and reliability prior to market release.[7] Hence, the US media's trip to Humacao in 1961 was geared towards documenting how the 1960 FDA-approval of Enovid as a safe contraceptive was monumental for certain parties. The marketing of Enovid as an oral contraceptive mattered most to US federal regulators, pharmaceutical houses like Searle, family planning agencies hoping to put the pill in women's possession, and some women in the mainland US.[8] For medical researchers in Humacao and elsewhere, on the other hand, the 1960 FDA-approval of Enovid was a way station; they had more work to do to prove efficacy to medical practitioners.

Scholars have implied that the 1960 FDA-approval of Enovid was a bookend of the medical research on the pill by detailing the field trials of Enovid in Puerto Rico through the 1950s, highlighting the 1960 FDA-approval of Enovid as a safe contraceptive, and then moving on to other topics.[9] Annette B. Ramírez de Arellano, Lara Marks and Suzanne Junod, and Nelly Oudshoorn on the other hand, broach the longer history of Enovid's testing after its public availability as a contraceptive in 1960. Ramírez de Arellano posits that Searle "had a direct interest in the continuation and expansion of the Puerto Rico studies" because of the two year prescription

---

[7] Joseph M. Gabriel, "Pharmaceutical Patenting and the Transformation of American Medical Ethics," *The British Journal for History of Science* 49, no. 4 (Dec. 2016): 596-597; Junod and Marks, "Women's Trials," 154-156; Edward Nik-Khah, "Neoliberal Pharmaceutical Science and the Chicago School of Economics," *Social Studies of Science* 44, no. 4 (Aug. 2014): 491; David J. Rothman, *Strangers at the Bedside: A History of How Law and Bioethics Transformed Medical Decision Making* (New York: Basic Books, 1991): 61-64. Watkins, *On the Pill*, 32-33. For how the Kefauver-Harris Amendment directly impeded the research on LSD as a psychotherapeutic, see, Matthew Oram, "Efficacy and Enlightenment: LSD Psychotherapy and the Drug Amendments of 1962," *Journal of the History of Medicine and Allied Sciences* 69, no. 2 (April 2014): 221-250.

[8] Gordan, *The Moral Property of Women*, 286-288; Rickie Solinger, *Pregnancy and Power: A Short History of Reproductive Politics in America* (New York: New York University Press, 2005): 166-174; Tyler May, *America and the Pill*, 71-92; Watkins, *On the Pill*, 34-52. The relative influence of the approval of oral contraception in Japan in 1999, almost forty years after Enovid's approval in the United States, provides an important example of how the role of the pill in a society is contingent. Norgren, *Abortion Before Birth Control*, 121-132.

[9] Briggs turns to the politics of sterilization in Puerto Rico. Tone and Watkins use the 1960 FDA-approval as a springboard to evaluate mainland US women's access to the pill in the 1960s. Tyler May narrates the importance of the approved pill for overpopulation policy. Schoen juxtaposes family planning in Puerto Rico with family planning in India to contextualize the complicated power dynamisms women of color navigate in making reproductive decisions. Briggs, *Reproducing Empire*, 142-161; Tone, *Devices and Desires*, 233-259; Tyler May, *America and the Pill*, 35-56; Schoen, *Choice & Coercion*, 216-235.

limit on Enovid imposed by the FDA.[10] Junod and Marks explain that researchers tested multiple doses of Enovid, even in the late 1950s, and "had Searle insisted upon having all three dosages approved simultaneously, the [1960] approval would have been greatly delayed."[11] Despite their clarifications, Ramírez de Arellano, Junod, and Marks emphasize the role government regulation played in continuing the trials of Enovid in Puerto Rico. Oudshoorn begins to decenter FDA-approval by suggesting that "research and development of the new contraceptive remained a major issue on the research agendas of Pincus and Searle" after 1960.[12] However, Oudshoorn does not fully explain the difference amongst continuing research agendas, trials, and FDA regulation as she promotes her framework of "continuous testing of the pill."[13] Of all the scholars of the field trials of contraceptives in Puerto Rico, Briggs, Ramírez de Arellano, and Oudshoorn are the only ones to mention that testing of contraceptives other than Enovid that preceded or followed FDA-approval.[14]

This chapter builds on the promise of complicating FDA-approval as an endpoint in the field trials of Enovid by focusing on the Humacao trials of contraceptives between 1959 and 1963. My use of contraceptives rather than Enovid is intentional. In this period, the trials in Humacao came to include multiple doses of Enovid, other contraceptive pills, and IUDs. Because of this, my chronology places FDA-approval of Enovid neither at the beginning, nor the end, of this period because doing so embellishes the determining role of FDA applications and approvals in the conduct of medical science in 1950s and 1960s Puerto Rico. The focus of this dissertation is contextualizing the field trials of contraceptives on the island rather than explaining how FDA-

[10] Ramírez de Arellano and Seipp, *Colonialism, Catholicism, and Contraception*, 119.
[11] Junod and Marks, "Women's Trials," 145.
[12] Oudshoorn, *Beyond the Natural Body,* 134.
[13] Oudshoorn, *Beyond the Natural Body,* 132-135.
[14] Briggs highlights contraceptive tests predating the field trials of Enovid. Briggs, *Reproducing Empire*, 114-128.

approval occurs. The other focus of this chapter, and dissertation as a whole, is ground-level researchers carrying out medical research in Puerto Rico. From the perspective and experiences of the professional women conducting the trials, FDA-approval of Enovid was a transition, a mere way station in their research endeavor and not at the forefront of their minds. By de-emphasizing FDA-approval, even at the moment of its occurrence, longer trends and shifts are elucidated. The personal, professional, and local context shaped the growth of the trials between 1959 and 1963. To be certain, FDA-approval played a role in the trials in Humacao. Searle, after all, provided the pills to the Humacao team. After wavering on whether to seek explicit approval of Enovid as a safe contraceptive, Searle needed Satterthwaite, N. Rodríguez, and MacDonald to produce results.[15] Hence, the professionals in Humacao navigated Searle's goals when necessary. From the lens of medical science in action in Puerto Rico, however, shifting professional goals, personal dynamics, and changes in funding better explain this transitional period of contraceptive research in Humacao.

The chapter unfolds in four sections. The first section evaluates the working relationships amongst Satterthwaite, MacDonald, and N. Rodríguez in the late 1950s in order to suggest that personal connections to the community facilitated the continuation of the trials of Enovid beyond the initial ten milligram dose. Focusing on the interprofessional relationships also allow for a greater detailing of how MacDonald served in the trials and an analysis of how gender and colonialism manifested at this stage of the trials. The second section details Satterthwaite's shifting professional goals—greater focus on medical research than clinical work as a physician—and how these goals intertwine with distancing herself from missionary work. The third section picks up

[15] For the political and business considerations Searle navigated as they determined whether to explicitly market Enovid as a contraceptive, see, Junod and Marks, "Women's Trials," 129-130; Tone, *Devices and Desires,* 227-231; Tyler May, *America and the Pill*, 32-34.

this thread to explore how new funding sources from the mainland US begin to allow for a more independent research endeavor under the management of Satterthwaite and the proliferation of contraceptive options. The growing trials were not a direct product of the PPD's modernization efforts by way of Operation Bootstrap, but considerable, thematic parallels emerged in the trials in Humacao at this time that echoed some of the transformations occurring in Puerto Rico's economic and industrial landscape. The final section explains how the research program in Humacao began to move West. Through all of this, a tension of public versus private funding, ethics as physician versus researcher, the influence of gender and colonialism, and spaces of medical science are explored.

Interprofessional Collaborations and Tensions in the Growing Field Trials of Enovid

In February 1959, family planning advocates and contraceptive researchers from around the world flocked to New Delhi to attend the *Sixth International Conference on Planned Parenthood*. Presenters spoke about their research on existing and emerging methods of birth control, as well as how to grow favorable attitudes towards family planning. Pincus, Rock, and García were on the roster to share their findings on participants' experiences with Enovid through November 1958.[16] Clarence J. Gamble, with his connections to family planners around the world and disposable wealth, attended the IPPF conference. The researchers in Humacao did not go to the convention, likely because the funds Gamble and others provided did not cover their travel expenses. Nonetheless, Gamble aimed to keep his "collaborators" abreast of conference happenings, even if he would not pay for them to attend. He needed to remind them of their importance to the gathering and larger research project on oral contraception. Gamble wrote to Satterthwaite, N. Rodríguez, and MacDonald:

[16] Pincus, Rock, and García, "Field Trials with Norethynodrel," 216-230.

> I wish you could have been at the International Conference on Planned Parenthood to hear the report of your work…Dr. Pincus told of the field trials which you have made possible. The results are quite convincing and he has tabulated them well. Practically the entire membership of the Conference turned out to hear of the exciting news of the birth control pill. Dr. Pincus spoke of the success which the Humacao project has had in getting most of the patients to continue without interruption.[17]

Gamble's 1959 letter points to two important facts of the research endeavor surrounding Enovid. First, the leaders of the diffuse research project on Enovid valued the labor of the professional women in Humacao. Pincus acknowledged that something the Humacao team was doing resulted in a high rate of retention amongst participants.[18] Even if Satterthwaite and her team in Humacao did not witness the impact their work created amongst convention attendees, their collaborators brought their names to the attention of the conference and highlighted their foundational contribution to contraceptive research. Second, Gamble's salutation in the letter suggests that the Humacao research team consisted of more than Satterthwaite and N. Rodríguez. He also addressed the letter to Betty MacDonald.

Chapter Two detailed how Satterthwaite and N. Rodríguez organized the earliest trials of Enovid in Humacao between 1957 and 1958. During the first year and a half of the trials, it was Satterthwaite and N. Rodríguez that captained the trials, but this arrangement did not stay the same. Sometime in late 1958, MacDonald, a missionary social worker at Ryder, joined Satterthwaite and N. Rodríguez as they strove to characterize patient experience with, and efficacy of, Enovid. By 1959, the type of research conducted in Humacao was changing to address emerging goals and questions. More professionals on the ground, like MacDonald, were necessary to perpetuate and grow the trials of Enovid. Hence, this section details the shifting landscape of research on Enovid in 1959 through 1960 and pauses on the interprofessional dynamics amongst Satterthwaite, N.

[17] Gamble to APS, N. Rodríguez, and MacDonald, Feb. 1959, Gamble Papers.
[18] Gamble's assertion that Pincus recognized the Humacao team's retention rate is substantiated in the conference's published proceedings. Pincus, Rock, and García, "Field Trials with Norethynodrel," 227-228.

Rodríguez, and MacDonald to understand the centrality of N. Rodríguez's and MacDonald's everyday work to the retention and recruitment of participants during this time.

Over a year had passed since Satterthwaite and N. Rodríguez first offered the pill to the women in Humacao, and their colleagues from the United States were trickling in to Puerto Rico to assess how participants were doing. Specifically, Pincus and the rest from Massachusetts desired to have clear and rich accounts of participants who had been with the R- and P-series for over one year. About thirty participants met this qualification according to Satterthwaite's tabulations.[19] Detailed medical histories required a lot of synthesis and interpretation by Satterthwaite, but so, too, did the other research questions proposed by Pincus and the marketing concerns of Searle. Both the researchers in Massachusetts and Searle were "anxious to have more detailed case summaries and follow-ups on those women who have discontinued the treatment for one reason or another."[20] Satterthwaite and N. Rodríguez were swamped with their respective duties in the trials without adding the additional task of tracking down former trial participants. So, Satterthwaite reasoned that she needed "to enlist the help of Betty and the jeep to carry this out."[21]

MacDonald *ad hoc* joined the Humacao team at a moment of growth and shifting research parameters. Concomitantly to the expanding scope of investigation into participants' biomedical and social lives, the Humacao enterprise began dispensing a new dosage of Enovid which contained half the amount of norethynodrel and synthetic estrogen.[22] Some historians connect lower amounts of synthetic hormones in Enovid to overpopulation rhetoric because it would make oral contraception cheaper and more widely available. Other scholars suggest that the move to five

[19] Adaline Pendleton Satterthwaite to Family, November 9, 1958, box 10, folder 5, APS Papers.
[20] APS to Family, November 9, 1958.
[21] APS to Family, November 9, 1958.
[22] Cook, Gamble, and Satterthwaite, "Oral Contraception by Norethynodrel," 439.

milligram doses of Enovid correlate to "shots in the dark" approach to research.[23] From the standpoint of mainland researchers and Searle, both were likely true. On the ground in Humacao, however, dispensing new formulas of Enovid practically entailed amending work expectations amidst evolving research goals. These changes also required more publications and presentations to the family planning and medical world. It was through these communities, not exclusively government regulatory bodies, that the legitimacy of their research and viability of Enovid as a medical and social panacea could be argued.

To be certain, Satterthwaite wrote to her family of a forthcoming application by Searle to the FDA not too long after MacDonald joined the team. Yet, no punctuation of excitement or gravitas entered into her telling of the FDA application to her family. The application simply entailed, "more reports to send to them."[24] More pressing to the researcher in Humacao than the forthcoming FDA application was the response to the trials of Enovid in Puerto Rico. Directly following the snippet on Searle's push for an additional FDA application, Satterthwaite wrote to her family on March 27th, 1959,

> Speaking of our contraceptive project, there has been a new development on the island. The Catholic Social Workers put on a series of 4 television programs denouncing all kinds of contraceptive methods and in their first program they had two members of the University Medical School Faculty who are rabid Catholics get up and charged that the oral contraceptive was dangerous because it would produce cancer… We don't know of any such case at all. The IMPARCIAL which is the newssheet…carried headlines—and so we've had at least five of our women drop out! The Planned Parenthood federation produced a very good program refuting their arguments but the harm was done. I was most amused that the Catholics were suggest more self-control (continence) as the only moral means of limiting the family![25]

[23] For the cost differential of lower doses relation to overpopulation rhetoric, see, Junod and Marks, "Women's Trials," 143-145 and Watkins, *On the Pill*, 47-48. Oudshoorn also recognizes the overpopulation issue, but specifically highlights research methods to the change. Oudshoorn, *Beyond the Natural Body,* 134.
[24] APS to Family, March 27, 1959.
[25] APS to Family, March 27, 1959.

Satterthwaite's established anti-Catholicism aside, the trio of professional women wrangled with many complicating factors to their research in 1959. Changing doses, shifting research parameters, and some local pushback against the trials might have threatened the longevity of the project. Yet, it is important to pause on this criticism of oral contraception to distinguish it from the earlier criticism of the field trials in Río Piedras. As Chapter Two established, Humacao was further away from the capital than Río Piedras, thus the politicization of possibly public field trials of contraceptives was less likely to reach doorsteps of the community. Distance, along with other factors, provided some protection against detractors of contraceptive field trials in Humacao in 1957. Why, then, did this 1959 rebuke of contraceptives result in participant drop out in Humacao and merit Satterthwaite's concern? The critique's focus, the identity of those speaking against the pill, and the medium of presentation mattered. Unlike the article in *El Imparcial* about the trials in Río Piedras, the 1959 criticisms focused on the safety of the pill rather than the political considerations of field trials. That those authoring the criticisms were physicians and that the series was sponsored by Catholic organizations might have also been persuasive to a wider array of Puerto Ricans than politically suggestive criticisms of Rice-Wray's trials. This criticism was also broadcast on television, over multiple nights, and supplemented by newspaper articles in *El Imparcial*, making the 1959 criticism longer-running and more accessible to people in Humacao. Satterthwaite credited Profamilia's response with halting further participant drop-out, but the everyday work of N. Rodríguez and MacDonald in Humacao likely combated these challenges to the trials even more.

Despite the major roles that N. Rodríguez played, her presence in the primary sources is severely limited. In Humacao, Satterthwaite's discussion of a close relationship with white, mainland-origin, and fellow missionary MacDonald and relative silence on N. Rodríguez prove

evidentiary of interprofessional, racial, and colonial tensions. For MacDonald, a personal relationship with Satterthwaite and a tenure at Ryder that predated Satterthwaite's arrival allows for a qualitative discussion of how MacDonald's use of social work enabled the trials. For N. Rodríguez, Satterthwaite's personal collection evidences little of N. Rodríguez's individual contributions to the trials. Instead, Satterthwaite's personal collection illustrates professional distance between her and N. Rodríguez compared to her and MacDonald.

MacDonald arrived to Ryder sometime in late 1949 or early 1950, two years prior to Satterthwaite. Satterthwaite wrote to family and friends of her friendship with MacDonald, but sources from MacDonald herself did not enter in Satterthwaite's collection. An institutional history of Ryder from the 1980s offer a glimpse into MacDonald's career. While working on the East Side of New York City immediately following World War II, MacDonald encountered displaced persons from the war as part of her missionary work. MacDonald recalled that she understood how and why Europeans fled war torn homes for economic and social opportunities in the United States, but she did not grasp why she was working with so many Puerto Ricans.[26] With this observation at the fore of her mind, MacDonald requested that her missionary organization inform her if opportunities presented in Puerto Rico. Through a chain migration of mainland protestant missionaries to Puerto Rico, MacDonald became the first social worker at Ryder with a sarcastic desire for sunshine and better weather than New York.[27] Despite her enthusiasm for the post, MacDonald encountered difficulties and new barriers as she began at Ryder. She required Spanish lessons interact with the community. Moreover, MacDonald needed to meet the people of Humacao where they were, in the hilly region surrounding Ryder in the valley.

[26] John A. Smith, *Hospital Ryder Memorial: Relato de un Ministerio de Salud* (Humacao, PR: Hospital Ryder, 1989): 90-91.
[27] Smith, *Hospital Ryder Memorial,* 90.

Coincidentally, a local goodwill group donated a jeep to Ryder around the same time that Betty began. The vehicle allowed her to traverse into the more remote neighborhoods to provide care to rural Puerto Ricans.[28] As shown in Chapter Two, jeeps and mobility critically shaped the development of the field trials of Enovid in Humacao; Gamble's later donation of a vehicle provided N. Rodríguez's physical means of transportation. MacDonald's daily practice as a social worker prior to the trials of Enovid also taught her the importance of meeting people where they were to further her goals of social good and health provision. If Gamble provided some of the tools for the success of the trials, MacDonald's practical, lived experience as a social worker for Ryder provided the know-how to make technology more useful for the trials. For example, Betty knew that the free, district hospital was twenty-five miles away from the rural parts of Humacao. That distance, combined with the lack of transportation experienced by many in Humacao, kept people from seeking the care they needed. So, MacDonald climbed the hills of Humacao in her jeep to check that patients were following the recommendations of often remote physicians at Ryder and the district hospital. Satterthwaite even credited MacDonald for Ryder's expansion of healthcare services to more rural areas.[29] As she visited patients in their homes as a representative of Ryder, MacDonald gained insight to the economic status of her clients. Of course, she likely interpreted people's economic status and financial security through a lens of Puerto Rican backwardness and built upon many mainland Americans' logic of a Puerto Rican other. Within this framework and by seeing how and where patients lived, Betty judged what fees Ryder should charge to patients who often requested "to pay *poco a poco* (little by little)."[30] For some patients, MacDonald might

[28] Smith, *Hospital Ryder Memorial*, 91.
[29] APS, Christmas Letter, 2.
[30] APS, Christmas Letter, 2.

have advocated for lower fees, and for others, she might have denied requests for payment plans or lower costs.

MacDonald also shaped the type and means of care acquired by community members living in the more rural parts of Humacao. Though sanitized for mainland children, the story of Anita Martinez and her family shows how Satterthwaite relied on McDonald's relationship to the community. On one of her mountain visits, MacDonald encountered a pregnant Martinez mother and worrisomely thin Martinez children. In MacDonald's opinion, the children's waif appearance came from hookworm rather than neglect. So, MacDonald suggested that the next time Mother Martinez ventured to town, she should bring the children and stool samples for each child using the tiny sample tubes she provided. The Martinezs followed her instructions and brought the children down to Ryder a few weeks later. Anita was scared when she encountered the white-coated men she did not know. It was the sight of MacDonald, according to Satterthwaite, that quelled Anita's fears. "The Martinez family all greeted her as a long lost friend," reported Satterthwaite, "and Betty in her turn was so glad to see that they had really come."[31] Even when Anita's treatment required a blood transfusion, it was MacDonald who calmed her and the family. MacDonald provided the human face and kinship of Ryder to the surrounding communities, something that surely enabled the subsequent field trials of Enovid.

These daily patterns—engagement with Ryder staff and intimacy with the local community—must have facilitated the growth of the trials of Enovid and retention of participants when MacDonald joined in late 1958. After all, it was MacDonald who had for years,

> Claim[ed] one of those impossible mountain trails in the hospital jeep—calling on some family to see if the father is really staying in bed as the doctor ordered—or taking some patient from the hospital—the jeep being almost completely overwhelmed way the happy friends who have come to meet the patient at the bottom of the hill expecting to carry her up in a hammock.[32]

[31] APS to Child Donors, May 29, 1953.
[32] APS to Friends, November 30, 1956, box 10, folder 5, APS Papers.

MacDonald's presence in the community assisted in participant recruitment for the growing trials of Enovid, but her relationship with Satterthwaite also shaped the trials and left a trail to allow intuiting MacDonald's contributions to the trials. Beyond a personal relationship, there were social structures that placed MacDonald more squarely in Satterthwaite's purview. MacDonald and Satterthwaite were both protestant missionaries living in Ryder provided housing. Both women were single. Satterthwaite was widowed and never remarried, so she and MacDonald spent considerable professional and personal time together. Both women looked forward "11 o'clock tea parties" with each other in Ryder provided housing.[33]

Unlike MacDonald, N. Rodríguez's relationship with Satterthwaite did not predate the trials nor did she hold a position with Ryder. She carried much of the weight for the R-series participants, but N. Rodríguez was not a missionary, nor a regular employee of Ryder. These tangible differences of personal histories and professional trajectories between MacDonald and N. Rodríguez partially explain why N. Rodríguez appears less in Satterthwaite's records. Yet, solely attributing N. Rodríguez's relative absence in primary and secondary sources to personal relationships misses the historical context of a colonized Puerto Rico and racial tensions amongst the ground-level architects of birth control programs of the 1950s. As evidenced in Chapter One, colonial hierarchies shaped the division of work and research in the FLS and first trials of Enovid in Río Piedras. And yet, a Puerto Rican-mainland American binary glosses over the complexities of class and identity amongst Puerto Ricans, as well as the myriad ways Puerto Ricans themselves navigated studies of their communities for personal gain. As Raúl Necochea López found in his analysis of the FLS, mainland US researchers understood Puerto Rican professionals as "educated locals with suitable interpersonal skills, who were then turned into an inexpensively trained class

[33] Adaline Pendleton Satterthwaite to Family, September 2, 1956, box 10, folder 5, APS Papers.

of research subordinates that could serve as interlocutors able to mediate between research patrons' thirst for quantifiable data and the wariness of people asked to bare details about their sexual and reproductive lives."[34] As a form of colonial science, the trials of Enovid in Humacao required local insight into facets unknowable to mainland-origin researchers.[35] It is likely, then, that Satterthwaite's need to differentiate her experience from Puerto Rican women and Puerto Rican families grafted onto her relationship with N. Rodríguez, thus implicitly encouraging Satterthwaite's silence on N. Rodríguez in her records.

Satterthwaite's nimble scripts of colonial difference played out in multiple ways in her professional relationship with N. Rodríguez. A general distrust of social workers by Satterthwaite cannot explain her reservations about N. Rodríguez. Her appreciation of MacDonald's work evidences her respect, at least for white, mainland-origin, social workers and their role in providing healthcare. The source of the tension might be ethnonational as well as racial, of course, though Satterthwaite praised other Puerto Rican social workers like Celestina Zalduondo, and voiced joy in her collaborations with them in her private letters to family. However, Zalduondo's assent to higher positions within the Puerto Rican government and leadership of Profamilia might have quelled some of Satterthwaite's need to distance herself from Zalduondo as a Puerto Rican woman. Like Satterthwaite, Zalduondo was the director of *something* at a time when women were discouraged from doing so. N. Rodríguez, on the other hand, was working under Satterthwaite. Most likely, then, N. Rodríguez's non-Ryder affiliation and relatively lower position in the research hierarchy created distance between Satterthwaite and Rodríguez. Satterthwaite and MacDonald came from similar social and racial backgrounds, even if they differed in profession. Satterthwaite and N. Rodríguez, on the other hand, did not have a shared history. By name, N.

[34] Necochea López, "The Puerto Rico Family Life Study," 120-121.
[35] Lindee, *Suffering Made Real*, 20.

Rodríguez did not appear once in Satterthwaite's letters home to family and friends, a stark contrast to the mentions of her friends and colleagues MacDonald and Zalduondo.

Only by happenstance, a letter *to* Satterthwaite provides a glimpse into the extensive work N. Rodríguez contributed to the trials. Ryder's missionaries earned extended sabbaticals after a few years of work at the hospital. Satterthwaite used this opportunity in 1960 to relax with families and friends and consult with collaborators on the field trials in the mainland US. N. Rodríguez did not gain sabbatical leave because she was paid by Gamble, not Ryder. While Satterthwaite was stateside, then, N. Rodríguez continued her check-ins with participants in Humacao. John A. Smith, director of Ryder, reported on N. Rodríguez's work to Satterthwaite during her leave. Notifying Satterthwaite of a materially and mortally destructive hurricane, Smith shared the news of trial participants in the midst of the hurricane garnered by N. Rodríguez: "Saturday, they [were] still uncovering cadavers from under the bridge that led…to Yabucoa. Noemí told me that four of your pill patients perished. And this figure may have gone up."[36] N. Rodríguez had to gain information on the women taking the two doses of Enovid in 1960, and she also had to make note of mortalities.

The only other slightly personal notation of N. Rodríguez's work derived from an excerpted letter to Katharine Dexter McCormick from Pincus that McCormick then sent to Margaret Sanger. Just prior to the introduction of new doses of Enovid, Pincus went to Humacao to appraise the conditions of the trials. In Humacao, he found,

> Dr. Pendleton…in charge with Mrs. Naomi [sic] Rodríguez doing the visiting. They are extremely efficient and have been managing the 200 women under their charge in an entirely satisfactory way. In spite of back-country handicaps, Dr. García (valiantly aided by Mrs. García) managed to examine 19 of their clients, and the laboratory tests went well also. The women in this project have been extremely faithful. There have been two pregnancies in the 1

[36] John A. Smith to Adaline Pendleton Satterthwaite, September 10, 1960, box 10, folder 6, APS papers.

1/2 years of its existence, both due to failure to take the pills. This is about as perfect a record as one could wish for.[37]

Aside from the scientific articles on the trials, then, only scant evidence exists to detail N. Rodríguez's personal influence or intent with the tests of Enovid. Yet, these glimpses into N. Rodríguez's work suggest her indispensable contributions and molding of the field trials in Humacao. N. Rodríguez acted as more than a conduit of knowledge to Satterthwaite. She met with participants as they mourned the loss of their homes and belongings in a hurricane. When mainland collaborators visited the island, she served as an expert guide through the community and on the patients. She opened the doors of connection and understanding, however invasive it might have been, for mainland scientists when they visited Puerto Rico. As shown in Chapter Two, she shaped the information Satterthwaite gained.

The closest to personal information about N. Rodríguez and her work on the field trials of Enovid derives from staged photos of the trial from 1961that are stored in Satterthwaite's personal collection. N. Rodríguez's intent and personal relationship to the trials did not manifest in these photos. Instead, they further suggested how personal relationships and professional affiliations limited the presence of N. Rodríguez in primary and secondary sources. In particular, the role of friendship, affiliation with Ryder, and nimble colonial scripts manifest through a comparison of the staged images of MacDonald and N. Rodríguez. In the midst of introducing new doses of Enovid and on the precipice of another change in contraceptive tests in Humacao between 1960 and 1961, photographs serve as a final reflection on the dynamics of the trials that solely focused on Enovid in Humacao and the central role that ground-level medical and health-allied professionals in the periphery played in the development of medical knowledge.

[37] Excerpts from letter from Dr. Pincus to Mrs. McCormick, San Juan Puerto Rico, October 19, 1958, box 58, folder 23, MS-Unfilmed.

Figure 4: *Betty MacDonald exiting the team's jeep with Enovid for participant and accompanying description by Satterthwaite*. APS Papers.

Figure 5: *Noemí Rodríguez, Betty MacDonald, trial participant and child, and accompanying description by Satterthwaite*. APS Papers.

Figure 6: *Noemí Rodríguez interviewing a participant at Ryder Memorial Hospital's clinic and accompanying description by Satterthwaite*. APS Papers.

Only four images that purposefully aim to document N. Rodríguez's and MacDonald's time as everyday architects of the trials of Enovid exist. All from a 1961 photo shoot, including the one shown at the beginning of this chapter. As the following sections detail, by 1961 the trials of Enovid grew to other contraceptive pills, IUDs, and more contraceptive users. The scope of the trials shifted in 1960-1961 from establishing the efficacy of Enovid to a comparative study of a whole host of new contraceptive pills and intrauterine devices. Hence, attention on the trials blossomed and vested parties, for a myriad of reasons, were eager to demonstrate the acceptability, inclusivity, and dynamics of the first trials of Enovid in Puerto Rico. Scientific journals and popular magazines alike were wielded by stakeholders to demonstrate the need for the pill and frame it as a work of social good along philanthropic lines. It is within this context, intended to evoke support, that we come most directly in contact with N. Rodríguez and MacDonald and the salient themes that animated the initial trials in Humacao.

Several factors shaped the portrayal of N. Rodríguez in these photos. In late November, cameramen from the mainland "descended upon [the Ryder trials] in full force" according to Satterthwaite.[38] The Ryder team wanted to show the world from where their participants originated, but time constraints sent the women and journalists into the mountains after dark. This disallowed a visual documentation of the more common living conditions of the participants. Instead, Satterthwaite, MacDonald, N. Rodríguez, and cohort of journalists, "went to the home of one of [the] patients who [didn't] live too far away."[39] Figure 5 depicts N. Rodríguez mimicking her routine of checking in and advising a participant at her home. Within these images, the interplay and difference between MacDonald and N. Rodríguez's work are clear. The descriptions of the photos as penned by Satterthwaite also suggest the importance of friendship, and how the

[38] Adaline Pendleton Satterthwaite to Family, December 3, 1961, box 10, folder 6, APS Papers.
[39] APS to Family, December 3, 1961.

lack of close proximity via employment might shape the relative lack of information on N. Rodríguez. In Figure 4, Satterthwaite wrote MacDonald's full name, in line, with the characterization of the scene. Satterthwaite also denoted MacDonald's profession. In Figures 5 and 6, N. Rodríguez and her work shape the image, but Satterthwaite's accompanying descriptions do not center N. Rodríguez as a key, professional worker of the trials. Instead, Satterthwaite solely wrote N. Rodríguez's first name, lacking professional title, in the corner, possibly as an afterthought. In both staged photos and Satterthwaite's captions of the photo, N. Rodríguez's action merited attention, but not her name. Figure 3, the photo that begins this chapter, further demonstrates the literal distance between Satterthwaite and N. Rodríguez as compared to the closer relationship of Satterthwaite and MacDonald. N. Rodríguez stands apart from Satterthwaite as the physician eagerly points to MacDonald in the jeep. In staging the photograph, Satterthwaite actively centers MacDonald while N. Rodríguez exists outside the close circle framing the photograph. Despite the interprofessional tensions shaped by a myriad of forces, the photographs illustrate how intimacy and imbrication within the communities of Humacao facilitated the continuation and growth of the trials of contraceptives.

A Basement to Call My Research Home

The growth of contraceptive research in Humacao did not cease with the addition of new doses of Enovid. Satterthwaite, N. Rodríguez, MacDonald, and the women who came to them for birth control physically moved to the basement of Ryder at the end of 1961. Seemingly inglorious, shifting downstairs represented a hard fought, tangible step towards relative autonomy for Satterthwaite. She was seeking to separate herself from the patient demand of Ryder and further expand her contraceptive research program. Satterthwaite had fallen in love with medical research as she worked in concert with social workers to test Enovid. She increasingly hoped that her job

might center that type of work over hospital rotations. As she penned to her family in June 1961, she desired to "get out from under the hospital routine."[40] Her aspiration, however, posed a problem for Ryder itself and sparked the ire of its hospital director, John A. Smith. Satterthwaite acknowledged years later that Ryder "was a service hospital…Not only that, but [Smith] felt that because [she] was not charging patients for family planning…it was making an additional burden to the hospital."[41]

Both concerns—staffing responsibilities and funding for the hospital—were legitimate and particular to Ryder's mandate. Founded in 1914 by funds from the American Missions Board of the Congregational Church, Ryder operated under the guiding principle of "Allegiance to God through Service to Men."[42] Satterthwaite's early rationalization of contraceptive research—contraception as a palliative for social and medical woes in Puerto Rico—meshed philosophically with the hospital's mission. As time went on, the practical limits of a physician primarily employed by Ryder, dedicating significant time to non-commensurable medical work outweighed the more intangible gains associated with contraceptive research. For example, in an undated pamphlet from sometime after 1956, Ryder proudly shared that it employed four full-time physicians, two part-time physicians, ten graduate nurses, ten practical nurses, and ten hospital assistants to serve approximately three-thousand and three-hundred hospitalizations and four-hundred births in a single year.[43] Ryder anticipated a continued supply of practical nurses to meet the demand because the hospital had opened a Practical Nursing School on its campus in 1956.[44] By 1964,

[40] Adaline Pendleton Satterthwaite to Family, June 26, 1961, box 10, folder 6, APS Papers.
[41] APS OH, 29.
[42] My translation of *Lealtad a Dios Por Medio Del Servicio a Los Hombres* from, Ryder Hospital's Infromación, APS Papers; Evangélico, Notes on Ryder, APS Papers.
[43] The pamphlet can be dated post-1956 because it speaks of Ryder's Practical Nursing School which opened in January of 1956. Ryder Hospital's Infromación, APS Papers.
[44] *Dedicación del Edificio Para la Escula de Enfermeras Practicas del Ryder Memorial Hospital*, January 15, 1956, box 21, folder 2, APS Papers. *La Escuela de Enfermeras Practicas Ryder Memorial*, informational pamphlet, n.d., box 21, folder 2, APS Papers.

approximately thirty-three thousand patients had been served by Ryder and three-thousand and six-hundred of these patients had been hospitalized. Of the hospitalizations, nine-hundred and eighty patients had been hospitalized for obstetric and gynecological care. At the peak of this high demand, "Nine doctors left RYDER during the year, and eight others came to join the staff."[45] Adding to the complications of staffing shortages, "The final outcome of operation of 1964 ha[d] been a net loss of $71.001.08, which is $4,541.20 more than the loss for 1963 … Total income received in 1964 was $4,860.16 less than in 1963 … Expenses were only $318.96 less than those of that year."[46] Ryder still touted Satterthwaite's contribution throughout this annual report, even the importance of the "worldwide attention" her work brought to the mission hospital.[47] Despite the hospital's accolades in its publications, Satterthwaite increasingly became dissatisfied with her clinical position due to structural barriers combined with mounting interpersonal tensions at the hospital.

In 1961, Satterthwaite attempted to provide resolutions for the burden born of her contraceptive research program. As both reports from Ryder evidence, Smith and Ryder's Board of Directors worried about staffing problem. Since Satterthwaite arrived at Ryder in 1951, her letters consistently evidenced a persistent shortage of physicians and short tenures for attending physicians. She recognized the drain her absence created in the obstetrics ward, but remained persistent in her goal to transition full-time to research. Satterthwaite preemptively,

> Talked with all of the men on staff in groups and individually and [thought] that they at least knew [her] point of view … [She thought] that they can have free rein to do what they wish about [her] successor … They [were] the people who will be carrying the work and the arrangement should suit them.[48]

[45] Annual Report of Ryder Memorial Hospital, 1964, 2, box 21, folder 2, APS Papers.
[46] Annual Report of Ryder, 1964, 13.
[47] Annual Report of Ryder, 1964, 3.
[48] Adaline Pendleton Satterthwaite to Family, October 6, 1961, box 10, folder 6, APS Papers.

Satterthwaite aimed to gain support from her Ryder colleagues by keeping them in the loop on her professional desire to move more fully into research.

Ryder's funding issues were not solely attributable to Satterthwaite and her research. When Satterthwaite began her position in 1952, she signed on to Ryder as a part-time physician. It is unclear if she ever moved to full-time employment as a clinician at Ryder, though records evidence that her rounds in the obstetrics ward and maternal health clinic demanded a full time schedule. Additionally, Satterthwaite's records do not indicate if she earned compensation from Ryder for the research on Enovid in the early days. The research project itself certainly relied on external and continued support from benefactors outside of Ryder. As demonstrated in Chapter Two, Searle provided Enovid, grants came from Pincus's Worcester Foundation for Experimental Biology, and Gamble donated additional funds to carry out the research and pay N. Rodríguez. Despite Satterthwaite's and other sources' linking of N. Rodríguez's pay to external sources, no sources indicate if Satterthwaite's income from Ryder was supplemented by research funds. Thus, as Satterthwaite envisioned a professional trajectory that displaced serving patients for studying trial participants, support from outside of Ryder was necessary. As Satterthwaite worked towards a clinic functionally autonomous from Ryder, the funds from Gamble facilitated the transition by at least covering the costs of research material and other employees, if not Satterthwaite's income.

It is worth pausing on Satterthwaite's navigation of her professional goals to consider how gender hierarchies within medicine and the relative lack of women physicians in the era shaped the pushback Satterthwaite received from her colleagues at Ryder in 1961. The all-woman research team of Satterthwaite, MacDonald, and N. Rodríguez in Humacao suggested a homosocial atmosphere. In contrast, the hospital leadership of Ryder was largely led by male physicians and missionary boards. In 1961, Satterthwaite had to specifically "meet with the men of the staff" to

garner support for her move to center research in her career.[49] Like in the mainland United States, medicine in Puerto Rico was a masculine field. Although a decade earlier, there were a total of one-thousand and seventy-one physicians in Puerto Rico; of this, solely eighty-two of the practicing physicians in Puerto Rico were women in 1954.[50] Satterthwaite was one of these eighty-two physicians. By 1957, Puerto Rico homed a total of fifteen-hundred physicians, but it was unlikely that the male-to-female ratio had changed significantly. In addition to the gender disparity, a physician might expect to be the only physician for every five-thousand possible patients in rural parts of Puerto Rico.[51] Given this, the all-women research endeavor likely provided some reprieve to Satterthwaite's clinical routine. Satterthwaite's success in carrying out contraceptive research and securing external financial backing sparked some ire form her male colleagues in the mainland US as well. Over the years, Satterthwaite realized her funding goals, but some collaborators in Massachusetts remembered Satterthwaite's fund raising less than amicably. Celso-Ramón García, a key research collaborator of Pincus in Worcester, discussed how Satterthwaite "was very subservient when she needed someone, then was irascible."[52] Clarifying that Satterthwaite was "competent and neurotic" in her research endeavors, García also intimated that though the funds provided by Gamble kept her partially independent from the Massachusetts endeavors. He also shared that Satterthwaite deployed manipulation to keep Pincus and Gamble distrustful of one another. García offered no further details of how, in his view, Satterthwaite used feminine misdirection and pettiness to realize her goals.[53] García's gendered antipathy towards

[49] APS to Family, October 6, 1961.
[50] "Physicians of Puerto Rico," box 9, folder 14, Sección V: Luis Muñoz Marín, Gobernador de Puerto Rico (1949-1964), Archivo Historíco, La Fundación Luis Muñoz Marín, Trujillo Alto, Puerto Rico. Hereafter LMM Papers.
[51] "Preliminary Survey and Recommendations for Further Studies for the Organization, Personnel, Financing, and Facilities for Medicare in Puerto Rico," box 16, folder 147, LMM Papers.
[52] Interview with Dr. Celso-Ramón García—Notes, 3. García's gendered antipathy for Satterthwaite was likely furthered by his general distaste for the separate nature of the Humacao trials which led to independent publishing and less authority on the direction of trials.
[53] Interview with Dr. Celso-Ramón García—Notes, 3.

Satterthwaite, however, did not prevent him from opening his home to her to stay when she travelled to Massachusetts for consultations with him, Pincus, and John Rock.[54] Professional and ethnic power disparities at Worchester likely explain why Satterthwaite stayed with García rather than Pincus, but shared precarity did not engender a more collegial attitude toward Satterthwaite. Hence, as Satterthwaite advocated for a relatively independent research project, she had to grapple with stereotypical and discriminatory views of professional women from her colleagues in the mainland and in Ryder. Emerging autonomy did not guarantee the continuation of a women-led and women-serving contraceptive research project in Humacao.

Despite Ryder's legitimate concerns and additional barriers Satterthwaite faced, she established an independently funded and functioning family planning clinic in the basement of the hospital by November 1961. Satterthwaite was apprehensive of "being so near the hospital and seeing those who remain at the job working so hard that [she] may be tempted to give in and lend a hand."[55] Yet, on November 5th, 1961, she pronounced to her family, "Guess what!! I'm writing from my own new little office in the basement of the hospital."[56] Satterthwaite's new space correlated to two large shifts in contraceptive research in Humacao: the rise of comparative studies of oral contraceptives from multiple companies and testing of the IUD.[57] With more contraceptives, new backers from the states and international organizations began to stream into the research enterprise in rural Humacao.

More Contraceptives and Funding the Basement Family Planning Clinic

[54] Adaline Pendleton Satterthwaite to Family, August 27, 1961, box 10, folder 6, APS Papers.
[55] Adaline Pendleton Satterthwaite to Family, October 25, 1961, box 10, folder 6, APS Papers.
[56] Adaline Pendleton Satterthwaite to Family, November 5, 1961, box 10, folder 6, APS Papers.
[57] Adaline P. Satterthwaite, "A Comparative Study of Low Dosage Oral Contraceptives," *Proceedings of the First International Symposium on Ortho-Novum* (April 22, 1964), box 18, folder 5, 6-7, APS Papers; Adaline P. Satterthwaite, "Progress Report on Intra-Uterine Devices (November 1962 to January 1963)," *Proceedings of the Seventh International Conference on Planned Parenthood*, box 18, folder 5, 416. APS Papers.

Satterthwaite aimed to distance herself from the demands of working as a clinical physician, but her continued affiliation with Ryder brought some perks. One of the perks was regular vacation and a year of sabbatical every few years.[58] Satterthwaite planned her leave around two variables: meeting with research collaborators and her son, David. As seen in Chapter Two, David moved with Satterthwaite to Humacao in 1951. Satterthwaite began worrying about David's propensity in Spanish and relative weakness in English by his high school years. Because of her concern, Satterthwaite did something she had never considered, even during the precarious times in China during the 1940s. She sent David to live away from her. David matriculated at a boarding school near his paternal grandparents in Yardley, Pennsylvania. To ease the separation, Satterthwaite took her 1961 vacation in September to accompany David back to school. After dropping David at school and a quick visit to see her deceased husband's family, Satterthwaite

> expect[ed] to meet Dr. Gamble in New York and the National Committee on Maternal Health where Dr. Christopher Tietze [had] his office. From [there she and Gamble would go] to Mt. Sinai Hospital for an appointment with Dr. Alan Guttmacher in regard to the use of the intra-uterine ring as a means of temporary sterility. Then…to Buffalo to see what Dr. Jack Lippes is doing in the field.[59]

Satterthwaite was on vacation from Ryder, not from her research.

Prior to accompanying David back to School, Satterthwaite journeyed to Massachusetts for a weekend consult with Pincus and García to discuss the once again shifting scope of research on Enovid. Gamble also attended.[60] The researchers convened to address planning for "a project with 5000 women to prove Dr. Pincus' wild claims about the reduced incidences of cancer in women using the pill."[61] Once again, FDA-approval of Enovid did not cease Satterthwaite's nor others investigations into the efficacy of the drug. Other research opportunities manifested for

[58] APS to Family, August 27, 1961.
[59] Adaline Pendleton Satterthwaite to Family, September 16, 1961, box 10, folder 6, APS Papers.
[60] APS to Family, August 27, 1961.
[61] APS to Family, June 26, 1961.

Satterthwaite due to increasingly frequent meetings with current and prospective collaborators. Some of these events were organized by Gamble and others were called by Pincus and his team. Through Gamble, Satterthwaite connected with international family planning networks beyond her collaborators in Massachusetts. These casual gatherings enabled Satterthwaite to recruit new field trials to her increasingly autonomous clinic and accumulate new sources of funding. A central figure in these emerging opportunities was Christopher Tietze, research head of the National Committee on Maternal Health (NCMH).

Satterthwaite and Tietze met in Puerto Rico in August of 1961. Tietze's affiliation with international family planning organizations like Planned Parenthood and research institutes like NCMH, as well as his long relationship with Gamble, gave him a bird's eye-view of the world of contraceptive research. He knew where to look and who to contact to set up new tests.[62] By 1961, Tietze was overseeing an array of statistical studies, funded by Planned Parenthood, to compare the efficacy of a range of oral contraceptive options.[63] He likely knew that Satterthwaite followed long term Enovid users, introduced lower doses of Enovid to participants in 1959, and added a new Searle contraceptive pill, Ovulen, to her clinic in April 1961.[64] Hence, Tietze came to see Satterthwaite "about the possibility of…starting a parallel study with Norlutin comparing effectiveness and incidence of reactions etc."[65] Later, possibly at their follow-up session in September, Tietze retracted his suggestion of Parke Davis' Norlutin for Satterthwaite's clinic. Instead, Tietze's and Satterthwaite's comparative study of the efficacy of "low dosage" birth

[62] For Tietze's sometimes fraught relationship with Gamble, see Reed, *From Public Vice to Public Virtue*, 269-277.
[63] Adaline Pendleton Satterthwaite to Family, October 1, 1961, box 10, folder 6, APS Papers.
[64] Satterthwaite, "A Comparative Study of Low Dosage Oral Contraceptives," 6-7; Satterthwaite, "Contraceptive Clinical Trials," 4.
[65] Quote from, APS to Family, June 26th, 1961; APS OH, 22-23.

control pills included a two-and-a-half milligrams formulation of Enovid, Ovulen, and Ortho Pharmaceutical Company's Ortho Novum, not Norlutin.[66]

Norlutin and Ortho Novum differed in their chemical composition from each other, as well as from both of Searle's contraceptive pills. Norlutin and Ortho Novum contained Syntex's norethindrone as the active progestin.[67] All doses of Enovid consisted of the progestin norethynodrel, and Ovulen consist of ethynodiol diacetate as the active progestin. Searle's two pills and Ortho Novum contained small amounts of synthetic estrogen (mestranol), but Norlutin had no estrogenic components. Researchers knew that estrogenic compounds improved the action of birth control pills, but scientific rationale only partially explained why Satterthwaite introduced Ortho Novum for a comparative field trial.[68] Syntex, the Mexican company credited with synthesizing the first progestin (norethindrone) and enabling the mass production of steroid hormones, initially encountered barriers to getting norethindrone-based pills to the US market and tested in field studies.[69] Syntex was required to partner with US pharmaceutical companies for these endeavors. The company initially collaborated with Parke Davis for Norlutin, but their business relationship stalled after the FDA approved Norlutin as a menstrual disorder corrective. Syntex pivoted to Ortho for the testing of norethindrone as a contraceptive later.[70] Regardless of which norethindrone pill, Tietze's proposal enticed Satterthwaite due to her growing curiosity as a researcher and the prospects Tietze's partnership implied. Direct collaboration with Tietze and

---

[66] C.R. García, A. Pendleton Satterthwaite, and G. Pincus, "Contraception Using Oral Progestin-Estrogen Medication," *Addendum to Proceedings of the Seventh International Conference on Planned Parenthood* (February 10-16, 1963), box 18, folder 5, 6. APS Papers; Satterthwaite, "A Comparative Study of Low Dosage Oral Contraceptives," 6-7.
[67] Norethindrone is also known as norethisterone. Marks, *Sexual Chemistry*, 73.
[68] Marks, *Sexual Chemistry*, 76; Satterthwaite, "A Comparative Study of Low Dosage Oral Contraceptives," 6-7.
[69] Discrimination against Syntex did not prevent their ultimate predominance in supplying the base for steroid hormones therapies and oral contraceptives. By the end of the 1950s, Syntex provided almost ninety-percent of available steroid hormones. Soto Laveaga, *Jungle Laboratories*, 93. Norethindrone was present in almost fifty-percent of marketed birth control pills by 1966. Marks, *Sexual Chemistry*, 79.
[70] Marks, *Sexual Chemistry*, 72-78; Soto Laveaga, *Jungle Laboratories*, 52-56, 66-70

financial backing from his associated organizations promised greater ability to establish her family planning clinic outside Ryder's purview and to grow as a medical researcher.[71]

Satterthwaite's vacation meetings in 1961 offered other linkages to the expanding family planning and population control community. After meeting with Tietze, Gamble and Satterthwaite ventured to Alan Guttmacher, director of Obstetrics and Gynecology at Mt. Sinai Hospital and prominent figure in national and international iterations of Planned Parenthood. At their lunch meeting, Guttmacher introduced Satterthwaite to Lazar Margulies, a physician in Mt. Sinai's obstetrics and gynecology department "who was [also] working on an intra-uterine plastic coil impregnated with barium salts to produce sterility during the time the foreign body is in the uterine cavity."[72] Satterthwaite had read of IUD research happening in Japan and Germany, but had not directly worked with this form of contraception. Margulies was not the sole person in New York designing and testing new IUDs. A few days after meeting with Margulies, Satterthwaite and Gamble traveled further north to Jack Lippes of the University of Buffalo and Planned Parenthood of Buffalo. Lippes had created a slightly different IUD than Margulies's spiral IUD, and it, too, needed field trials. The Margulies Spiral resembled a snail's shell with a plastic extension, and the Lippes Loop resembled a tornado funnel.[73] Satterthwaite, eager to continue her development as a medical researcher, wanted to offer both these IUDs in her clinic. From Satterthwaite's conversations with these men in late 1961, plans were laid to enter a new phase of contraceptive research that allowed her to further center herself and Humacao in the growing family planning network of not-for-profit organizations and researchers.

[71] APS to Family, October 1st, 1961.
[72] APS to Family, October 1st, 1961.
[73] For Lippes telling of his journey to create his version of the IUD, see, Jack Lippes, "The Making of the First Loop," *American Journal of Obstetrics and Gynecology* 219, no. 2 (Aug. 2018 203-206.

The introduction of low dose Enovid, Ovulen, Ortho-Novum, and IUDs in late 1961 engendered important changes to the contraceptive research endeavor in Humacao. For the three different progestins, the shift was slight rather than a sea change. Satterthwaite and her team still needed to regularly examine and question participants like in earlier trials, but their lens of analysis expanded to include determining if any of the pills proved unacceptable to participants and thus ineffective in the field. Efficacy, beginning with the multiple-pill studies, now included comparing side effects across medications and participants' willingness to persist with a drug despite such drawbacks. On the surface, acceptability suggests that detailed case histories of individuals might emerge as crucial evidence and more agency for participants. Yet, no quintessential anecdotes nor "typical experience" vignettes appear in the literature of the comparative studies. Instead, aggregation and disindividualization were necessary to prove acceptability and efficacy. For example, Satterthwaite surmised that low dose Enovid users experienced the most breakthrough bleeding and nausea, Ortho Novum users gained the most weight, and Ovulen users were most likely to skip their menstruation. Across all three pills, participants noticed a significant increase in skin-discoloration known as chloasma. Despite these concerns, Satterthwaite still concluded, "All three [pills] have been acceptable, effective, and reversible" for the five-hundred and fifty women because of the decrease in pregnancy rates.[74] This framework, which Chikako Takeshita elucidates in the case of the IUD field studies, meant that "in the interest of reducing the aggregate fertility rate, individual health was rendered dispensable."[75]

The studies of the IUDs marked a greater change in the tenor of contraceptive research in Humacao than the comparative pill studies. First, participants receiving the IUD engaged

[74] Satterthwaite, "A Comparative Study of Low Dosage Oral Contraceptives," 13.
[75] Chikako Takeshita, *The Global Biopolitics of the IUD: How Science Constructs Contraceptive Users and Women's Bodies* (Cambridge, Mass.: The MIT Press, 2012): 43.

Satterthwaite and her team differently than women taking the pill. Rather than meeting with a health professional every two months to gain a pill, IUD participants attended a clinic, were inserted with an IUD, and then did not need to return except for follow-up tests or if they encountered issues. The researcher-patient relationship of IUDs was built upon on more sporadic, interactions than the researcher-patient relationship for pill participants. Second, there was a lack of foundational knowledge on how exactly the IUD prevented conception. Margulies nor Lippes "[knew] the mechanism of action [of the IUD] and [it was] under investigation also."[76] Early field trials of Enovid were needed to confirm the viability of oral progestins as contraceptives. Yet, researchers understood the role of organic progesterone in women's reproductive cycle before Enovid was taken by field trial participants. Satterthwaite's family planning clinic in Humacao could not carry out basic science research on these IUDs, but she and her team had demonstrated their ability to recruit participants and characterize participants' experiences with contraception. This lack of fundamental knowledge on the IUD, in turn, meant that some of the first questions addressed in the trials were acceptability and efficacy. Such questions came comparatively later in the pill field trials. Fourth, Satterthwaite's hub in Humacao could provide critical data on participants' receptiveness to new methods, and thus the viability of the IUD as a means of population control. Two distinctive features of Satterthwaite's clinic—a group of women familiar with meeting a physician for new forms of contraception and a population deemed by these organizations as in need of programs of birth and population control—created a new, viable partnership between Satterthwaite and compatriots in the states.[77]

---

[76] Quoted in, APS to Family, October 1st, 1961. Matthew Connelly, *Fatal Misconception: The Struggle to Control World Population* (Cambridge, Mass.: The Belknap Press of Harvard University Press, 2009): 201-202; Takeshita, *The Global Biopolitics of the IUD*, 44.

[77] For a detailed discussion of how funders of IUD research drew conclusions on the ideal location for IUD testing, see, Connelly, *Fatal Misconception,* 200-206; Takeshita, *The Global Biopolitics of the IUD,* 33-72.

The shifts in Satterthwaite's research in 1961 more fully brought her research into the broader conversation on population control and world of family planning and population politics. As Chapter Two has demonstrated, Satterthwaite became more conscious of overpopulation rhetoric and actions due to her experiences in Puerto Rico. Beginning in 1961, her ideas progressively shifted to considering population control beyond Puerto Rico due to her new partnerships. Before turning to how new projects and new funds took shape between 1961 and 1963, I clarify exactly from where the financial backing derived and who partnered with Satterthwaite. In the 1960s, various researchers and organizations conducting studies on birth control methods shared financial resources and personnel. Hence, it is important to parse out which new connections were being formed in 1961, and in turn, how Satterthwaite's new allies and backers connected to each other.

First, Satterthwaite's alliance with Tietze indirectly brought her into the purview of the Population Council, the "preeminent institute for policy-oriented research in demography and contraception,…[and] a nexus for all the other major player in the field."[78] Tietze held no official position with the Population Council in 1961, but he was inextricably linked to the Council because it provided much of the funding for NCMH's research. The NCMH had shrunk in size and prominence by the late 1950s to effectively support Tietze's research endeavors, and not much else.[79] Without his own budget, Tietze depended on grants from the Population Council and

[78] Quoted in, Connelly, *Fatal Misconception,* 159. Gordan, *Moral Property of Women*, 281; Reed, *From Public Vice to Public Virtue*, 286-288; Takeshita, *The Global Biopolitics of the IUD*, 44.

[79] The lifespan of NCMH is debated. Most historians focus on NCMH's antecedent, the Committee of Maternal Health (CMH). The CMH arose in the 1920s from Robert Latour Dickinson's aim to have a center that wove together provision of birth control services and centered contraceptive research as a medical issue. The organization added National to its title in the 1930s. Scholars agree that NCMH continued at least until 1955, but debate NCMH's fate after that. Some argue that NCHM folded into the Population Council under Tietze in the late 1950s. Records from the Population Council in the 1960s, Tietze's official title through the mid-1960s, and some of the secondary literature suggest the continuation of an independent NCHM past 1955. Instead, the NCHM continued under Tietze via extensive, and as some argue exclusive, funding from the Population Council. See, Clark, *Disciplining Reproduction*, 216-220; Gordon, *The Moral Property of Women*, 171-211; McCann, *Birth Control Politics in the United States*, 80-94; Reed, *From Public Vice to Public Virtue*, 272-277, 305-308; Tone, *Devices and Desires*, 242, 270.

Planned Parenthood. Specifically, the NCMH received $21,250 dollars from the Council for "fertility control" demographic and medical studies in 1961.[80] Likely, Tietze's comparative study with Satterthwaite relied, at least in part, on this Council grant.

Satterthwaite's collaboration with Guttmacher, Margulies, and Lippes on IUDs directly connected her to the Population Council. Though Guttmacher famously became president of Planned Parenthood in 1962, he held the position of chairman of the Medical Advisory Committee of the Population Council at the time of his meeting with Satterthwaite. Guttmacher's home institution of Mt. Sinai also gained funds from the Council for their research endeavors. In 1961, for instance, Mt. Sinai received a medical research grant of $6,500 Council for the explicit purpose of "clinical research in conception control."[81] Though not mentioned by name, it is probable that this specific grant was directed towards the IUD research happening at Mt. Sinai under Margulies.[82] Lippes, too, gained Population Council monies for his work as a contraceptive researcher. Lippes was faculty at University of Buffalo and connected to the local Planned Parenthood in Buffalo. A grant of $4,000 was awarded to Buffalo's local chapter of Planned Parenthood for the purpose of investigating IUDs.[83] According to Lippes, Council funds allowed him to make molds to standardize his loops.[84] Satterthwaite did not directly receive funds from the Council in 1961, but she and the women of Humacao were becoming interwoven into the Council's new focus: IUDs as the most likely means for population control programs in the Global South. As the Council's president Frank Note stein penned in reflection of 1961, "A beginning has also

[80] *The Population Council Annual Report for the Year Ended December 31, 1961*, 55, 58. The NCMH grant of $21,250 is listed twice in the Council's *Annual Report*, once under demographic grants and once under medical research. Because of the double-listing, it is unclear if the total grant was $42,500 or $21,250.
[81] *The Population Council Annual Report, 1961*, 33.
[82] Takeshita states that Margulies and Lippes were some of the first recipients of research grants from the Population Council. Takeshita, *The Global Biopolitics of the IUD*, 19.
[83] *The Population Council Annual Report, 1961*,. 35.
[84] Lippes, "The Making of the First Loop," 204-205.

been made in support of research on new forms of intrauterine devices which seem to hold great promise…the Council expects to expand its program of investigation rapidly."[85]

Scholars of Puerto Rico have articulated the corollaries between Puerto Rico's modernization and industrialization campaigns and the crystallization of family planning programs broadly, and rising sterilization rates of women and emigration, specifically.[86] They have not, however, examined how the changing research agenda, and sources of mainland US-investment, on the field trials of contraceptives compare to the changing industries promoted by Operation Bootstrap in the 1960s. Operation Bootstrap has been characterized as evolving in three-waves: advent of light-manufacturing plants that resulted in increased female employment (1950-early 1960s), pivot to manufacturing of products with high overhead costs in research and development but cheaper production costs (1960s to 1977), and in the last phase, a shift to assembly of high-technology industries (late 1980s through 1990s).[87] According to this this periodization, Puerto Rico was beginning to see an influx of factories that produced petrochemicals and pharmaceuticals, for example, at approximately the same time new questions and sources of funding poured into the field trials. From mainland US companies' perspectives, the rationale was that petrochemicals and pharmaceuticals were expensive to research and develop and required an infrastructure not present in Puerto Rico. Yet, these same goods and drugs were significantly less costly to manufacture in Puerto Rico due to the lack of import taxes, tax loopholes for income taxes, and cheap labor in Puerto Rico. These facets were certainly present, but by emphasizing the reasons why companies wanted manufacturing plants on the island, histories of Operation Bootstrap imply that little to no

[85] *The Population Council Annual Report 1961, 19.*
[86] Briggs, *Reproducing Empire*, 152-158, 167-169; Córdova, *Pushing in Silence*, 51-57; Findlay, *We Are Left Without a Father Here*, 90-93; Ramírez de Arellano and Seipp, *Colonialism, Catholicism, and Contraception*, 134-148.
[87] Gonzalez, *Harvest of Empire*, 255-256, 275-305; Ríos, "Export-Oriented Industrialization and the Demand for Female Labor," 322-324.

research on pharmaceuticals, for example, occurred.[88] At first glance, then, Satterthwaite's and other's work on the pill and IUD in the early 1960s seem to contradict previous scholars' rendering of the US as home to research and Puerto Rico as the base for production. I argue, however, that a focus on research as development of the chemicals within drugs, rather than on the medical research associated with pharmaceuticals, have obscured the possibility of research and production occurring in modernizing Puerto Rico. Satterthwaite and others were not synthesizing progestins and molecularly combining them to evaluate the best formula for the pill on a biomolecular level. Instead, by the first part of the 1960s, those involved with the trials were evaluating the human experience of taking a pill. Medical, rather than biochemical research, grafted onto the existing infrastructure in Puerto Rico. Hence, the field trials of the pill and IUD do not challenge the overarching fact that production, rather than biochemical research and development, occurred in Puerto Rico. Instead, the field trials provide a different lens through which we might understand Puerto Rican projects of modernization included and precluded the development of certain medico-scientific fields. Increasing interest in the field trials and diversification of the field trials did conform almost exactly with a central tenant of Operation Bootstrap: reliance on mainland US investment and organizations. Although philanthropic or research organizations, the investment in contraceptive research originated and benefited mainland US organizations coffers while people on the ground in Puerto Rico made the research a reality.

Within this context of new research agendas, Satterthwaite's professional life changed. In Humacao, contraceptive research remained a largely feminine realm—ran by and utilized by women. To be certain, she had to navigate the pushback from her male colleagues at Ryder, yet

[88] For the implication in relation to petrochemical industries, see, Ríos, "Export-Oriented Industrialization and the Demand for Female Labor," 329-331. For the implication in relation to pharmaceuticals, see, Gonzales, *Harvest of Empire*, 281.

for Satterthwaite, her research experience in Humacao were predominated by interactions with women. As Satterthwaite's focus increasingly turned towards larger birth control researchers' networks, however, she moved into a male-dominated world. Her colleagues in this endeavor were men like Tietze, Guttmacher, and Gamble. As she navigated new gendered power dynamism, Satterthwaite was inspired by her new research directions, funds, and connection to the Population Council. [89] She got to work on establishing the new iteration of her basement clinic and research projects.

Putting Funds and Connections to Work: Moving West to El Guacio and Castañer

The new studies of low dose oral contraceptives and IUDs field trials materialized quickly and expedited the crystallization of Satterthwaite's basement clinic as a hub of autonomous research projects. By October 1961, "some of the equipment [had] come to startup the intrauterine coils," and Satterthwaite was "getting awfully anxious to move downstairs."[90] November first was the start date for the trials of new pills and the Margulies spirals; the Lippes Loop was to become available in January 1962.[91] Sentiments like these in Satterthwaite's letters demonstrate her growing tendency to explicitly express her personal and professional interests in contraceptive research rather than filter her concern through the lens of Puerto Rican need. Satterthwaite's growing inclination towards professional development as a motivator for more trials encouraged her new alignments with international organizations and altered the tenor of the trials in Humacao.

The family planning clinics' staff went through some changes amidst the genesis of the new trials of 1961. Scientific articles and images of the basement family planning clinic demonstrate

[89] "It was in '61 that we started a comparative study with different types of lower dose pills…At that time…I began to give some serious thought to spending more time in this field. Shortly after that, Dr. Alan Guttmacher visited our clinic in Ryder, and he asks me if I would be interested in testing an intrauterine device… So I came up to New York, and this was the first time I had visited the Population Council," APS OH, 23.
[90] Adaline Pendleton Satterthwaite to Family, October 15, 1961, box 10, folder 6, APS Papers.
[91] Satterthwaite, "A Comparative Study of Low Dosage Oral Contraceptives," 6; Satterthwaite, "Progress Report on Intra-Uterine Devices," 416.

that the earliest Enovid participants in Humacao, the women visited in their homes and receiving higher doses of Enovid, continued.[92] However, because the R-series participants received their medications and interviews in their homes, they rarely entered Ryder or the later basement clinic. Researchers continued to trace these long-term participants to answer the question of long term efficacy, but the newer studies did not divide participants into groupings assigned to N. Rodríguez or Satterthwaite. N. Rodríguez and MacDonald did, at least for a time, the follow-up work for the newer pills with lower dose progestins. Figures 3-6 illustrate N. Rodríguez's and MacDonald's continued work with the trials through at least 1961. The merger of all participants under a single grouping demonstrates another means by which disindividualization of participants came to typify the research occurring in Humacao. At this stage of research, only the participants' assigned progestin, age, and number of children were necessary to draw conclusions in the field trials rather than from whom they gained the pills.[93] This disindualization, in turn, obscured N. Rodríguez's and MacDonald's contributions. These two early architects largely slip from Satterthwaite's records of the 1960s, suggesting that Satterthwaite's increasing emphasis on research as central to her professional and personal identity shapes how she documents her collaborators. For example, the basement grew to include many other collaborators and remained busy. This excited Satterthwaite, and merited documentation to her family in a more expressive way than the early trials of Enovid. Satterthwaite reported to her family two weeks after formally opening the basement clinic:

> How wonderfully free I feel! This week in the Family Planning clinic is moving at a good pace. We have already enlisted 60 patients in our new project and we have placed 8 plastic intrauterine coils. The work of visiting is progressing and we are really improving the statistics. We have taken on a new person to help enlist cases…We expect our visitors from the north

[92] Figure 6; García, Pendleton Satterthwaite, and Pincus, "Contraception Using Oral Progestin-Estrogen Medication," 3-5.
[93] Satterthwaite, "A Comparative Study of Low Dosage Oral Contraceptives," 7; Takeshita, *The Global Biopolitics of the IUD*, 42-43.

> the end of the month and then we hope that we can have some reports ready for them. As a group we went to visit the Public Welfare Office in the town last Friday to explain our program and to discuss mutual cooperation. We have sent letters out to the private physicians in the surrounding area explain our program.[94]

The comparative studies of progestins and trials of the IUDs between 1961 and 1963 represented a massive undertaking by the researchers in Humacao. During these two years, a total of six-hundred women came to the basement clinic requesting a birth control pill. Of the six-hundred women who attended the autonomous clinic, five-hundred and fifty-five women became participants in the trials of low-dose Enovid, Ovulen, and Ortho-Novum.[95] Concomitantly, at least five-hundred and twenty-women were inserted with IUDs under the auspices of Satterthwaite's research team.[96] Unlike earlier trials, however, there was no active recruitment by N. Rodríguez and MacDonald. Their earlier work of connecting and building rapport with the community meant women in Humacao and the surrounding area knew that they could find contraception through Ryder and Satterthwaite's clinic. Aspiring participants came to the clinic asking for contraception by 1961. Hence, MacDonald and N. Rodríguez likely did follow-ups and intake rather than recruitment. If they participated in any form of recruitment or outreach, it was in the form of notifying "the government welfare agencies in the surrounding towns to acquaint them with the program."[97] The intimacy of one-to-one recruitment had vanished from the trials in Humacao.

The lack of recruitment altered the day-to-day conduct of the trials. For the comparative tests of oral progestins, the team imposed distance restrictions on who could use the low-dose pills;

---

[94] Adaline Pendleton Satterthwaite to Family, November 14, 1961, box 10, folder 6, APS Papers.
[95] Satterthwaite, "A Comparative Study of Low Dosage Oral Contraceptives," 7.
[96] At the Seventh International Conference on Planned Parenthood, Satterthwaite reported the five-hundred and twenty-two participants statistic. In later publications, she suggested that six-hundred and eight women received an IUD in the first two years of the study. Adaline P. Satterthwaite, "Experience with Oral and Intrauterine Contraception in Rural Puerto Rico," in *Public Health and Population Change*, eds. Mindel C. Sheps and Jeanne Clare Ridley (Pittsburgh: University of Pittsburgh Press, 1965): 476, box 18, folder 5, APS Papers; Satterthwaite, "Progress Report on Intra-Uterine Devices," 416.
[97] Satterthwaite, "Experience with Oral and Intrauterine Contraception," 475; APS to Family, November 14, 1961.

women had to live to live "within a 15-mile radius of Humacao, Puerto Rico."[98] No longer welcoming social workers into their homes, participants exclusively attended the basement clinic to gain their pills and debrief on their experiences. No evidence suggests that Satterthwaite was unhappy about this because, like the P-series, she gained greater control of the research and furthered her role as a research scientist. The parallel study with IUDs did not impose distance parameters for women seeking the device; women solely needed to meet the standards for entrance to the study, then be inserted with the IUD. In 1961 and 1962, IUD participants were "women who could not qualify for sterilization according to the hospital rules due to age and parity and who wanted 'one shot' protection, and also to women who could not qualify for pills."[99] From the beginning, IUDs were envisioned by those testing the device as a means of population control because once implanted, participants could not readily cease using the contraception. Generally, physicians needed to remove it. There is no evidence in the scientific literature that participants intentionally removed their IUD without the assistance of a physician. However, seventy-two participants spontaneously expelled their IUDs. Of these participants, sixteen women expelled their IUD two-times and two women expelled their device three-times within the first year of the study.[100] Yet, participants relationship with Satterthwaite expanded beyond the insertion. Although the IUD did "not require repeated action on the part of the user and cannot be forgotten at the critical moment," IUD participants had to see Satterthwaite regularly for pap-smears, endometrial biopsies, and for removal if they desired it.[101] Thus, women came to Ryder's basement from areas other than Humacao municipality, and beginning in 1962, Puerto Rican women went to outpost clinics all over the island to gain access to the IUD.

[98] Satterthwaite, "A Comparative Study of Low Dosage Oral Contraceptives," 8.
[99] Satterthwaite, "Experience with Oral and Intrauterine Contraception," 476.
[100] Satterthwaite, "Progress Report on Intra-Uterine Devices," 419.
[101] Satterthwaite, "Progress Report on Intra-Uterine Devices," quote on 421, 419.

As Satterthwaite set up the basement clinic and expanded trials with private funds from international groups, she also sought to strengthen her ties with local, Puerto Rican medical professionals and organizations. Her move to research enabled, and also necessitated, increasing relationships with Puerto Rican organizations because growing attention to contraception as a means of population control required broader testing sites in Puerto Rico and local community buy-in. Satterthwaite's decreasing hospital responsibilities created space for her to strengthen such bonds beyond Ryder. The emerging relationships, in turn, once again altered how the contraceptive trials in Puerto Rico proliferated after 1961.

Two institutions of particular interest were Profamilia and the Puerto Rican Medical Association. Satterthwaite had known of Profamilia since at least the inception of the Enovid trials, but she only took on a formal role within the organizations in the 1960s. Along with others from Humacao, Satterthwaite went to Profamilia's annual meeting in 1961 and "was amazed at how well it was attended."[102] Satterthwaite "was elected to the Board of Directors for the Association" and felt it would "be a most stimulating contact…. [because] the Board [were] really community leaders and not any of them really Protestants—humanists, liberals, free-thinkers."[103] By late 1965, Satterthwaite had ascended to the role of Vice-President of the Executive Board of Profamilia.[104] Along with her new duties at Profamilia, Satterthwaite maintained space in her schedule to attend monthly meetings of the Puerto Rican Medical Association. Attending the organization's meetings often required taking the day to travel into the metropolitan center of San Juan and network. Her absence from the clinic, however, did not mean she was not working for the research project. Not long after the low dose pill and IUDs trials began, Satterthwaite had a conversation with a

[102] APS to Family, October 1st, 1961.
[103] APS to Family, October 1st, 1961.
[104] Celestina Zalduondo to Adaline Pendleton, November 30, 1965, in *Homenaje*, 46.

physician named Lee Smith from the hospital in Castañer, a rural town near Lares. They met at the Medical Association meeting. The physician, also protestant and affiliated with a private hospital, seemed "very interested in the Family Planning program and want[ed] [Satterthwaite] to come out some weekend and help them get started."[105] Though both physicians were of mainland origin and affiliated with protestant hospitals, they shared a conviction that contraceptive research needed to be "more closely relating … to the community and to the doctors in the island."[106]

That a representative from Castañer was interested in family planning should not have surprised Satterthwaite. In the 1940s, the local hospital rose to prominence after a bishop from Ponce accused the institution of sterilizing all men and women in the surrounding area. The bishop's condemnation resulted in a Department of Health investigation, which found no evidence of medical wrongdoing or maleficence. The Department of Health counted two-hundred and fifty female sterilizations and no vasectomies over a two year period. The bishop's complaint did not result in an abatement of sterilizations at Castañer, but rather "some four hundred postpartum sterilizations [being] carried out during the first four years … and Castañer [becoming] a mecca for women seeking *la operación*."[107] Satterthwaite's first ally in the medical organization was of mainland US origin, but Satterthwaite's continuing membership in Puerto Rican associations eventually led to the inclusion of Puerto Rican physicians into the research and spreading of experimental contraceptives across the island. This meeting in Castañer, then, further expanded and solidified Satterthwaite's place in Puerto Rican medical research communities.

---

[105] Adaline Pendleton Satterthwaite to Family, November 22, 1961, box 10, folder 6, APS Papers.
[106] Lee Smith was affiliated with Brethren Hospital, a hospital created during World War II for conscientious objectors to do service. The hospital remained under the auspices of the Brethren Service Commission until 1976 when the Puerto Rican state took it over. It is now Hospital General Castañer. APS to Family, November 22nd, 1961.
[107] Ramírez de Arellano and Seipp, *Colonialism, Catholicism, and Contraception*, quote on 136, 135-137.

By January 1962, the same time the second IUD—Lippes Loop—became available for distribution in Humacao, Castañer was fully integrated into Satterthwaite's autonomous family planning program and research.[108] Still homed in the basement of Ryder, Satterthwaite's family planning clinic and research had stretched its reaches to into the western parts of the island. Because the trip to Castañer required hours of travel, Satterthwaite initially limited the Castañer clinic to Saturdays. This seemed to fit her patients just fine, though, because after rising at five in the morning to hit the road in her weather-beaten, yet trusted Volkswagen, and begin the clinic early, "there were already 5 patients eagerly awaiting [Satterthwaite]" upon her arrival.[109] Like the move to no recruitment for the trials in Humacao, patients awaiting access evidence how access and sentiment towards the trials evolved over the span of the decade. To make the program more sustainable in Castañer, though, Satterthwaite considered recruiting more local health professionals by "organiz[ing] some kind of educational activities for the midwives because they [were] not really cooperating in the program."[110] No evidence exists to verify if Satterthwaite successfully incorporated traditional midwives (*comadronas*) in Castañer. Regardless, she and others were able to organize the clinic sufficiently well to "include [participants] in [her] cases to be presented" at professional conferences on and off the island.[111]

Because of the eager participation of women in Humacao and Castañer using the new IUDs, Satterthwaite had enough data to share preliminary findings at the Population Council in May of 1962. In less than prescient analysis of her own and others early work, Satterthwaite argued that "the great bugaboo of infection and cancer were certainly statistically proven to be non-existent"

[108] Satterthwaite, "Progress Report on Intra-Uterine Devices," 416.
[109] Adaline Pendleton Satterthwaite to Family, January 5, 1962, box 10, folder 7, APS Papers.
[110] Adaline Pendleton Satterthwaite to Family, March 18, 1962, box 10, folder 7, APS Papers.
[111] Adaline Pendleton Satterthwaite to Family, April 19, 1962, box 10, folder 7, APS Papers; Satterthwaite, "Progress Report on Intra-Uterine Devices," 416.

from these women's experiences.[112] Yet, Satterthwaite's and others' early interpretations did not mark the end of IUD testing in Puerto Rico. Like with oral contraception, long term studies that spoke to the efficacy of the IUD were necessary for the medical profession to implement the contraceptive in their clinics broadly.[113] Because of this pressure, as well as Satterthwaite's own aspirations and the demand she witnessed, Satterthwaite added a second weekend clinic in western Puerto Rico in El Guacio, a small community in San Sebastián.

The origin story of the El Guacio family planning clinic is difficult to ascertain. Satterthwaite might have made connections to physicians via the Medical Association like she did with Castañer. With her emerging role in Profamilia, she might have met a like-minded family planner. Current day El Guacio is home to a Presbyterian summer camp, so Satterthwaite might have connected to the outpost clinic via her missionary circles. In a letter from El Guacio upon Satterthwaite's departure from Puerto Rico, a missionary physician waxed on how Satterthwaite's, "tremendous work… in starting the coil program her at Guacio has not only been a benefit to all the patients, but it has also been a benefit to the clinic."[114] Hence, missionary connections likely helped, but were not the exclusive avenue. What is clear, however, is that by early July 1962 Satterthwaite and her Family Planning Clinic staff were "going to El Guacio for the first clinic with the intrauterine contraceptive coil."[115]

The clinics in Castañer and El Guacio had tangible effects on the trajectory of Satterthwaite's growing family planning clinic and continuance of contraceptive research under her guidance. Most directly, distance required Satterthwaite and her colleagues to rethink and refashion their best practices for IUD insertions. Whereas early protocol necessitated that the procedure occurs only

[112] Adaline Pendleton Satterthwaite to Family, May 17, 1962 box 10, folder 7, APS Papers.
[113] APS to Family, May 17, 1962.
[114] Mary Anne Woodring to Adaline Pendleton, January 10, 1965 in *Homenaje*, no page.
[115] Adaline Pendleton Satterthwaite to Family, July 9, 1962, box 10, folder 7, APS Papers.

in the days following menstruation, the weekly rather than daily clinic openings required the medical professionals "to take cases on the day of [their] visit, and [they] noted no significant difference in complications."[116] As Satterthwaite and her collaborators increasingly considered IUDs as means of population control, medical convenience took precedence over patient safety. The shift to distant clinics also furthered the development of the family planning clinic as autonomous from Ryder. Satterthwaite's letters to family are filled with examples of how busy her clinics on the western side of Puerto Rico were. For example, Satterthwaite spent a week in November 1962

> recovering from the weekend trip to Castañer and El Guacio…[Satterthwaite] was simply floored by the clinic at El Guacio. I will have to get another doctor to go with me out there. There is so much interest. There were 30 new cases and about 40 rechecks. Women had come from San German, Lajas, etc. At Castañer the clinic was more reasonable and I was able to direct the two young doctors there in several insertions—since they are interested in carrying out some of the work there.[117]

Though Satterthwaite directed these particular musings to her family, she could also mobilize such insight to justify her break from Ryder and advocate for more funding from family planning and population control groups.

Satterthwaite also had the ability to show her backers how well utilized her clinics were. Accepting visitors representatives of the Population Council, Gamble and the Pathfinder fund, Tietze, and pharmaceutical houses was a common part of Satterthwaite's research responsibilities. On these trips, Satterthwaite shared the newest data, guided inspections of the facilities, and sometimes introduced financial backers to trial participants. Often, due to the beauty of the western part of the island and weekend nature of the clinics, Satterthwaite escorted her benefactors and contributors to the western clinics. By demonstrating the time, money, and labor required for

[116] "Satterthwaite, "Progress Report on Intra-Uterine Devices," 416.
[117] Adaline Pendleton Satterthwaite to Family, November 11, 1962, box 10, folder 7, APS Papers.

operating far flung clinics, Satterthwaite sought to petition for larger budgets.[118] By taking funders to her clinics and demonstrating need, Satterthwaite was able to extend her reprieve from the hospital work, add more staff, and again further herself from the financial constraints of Ryder.

Castañer, El Guacio, and the rise of multiple progestins and IUD tests served as locus of transformation for Satterthwaite and the contraceptive research under her purview. Be it in the earliest trials of Enovid in the late 1950s, the comparative studies of Searle and Ortho low dosage oral contraceptives in the basement of Ryder, or even in earliest days of IUD characterization in western Puerto Rico, contraceptive research was a *private* matter. Funds and therapies trickled in from private, continental and international agencies—McCormick with grants to the Worcester Foundation, Gamble's Pathfinder Fund, International Planned Parenthood Federation, the Population Council, and various pharmaceutical companies. Physicians and allied health workers used their posts within private organizations and hospitals in Puerto Rico—Profamilia for Edris Rice-Wray and Ryder for Satterthwaite—to execute the trials. Rice-Wray's quick departure from Puerto Rico was in part due to concerns over her publicly held job in the Department of Health. And the women who consumed the early contraceptives did not go to their public hospitals or use publicly-funded insurance to acquire the therapy. Female patients welcomed private physicians and allied health workers into their home or conferred with them in private clinics. The trials in Castañer and El Guacio, however, paved the way for a *more* public, *more* Puerto Rican government sponsored field trials of contraception and program of family planning. I explore these changes in Chapter Five, but first, Chapter Four pauses on the years between 1955 and 1963 to examine how participants navigated, experienced, and influenced the trials of contraceptives in Puerto Rico.

[118] APS to Family, September 13th, 1962; APS to Family, October 7th, 1962; APS Oral History, pg. 29 of transcript.

CHAPTER FOUR

NEITHER AND BOTH: THEORIZING, ACCOUNTING, AND NARRATING PARTICIPANTS' EXPERIENCES IN THE FIELD TRIALS OF CONTRACEPTIVES IN PUERTO RICO, 1956-1963

As Chapter Three has begun to show, the field trials of contraceptives in Humacao became a focus of media attention by the early 1960s. Journalists documented social workers on the doorsteps of participants' homes and meandered about the halls of the basement clinic snapping photos as women did intake interviews and gained their pills. Although many of the photographs were staged, some journalists aimed to authentically document the many ways Puerto Rican women accessed contraceptives in Humacao and to highlight the potential and limits of these new means to control reproduction. Because of this bent, the media did not limit their camera lens exclusively to the health care workers and women who took experimental progestins. Journalists also captured participants with their children. In the particular picture below from the 1961 visit (Figure 7), a Puerto Rican woman sits with her baby to the side of Satterthwaite. Satterthwaite leans over to the baby, smiling, and the mother averts her gaze. Without context, the photograph might be construed as an attempt to illustrate the everyday intimacy and compassion of the field trials of contraceptives. Satterthwaite, with a kind acknowledgment of the babe, is checking on the participant and her family with a warm gesture. In context, the photographers' inclusion of the baby was meant to allay fears for potential contraceptive users in the US; the Puerto Rican woman gave birth to the child after taking Enovid for three years.

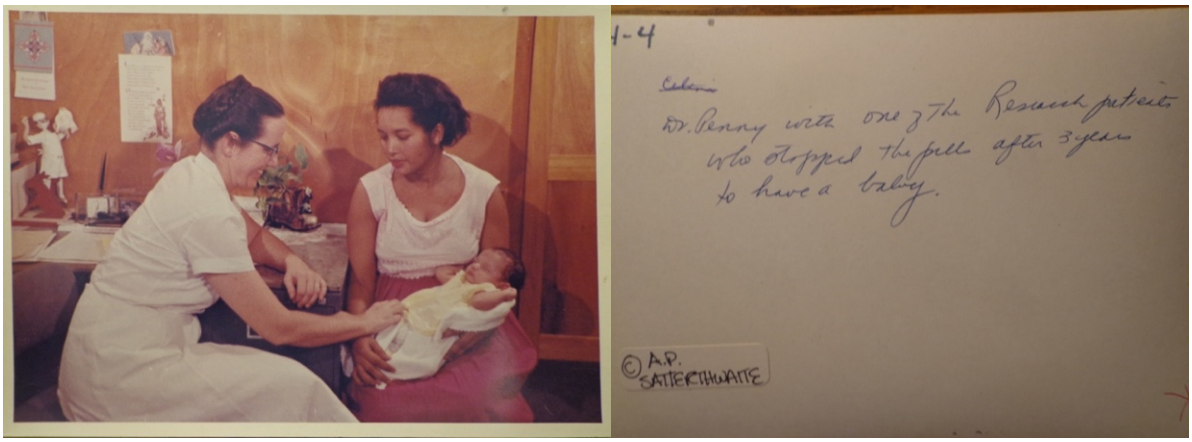


Figure 7: *Adaline Pendleton Satterthwaite, participant, and participant's child with accompanying description by Satterthwaite.* APS Papers.

As Elizabeth S. Watkins argued, such portrayals "implied that while the drugs themselves might have disturbing side effects, scientists were working to correct these flaws and physicians had the wisdom to prescribe oral contraceptives prudently."[1] Indeed, images like this harken to the importance of understanding the day-to-day of medical science in the making, which questions are asked and which are not in the development of therapeutics, and how drugs are evaluated as safe and efficacious. The first three chapters of this dissertation have attended to such concerns largely from the angle of medical practitioners and researchers on the ground in Puerto Rico, highlighting the particular way gendered, colonial, interprofessional, and power dynamisms animated the field trials. The image of the participant and her child also require us to consider these concerns from the perspective of the women who consumed experimental contraceptives as part of field trials in Puerto Rico, reconceptualize who counts as participants in the field trials, and evaluate the doctor-patient or researcher-participant relationship in the creation of medical knowledge.

This chapter aims to offer insights into the experiences of the people in Puerto Rico involved in the field trials of contraceptives beyond the medical professionals between 1956 and 1963.

[1] Watkins, *On the Pill*, 49. For more on the US media's role in highlighting the infinite potential of medicine and science to address the perils of a changing world, see, Serlin, *Replaceable You*; Tone, *Devices and Desires,* 233-260.

Elucidating Edris Rice-Wray's, Iris Rodríguez's, Adaline Pendleton Satterthwaite's, Noemí Rodríguez's, and Betty MacDonald's foundational contribution to the rise of oral progestins and IUDs is made possible by a careful examination of the longer history of field trials of contraceptives. As Chapter Three has shown, the 1960 FDA-approval of Enovid was a way station, rather than the culmination, of field trials in Humacao. By treating the 1960 FDA-approval as a single, rather than the singular, focus of medical research, the previously obscured history of ground-level researchers emerges. It is important to note, however, that this lacunae is even more pronounced for the people who took the pill or received the IUD in Río Piedras and Humacao. Hence, a review of participants' experiences in the trials is necessary to address the multivalent power dynamisms animating science in the making.

In my analysis of the participants, I rely on the medical literature, a data set on a specific study, and recorded interviews of participants. Scientific literature can be a treasure trove of social history about patients. The social history turn of the 1970s encouraged historians of medicine to embrace the quantitative aspects of the mundane artifacts of medicine like clinical histories and office records to address the multidirectional relationship amongst practitioners of medicine and the people they engaged as patients.[2] For various reasons, however, medical and scientific literature has been underutilized as a mean to a social history of patient and participant.[3] A willingness to delve into clinical and scientific articles open possibilities for renewed investigation into old sources, especially if we remain keenly aware of how the aims of physicians, scientists, and

[2] Susan Reverby and David Rosner, *Health Care in America: Essays in Social History* (Philadelphia: Temple University Press, 1979): 3-16.

[3] The rise of cultural history in history of medicine also shifted the onus to understanding meaning rather than on uncovering lost stories. Mary E. Fissell, "Making Meaning in the Margins: The New Cultural History of Medicine," in *Locating Medical History: the Stories and their Meanings*, Frank Huisman and John Harley Warner, eds. (Baltimore: The John Hopkins University Press, 2004): 364-389; Susan Reverby and David Rosner, "'Beyond the Great Doctors' Revisited," in *Locating Medical History: the Stories and their Meanings*, Frank Huisman and John Harley Warner, eds. (Baltimore: The John Hopkins University Press, 2004:,167-193.

pharmaceutical houses are almost always privileged. If we are to shed light on participants' perspectives in scientific literature, then, it becomes necessary that we do so by carefully considering the ethics of informed consent and privacy protection.

Informed consent, whether explicitly highlighted or not, has been a central concern in the study of the field trials of contraceptives.[4] Informed consent as an ethical mandate was only crystallizing at the time of the trials. It is ahistorical to evaluate the trials through a lens of informed consent as we know it today, but it is also imperative to address the power imbalances that animate researcher-participant experience. Participants likely did not know they were taking therapies in-the-making, nor did they likely know that their experiences were being used to prove the safety and efficacy of contraceptives. In this light, aggregate data, divorced of individual experience, presented in the annals of medical research, might be the most ethical means to glean information when consent proves impossible or elusive. Although it is impossible to reconstruct lived experiences of all participants, finding their experiences in aggregate makes it possible to examine the participants' stories as meaningful historical artifacts without unduly identifying them and evoking harm. These participants, who took developing contraceptives for their own individual needs, enabled millions of other contraceptive users in the subsequent years to live their lives with a measure of control of their reproduction. Most participants did not know their bodily and emotional labor provided such autonomy for contemporaries and future generations alike. Nor did they realize the malleability of contraception as a tool of both individual freedom and a means to deny reproductive choice via population control programs. Participants deserve some form of recognition at the same time they deserve to remain anonymous.

[4] Briggs, *Reproducing Empire*, 137-139; Marks, *Sexual Chemistry*, 106-110; Oudshoorn, *Beyond the Natural Body,* 135-137; Ramírez de Arellano and Seipp, *Colonialism, Catholicism, and Contraception*, 116-117; Schoen, *Choice & Coercion*, 212-216; Tone, *Devices and Desires*, 223-224; Watkins, *On the Pill*, 103-132.

This chapter unfolds in three sections. The first section introduces a more expansive definition of "participation" in the field trials of contraceptives in Puerto Rico, so as to set the scope of my inquiry. In the second section, I explore participants' experiences in the trials and their relationship to the medical professionals, while maintaining anonymity out of necessity and ethical persuasion. The third section of the chapter presents a richer narrative that suggests a clearer path to identification. This paradox arises from the differing source base of the two sections—scientific literature versus the limited interviews and their partial transcripts, which were conducted with consenting participants for the 1999 documentary *The Pill by* Erna Buffie and Elise Swerhone. Consent was mandatory for film makers by the late 1990s. However, I was unable to gain consent from the interviewees, so I have not attempted to further identify the women. I operated under the premise that pseudonyms were used. Instead, I use the interviews and portrayals to try and rectify one of the problems raised in the first section: participants as abstract figures rather than living people.

Patient, (Experimental) Subject, or Participant: Experiencing the Field Trials of Contraceptives

What should we call the people consuming emerging contraceptives between the late 1950s and 1960s who were immortalized, albeit problematically, in the scientific literature about contraceptives? For the ground-level directors of the trials in Puerto Rico, "physician," "social worker," and "researcher" easily apply. Historical and contemporary terminology, on the other hand, present three options for those consuming contraceptives in Puerto Rico—patient, (experimental) subject, and participant. Each term present limitations, cultural connotations, historical meanings, and significant drawbacks.[5] Patient necessitates a specific doctor-patient relationship: an exchange that centers the individual's health and needs. Medical professionals

[5] I bracket experimental because it is always implied, regardless of its presence in the line of the text.

prescribe treatment to address the needs of the person sitting in front of them. In a doctor-patient relationship, the individual coming to the professional for medical assistance is the focus. Power dynamics and the gulf between a physician's understanding of disease and patients of illness animate this type of exchange. The power disparities, however, do not erase the transactional and human nature of addressing the concern of the individual seeking medical assistance.[6] (Experimental) subject, on the other hand, surpasses the individual seeking assistance by entering into a broader relationship on research. The person engaging a physician becomes the metaphoric object upon which healthcare workers act to gain necessary information for the development of a therapeutic for future patients or a clearer understanding of a population-based health issue. The individual becomes part of a medical relationship in which they are an indistinguishable aspect of a dataset.[7] The field trials of contraceptives in Puerto occurred during a time when the protocols of informed consent and clinical trials were crystalizing if not set. Neither patient nor (experimental) subject adequately encompasses the multifaceted relationship of the healthcare workers and medical consumers working through the possibilities of oral and intrauterine contraception.

I deploy the less weighted and more open-ended term "participant" to theorize the people receiving the pill and IUDs in Puerto Rico during the 1950s and 1960s. My framing of participants does not intend to avoid implications of subjects or patients, but rather to embrace both. At times,

---

[6] Rita Charon, "Doctor-Patient/Reader-Writer: Learning to Find the Text," *Soundings: An Interdisciplinary Journal* 72, no. 1 (April 1, 1989): 137–152; Mary Fissell, "The Doctor-Patient Relationship," in *The Cambridge History of Medical Ethics*, eds. Robert Baker and Lawrence McCullough (Cambridge, UK: Cambridge University Press, 2009): 501-517; Arthur Kleinman, *The Illness Narratives: Suffering, Healing, And The Human Condition* (New York: Basic Books, 1989): 232-236.

[7] Jordan Goodman, Anthony McElligot, and Lara Marks, "Making Human Bodies Useful: Historicizing Medical Experimentation in the Twentieth Century," in *Useful Bodies: Humans in Service of Medical Science in the Twentieth Century*, eds. Jordan Goodman, Anthony McElligot, and Lara Marks (Baltimore: The John Hopkins University Press, 2003): 1-23; Susan E. Lederer, *Subjected to Science: Human Experimentation in America Before the Second World War* (Baltimore: The John Hopkins University Press, 1995): 1-26; Lindee, *Suffering Made Real*, 10-16; Takeshita, *The Global Biopolitics of the IUD*, 42-44.

the women entering the clinics for service were patients. When Satterthwaite met with mothers in her clinic after they gave birth, she engaged with them as patients seeking advice and care to transition to a postpartum existence. Satterthwaite offered them contraception as a means to address their health needs, indeed to treat them. However, as Satterthwaite translated these women's experiences into coded tables and reframed their experiences while on the pill or IUD for scientific articles, they became subjects whose bodies and lives served as proof of the safety and efficacy of emerging therapies for others. To get at this complexity and address the ambiguity of choice and consent, I use the term participant to identify the people who took the pill or had an IUD as part of the field trials in Puerto Rico.[8]

Who counts, then, as a participant in the Puerto Rican field trials of contraceptives? This chapter centers the experiences of Puerto Rican women, all mothers, who took oral progestins and received IUDs as a means of reproductive control in service to their own needs and in accordance to the dictates of field trials. Both within the history of contraceptives and scientific literature of the 1950s and 1960s, women on oral progestins and with IUDs for contraceptive reasons represent the majority of participants. These women most directly enjoyed the benefits, weathered the minor to life-altering drawbacks of contraceptives, and left the studies by choice or imposed dismissal. It is an advance in and of itself to thoroughly estimate how many women participated in the field trials this way. Somewhat surprisingly, the history of the trials in Puerto Rico have not included any solid accounting of who and how many people accepted developing contraceptives. The most cited number, eight-hundred and thirty-eight participants, only includes participants in Humacao who were prescribed Enovid.[9] And yet, as the subsequent section illustrates, at least two-thousand,

[8] The complexity of choice, coercion, and decision in reproductive matters are best explored by, López, *Matters of Choice*, 144-148; Schoen, *Choice & Coercion*; Takeshita, *The Global Biopolitics of the IUD*, 28-29, 130-131.
[9] Most accounts offer an estimate of women involved in the trials of Enovid prior to the 1960 FDA-approval or represent participants' experiences as percent experiencing side effects. Briggs, *Reproducing Empire*, 137; Marks,

three-hundred and seven women took pills, and at least one-thousand, one-hundred, and sixty women were inserted with an IUD for contraceptive purposes between 1956 and 1966 in the field trials in Puerto Rico.

Contraceptive users were not the sole participants in the trials. Buried within the statistical analyses, tables, and findings of medical journals are the experiences of others touched by emerging contraceptives. The second most addressed group of participants are "babies," the children of women using contraceptives. Be it due to failure of a specific contraceptive or a mother's choice to abandon the therapeutic, medical researchers were concerned with the health of children born to women with a history of contraceptive use. These children's births, physiology, overall well-being, and deaths appear frequently and with rich detail in peer reviewed articles. They, too, came in for physical examinations and enjoyed some of the privileges of patienthood and detriments of (experimental) subject status. The third subset of participants is the sexual and marital partners of the "traditional participants"—those who took pills and IUDs for contraceptive purposes. Marital status progressively receded as an explicit requirement for entrance into the field trials of contraception, yet details related to sexual activity and cohabitation with a partner remained present in the scientific literature. "Traditional participants" sometimes also shared their partners' occupations and the couple's living situation. The presence of such information necessitates at least partial consideration of sexual and marital partners as participants in the medical studies of contraceptives. By including children and partners as participants in the trials, my argument expands our understanding of the scope of the trials as integral part of gender relations that shaped Puerto Rican families and communities. My expansive framing does not aim

---

Sexual Chemistry, 103-106; Oudshoorn, *Beyond the Natural Body,* 130-135; Ramírez de Arellano and Seipp, *Colonialism, Catholicism, and Contraception*, 114-120; Tone, *Devices and Desires*, 230; Tyler May, *America and the Pill*, 30-32; Watkins, *On the Pill*, 29-32.

to minimize the benefits and detriments traditional participants incurred in the trials. They, much more than their partners, came under the gaze of medical practitioners and researchers.

For the same purpose, I also include the women who took oral progestins and IUDs for non-contraceptive purposes as participants. Many of the women coded as contraceptive users accessed the therapeutics for diverse reasons, but two groups of women took pills or were inserted with IUDs for explicitly non-contraceptive purposes. The first group were women who took oral progestins for endometriosis treatment. The second group were women who presented with vaginal prolapse, were inserted with IUDs, then sometime later underwent hysterectomies. Researchers studied theses participants' tissues in hopes of conducting a longitudinal study of morphological changes and cancer-fears related to the IUD. The study never fully materialized. This group of women appear to verge more squarely into (experimental) subjecthood, but the source base for this group of women does not provide enough detail to eliminate the possibility of patient status.[10]

The final group of participants were women whose medical histories appeared in the scientific literature, but never took a pill or had an IUD. They were deemed "controls" for the point of comparison for participants using contraceptives. They submitted to interviews and medical tests, and their information was published alongside the experiences of contraceptive users. By referring to these women as participants, I call attention to the expansive ways Puerto Ricans engaged with the trials, knowingly and unknowingly, and to broad concerns about gender, sexuality, and reproduction that shaped their engagement. As I attempt to narrate a fuller account of traditional participants, I also attend to the wider realm of participation so as to delineate the differing costs of participation. I use the term "non-traditional participant" to categorize these individuals.

[10] No paper resulted from the study, but an abstract was published. Eduardo Arandes, Rafael Ramirez-Weiser, and A.P. Satterthwaite, "Study of Tissue Reaction in Hysterectomy Specimens Removed After Insertion of Intrauterine Contraceptive Devices," in *Proceedings of Intra-Uterine Contraception: The Second International Conference*, S.J. Segal, A.L. Southman, and K.D. Shafer, eds. (Amsterdam: Excerpta Medica Foundation, 1965): 232-233.

It is also important to discuss the timeframe and shifting mode of participation. Participant status did not end for many traditional participants at the moment the swallowed their or they removed or expelled their IUD. Instead, health researchers continued to track life history information from traditional participants, especially around issues of fertility and the health of their children. Researchers periodically requested interviews and physical examinations of lapsed contraceptive users and their children. Researchers often encountered participants that refused to participate in follow-ups or could not be traced. Those who could be identified and recruited again by the researches made their bodies and personal experiences available with physicians and healthcare workers.

Scientific Literature and Participant Experience

In January 1957, Searle sponsored a symposium for their coterie of basic science and clinical researchers to share their findings on norethynodrel, the active progestin of Enovid. Searle's Director of Clinical Research, Irwin Winter, reflected upon the meeting as a collaborative endeavor that aimed to "guide the understanding and practical application on an exciting and potentially very valuable class of new therapeutic agents."[11] Some presenters focused on the molecular activity of norethynodrel and showed slides of endometrial samples or charts of hormonal changes in those taking the progestin. Other researchers relied on tables and graphs to trace any change in the average length menses or weight of participants. When Rice-Wray presented, she, too, relied on these quantitative tools to illustrate what she had learned about Enovid in the field. She compiled her observations into charts and tables to provide an easily consumable graphic of change over time and generalized experience. Yet, the final portion of her presentation focused on qualitative observations, a summation of particular participants'

[11] Irwin C. Winter, "Foreword," in *Proceedings of a Symposium on 19-Nor Progestational Steroids*, foreword by Irwin C. Winter (Chicago: Searle Research Laboratories, 1957): 1.

experiences with Enovid. Rice-Wray chose to illuminate the human experience of participants, in part, because Gregory Pincus was to "report on the same group of patients" from more quantitative perspectives[12] As her colleagues learned from Rice-Wray of the mathematically normalized experiences of the studies in Río Piedras, they also glimpsed the more intimate "typical" and "successful" participant portrayal. They heard how Romuald Peroza and Gloria Trujillo were typical participants because they "had dysmenorrhea which was lessened with the medication during the first and second medication cycles; after this the pain disappeared."[13] Symposium attendees also learned about more successful participants, according to Rice-Wray's perspective, like 33 year old Fanny Quines who had,

> Five children, ranging from 8 years to 16 months. Although this woman [was] a member of the Adventist sect, which is opposed to contraceptive measures, she … used several creams … in the past. After starting the medication, her regular menses returned. She is very happy with these results, and has had no reaction.[14]

In describing participants like Quines, Rice-Wray wove together the individual and general to argue the necessity of understanding how participants reacted to Enovid to determine the safety and efficacy of the pill as a contraceptive. She understood her unique contributions to the symposium; only she could detail how participants engaged with and received norethynodrel. However, Rice-Wray also knew that she had to argue her point by illustrating just *how many* women she had engaged to draw her conclusions. Thus in the summary of her presentation, the section of the scientific article that encompasses the central point of the research, she stated that "two-hundred and twenty one mothers less than 40 years of age, living in a slum clearance in Puerto Rico, have been on Enovid for one month to nine months."[15]

---

[12] Rice-Wray, "Field Study with Enovid," 78.
[13] Dysmenorrhea is the clinical term for menstrual cramps. Rice-Wray, "Field Study with Enovid," 84.
[14] Rice-Wray, "Field Study with Enovid," 85.
[15] Rice-Wray, "Field Study with Enovid," 85.

Tracing Participation Rates

By the beginning of 1957, two-hundred and twenty-one women in Río Piedras had ingested Enovid and become some of the first field trial participants of arguably one of the most important drugs to debut in the mid-twentieth century. The accounting of these participants is misleading in its simplicity. Why, one might ask, should a historian spend so much time tabulating how many women took experimental contraceptives? Would a higher number of participants make the event more meaningful, or would a smaller participant pool lessen the importance of these women's contribution? Absolutely not. However, tracing the ebbs and flows of participation generates a more solid foundation from which to narrate participant experience with a better understanding of the participants' contributions and challenges. If we remain ignorant about how many Puerto Ricans took contraceptive pills or otherwise participated in the trials, we would perpetuate the gap in the scholarship and also continue to miss opportunities to learn a range of impacts that the trials made on Puerto Rican families and communities. As Rice-Wray's discussion of Quines hints, participants were not only navigating how contraceptives may alter their lives, but also the changing landscapes of homeownership, and destruction of communities, created by modernization projects in Puerto Rico in the 1950s. In all likelihood, Quines and her fellow participants in Puerto Rico lived in newly constructed, sprawling apartment buildings constructed to evidence the advent of modernity on plots of lands where their families had once had individual homes made of less-than-modern materials.[16]

Addressing how many women took Enovid in its developing days also enables us to complicate our understanding of how people participated in the field trials. At the symposium, Rice-Wray introduced another subset of participants to her fellow researchers: the control group. One hundred

[16] Findlay, *We Are Left Without A Father Here*, 69-76.

and twenty-five women from the same community as the traditional participants participated in the first, large-scale trials of Enovid. The control group participants, like traditional participants, shared their age, number of living children, number of pregnancies, and marital history.[17] The social workers and physicians rendered their social histories as the comparative proof of the success of the medical action of Enovid and the latent social project of oral contraception. If birth rates went down amongst the contraceptive users, the pill was a contraceptive agent and could also be socially and politically effective to thwart the ill effects of overpopulation. Thus, while traditional participants directly bore the physical and emotional joys and toils of Enovid, the control group participants, likely unknowing of the purpose of the interview "to learn something of family sizes in the housing development," contributed their stories as evidence that contraception was necessary personally and politically.[18] Women in the control group represented the social ills that Enovid, and modernization and industrialization in Puerto Rico, was meant to correct.

By September 1957, two-hundred and sixty-five women had actively taken Enovid containing ten milligrams of norethynodrel for contraceptive purposes.[19] Over the nine months since the Searle-sponsored symposium in January, forty-four additional women had newly been visited by Profamilia representatives to try the pill. However, it is incorrect to visualize this growth as a swelling of Rice-Wray's and I. Rodríguez's daily case load in the metropolitan area. To the contrary, the new participants were included to maintain a caseload of approximately 130 traditional contraceptive participants each month.[20] For various reasons, traditional participants entered and left the Río Piedras studies frequently. However, control group participation was

[17] Rice-Wray, "Field Study with Enovid," 85.
[18] Rice-Wray, "Field Study with Enovid," 79.
[19] Pincus *et al.*, "Fertility Control with Oral Medication," 1333.
[20] Pincus *et al.*, "Fertility Control with Oral Medication," 1335.

additive. As the goal of research shifted to begin addressing efficacy, a new control group of participants emerged. No longer used as a social comparison, twenty-six of Profamilia's patients who had not taken Enovid had their blood taken and blood profiles compiled, suggesting a growing need to illustrate the lack of negative side effects.[21]

As Chapter One has demonstrated, Rice-Wray left Puerto Rico in 1957 for a host of reasons, including local pushback against the trials of Enovid. Manuel Paniagua replaced her as medical director of Profamilia, and the organization shifted its focus to providing "simple methods" like EMKO foam and largely abandoned involvement in the trials of Enovid.[22] Pincus and Celso-Ramón García effectively took control of tracing any remaining contraceptive participants. At the last tabulation of novel information on the trial participants in 1958, four-hundred and thirty-eight women in Río Piedras had taken Enovid at some point. Of these women, two-hundred and twenty-seven women had abandoned taking Enovid.[23] How long any of the remaining participants continued with Enovid beyond the winter of 1958 is unclear, but assessment of the four publications on Enovid use in Río Piedras enables a demographic sketch of the traditional participants and extrapolation on control group participants.

Traditional participants in Río Piedras were married, and both contraceptive users and control group participants were mothers.[24] Separation from spouse (due to divorce or physical distance caused by husband's employment), sterilization of either spouse, pregnancy, and moving away from Río Piedras were the main reasons for dismissal of traditional contraceptive participants. By November 1958, thirty-four women had been dismissed for moving, twenty-nine for sterilization,

[21] Pincus *et al.*, "Fertility Control with Oral Medication," 1341.
[22] Briggs, 123-124; Rivera Céspedes, "Recuento Histórica de PROFAMILIA"; Ramírez de Arellano and Seipp, *Colonialism, Catholicism, and Contraception*, 128-131.
[23] Pincus *et al.*, "Effectiveness of an Oral Contraceptive," 82-83; Pincus, Rock, and García, "Field Trials with Norethynodrel," 216.
[24] Pincus *et al.*, "Fertility Control with Oral Medication," 1333-1335; Pincus, Rock, and García, "Field Trials with Norethynodrel," 216; Rice-Wray, "Field Study with Enovid," 78-79.

twelve for pregnancy, and twenty for separation from husband. The twenty separated from their husband might have included couples separated due to the inability of the changing Puerto Rican economy to gainfully employ and uplift all male workers, a key reason for emigration to the mainland US at the time.[25]

Significantly more traditional participants (one-hundred and twenty-six women) elected to leave the trials than were dismissed.[26] Control group participants did not enter or leave the trials in the same manner as traditional participants, so they did not have to be married nor cohabitate with a partner. They solely needed to be mothers. In the earliest stages of the Río Piedras trials, both participant groups lived in the same housing developments, but this requirement was removed by 1958 and replaced with a proximity to Río Piedras requirement. The first cohort of traditional participants ranged from sixteen to forty-four years of age. Twenty participants were under twenty, one-hundred and forty-nine women were in their twenties, ninety women were in their thirties, and three traditional participants were in their forties.[27] The average age of traditional participants in 1958 was just over twenty-seven years old.[28] No specific data is provided for control group participants age, except "the control group was chosen the same way," implying a similar age distribution.[29] Researchers painted the socio-economic status of traditional and control group participants in broad strokes in the literature. Without evidence, all articles posit that participants came from "a low income population." [30] The simple statement signaled researchers' initial assumption that readers believed Puerto Rican women were always of the lower income groups, regardless of if they were or not. However, if these women were from the working class on the

[25] Findlay, *We Are Left Without A Father Here*, 90-117; Gonzalez, *Harvest of Empire*, 255-256; Whalen, "Labor Migrants of Submissive Wives," 208.
[26] Pincus *et al.*, "Effectiveness of an Oral Contraceptive," 82; Rice-Wray, "Field Study with Enovid," 82.
[27] Pincus *et al.*, "Fertility Control with Oral Medication," 1335.
[28] Pincus, Rock, and García, "Field Trials with Norethynodrel," 217.
[29] Rice-Wray, "Field Study with Enovid," 79.
[30] Pincus *et al.*, "Fertility Control with Oral Medication," 1333.

island, the increasing demand for female labor in the emerging factories might have encouraged their desire for contraception. Only in later publications did researchers discuss the diversity of class identity amongst participants. Hence, the most accurate depiction of all participants in Río Piedras is relatively general: five-hundred and eighty-nine mothers, under the age of 50, living in the greater San Juan area in the 1950s. Some of these mothers took Enovid as a contraceptive; some of these mothers might never have heard of the pill during the 1950s. Neither group likely knew the experimental nature of the drug. Both traditional and control group participants, however, were crucial in the development of Enovid.

Because of the length and scope of the field trials conducted under Satterthwaite, a richer, though still unsatisfactory, accounting is possible. Humacao participants began taking Enovid in 1957. They entered into the research literature without attempts to portray a narrative of individual experience due to the changing goals of research. As earlier chapters have shown, researchers felt that Río Piedras had mostly demonstrated the contraceptive action of Enovid, so the initial research questions in Humacao centered on the safety and efficacy of Enovid. Humacao also served as a means to compare these concerns across urban and rural populations. The researchers' initial assumption, then, was that difference between the sites was easily explained by the rural-urban divide, so no anecdotes on individual participants were necessary. Hence, the first information on Humacao participation was presented at the Sixth International Conference on Planned Parenthood and published in *Science* in early 1959 in a mostly quantitative form.[31] Participants were presented as two subsets of a four site project to prove broad efficacy across multiple groups rather than the nuance of individual experience. In total, two-hundred and forty-three women in the Humacao area consumed Enovid by November 1958. One-hundred and seventeen women were visited in by

[31] Both papers are based on information gathered by November 1958. Pincus, Rock, and García, "Field Trials with Norethynodrel;" Pincus *et al.*, "Effectiveness of an Oral Contraceptive."

N. Rodríguez in their homes, and one-hundred and twenty-six women came to Ryder to gain Enovid from Satterthwaite.[32] The sole social data was presented at the IPPF conference, not in the *Science* article. Both R- and P-series traditional participants were on average in their late twenties, and N. Rodríguez's participants generally were "the economically most handicapped…and probably the least well-nourished."[33] The Humacao traditional participants, again totaling two-hundred and forty-three, represented comparable participant numbers to the earliest days of Río Piedras.

The second article on the Humacao field studies solely focuses on the area, making it possible to offer a richer accounting of these participants. Five-hundred and fifty women in Humacao, between the ages of sixteen and forty-six, who had on average been married eight or more years, and pregnant five times, had taken Enovid by February 1960.[34] The first traditional participants took Enovid with ten-milligrams of norethynodrel. Women who joined the trials in 1959 or later consumed pills of five-milligrams of norethynodrel. Almost all participants transitioned to five milligrams of Enovid over time. Participation rates grew unevenly between Satterthwaite's and Rodriguez's groups. Satterthwaite's caseload swelled to four-hundred traditional participants, while only thirty-three additional women were visited by N. Rodríguez and MacDonald in their homes to access the emerging oral contraceptive.[35] As traditional participant numbers grew in Humacao, so, too, did non-contraceptive participation numbers. Much like the Río Piedras trials, women who never took Enovid became part of the field trials. These non-traditional participants came to Satterthwaite as patients of the Outpatient Clinic of Ryder; they needed routine tests

[32] Pincus, Rock, and García, "Field Trials with Norethynodrel," 216; Pincus *et al.*, "Effectiveness of an Oral Contraceptive," 82.
[33] Satterthwaite's participants were usually over twenty-eight years old and N. Rodríguez's participants were under twenty-seven. Pincus, Rock, and García, "Field Trials with Norethynodrel," quote on 218, 217.
[34] Cook, Gamble, and Satterthwaite, "Oral Contraception by Norethynodrel," 438.
[35] N. Rodríguez's group had a higher retention rate than Satterthwaite's participants. Cook, Gamble, and Satterthwaite, "Oral Contraception by Norethynodrel," 439.

suggested by their physician. These non-traditional participants included eighty-five women whose blood pressure were taken and seventy-nine women whose blood was drawn and tested for hemoglobin levels.[36] The doctor-patient relationship animated their interaction with Satterthwaite; they came to Satterthwaite because they needed these tests. By publishing their health information, however, that relationship transformed. These women's health data was aggregated to prove the long-term safety of Enovid through a comparison of their test results with those of traditional participants. Unlike the Río Piedras trials of norethynodrel, however, the non-traditional participants of Humacao served more than a comparative purposes.

The historical context of February 1960 statistics helps explain why yet another non-contraceptive participant population emerged in Humacao. As seen in Chapter Three, Searle had already submitted their application for FDA-approval of Enovid as a contraceptive in 1959. Satterthwaite and her team submitted data for the application, but the team's focus remained on proving the long-term efficacy and reversibility of Enovid to medical practitioners. Additionally, as shown in Chapter Two, Satterthwaite desired a reversible contraceptive because of her belief that Puerto Rican families were fragile and might be maintained only through reproduction. It is these concerns and aims that required a new participant group in the trials of Enovid: babies born to traditional participants after they stopped taking Enovid. Researchers needed to know that contraceptive users could have children after they stopped taking the pill. Fifty-eight children born to traditional Enovid trial participants in Humacao were examined and became non-traditional trial participants. Proudly, the writers reported that of the fifty-eight babies, only "one infant had a clubfoot; no abnormalities of other parts, including female genitals, were found."[37] Comments on the children's genitalia suggest that researchers were concerned about how Enovid might impact

[36] Cook, Gamble, and Satterthwaite, "Oral Contraception by Norethynodrel," 440.
[37] Cook, Gamble, and Satterthwaite, "Oral Contraception by Norethynodrel," 443.

multiple generations' reproductive ability and illustrate the importance of family relations and gender expectation in shaping the trials.

Another reason 1960 was a pivotal year for participants in Humacao because it was the last time they only had access to Enovid. As Chapter Three documented, Satterthwaite offered new contraceptive pills and IUD to traditional participants beginning in 1961. By expanding the types of contraceptives available, the number of participants once again grew and the parameters of participation changed. First, control group participants disappeared from the trials. Researchers replaced control groups with a new form of participant, people using pills or IUDs for non-contraceptive purposes. Second, researchers usually emphasized "insertions" rather than number of women receiving an IUD in the literature, once again illustrating how contraceptives as population control decenter individual experience.[38] Regardless, it is clear that the number of participants quickly grew after 1960.

Female trial participants under Satterthwaite's supervision had three options to choose from if they wanted an oral contraceptive between November 1961 and 1963: multiple doses of Enovid, Ortho Novum, and Ovulen. By December 1963, eight-hundred and thirty-eight women had taken ten-milligrams or five-milligrams doses of Enovid in Humacao.[39] An additional two-hundred and nine women took Enovid-E which contained two-and-a-half milligrams of norethynodrel.[40] In the same period, two-hundred and nine women took Ortho Novum and one-hundred and eighty-two women took Ovulen.[41] Of these traditional participants, eight of the women on Enovid-E, nineteen Ortho Novum users, and eighteen of the participants consuming Ovulen had been affiliated with

[38] I treat first and primary insertions as unique participants, thus these participant numbers are approximations. Takeshita, *The Global Biopolitics of the IUD*, 42-44; Tone, *Devices and Desires*, 265-266.
[39] García, Pendleton Satterthwaite, and Pincus, "Contraception Using Oral Progestin-Estrogen Medication," 1.
[40] García, Pendleton Satterthwaite, and Pincus, "Contraception Using Oral Progestin-Estrogen Medication," 3, 6.
[41] García, Pendleton Satterthwaite, and Pincus, "Contraception Using Oral Progestin-Estrogen Medication," 6.

the trials for only a month.[42] In this same time period, Satterthwaite examined the children of former traditional participants in the trials of ten- and five-milligrams Enovid trials. Satterthwaite knew three-hundred and fifteen pregnancies had occurred amongst the former participants, but she only examined one-hundred and ninety-seven of these children. Of these pregnancies, García, Satterthwaite, and Pincus coded thirteen babies as possessing "fetal problems:" five children had congenital defects and eight died while in utero.[43] Satterthwaite did not raise any concerns about these particular children in her letters home, so it is unclear how she personally felt about the degree of birth complications amongst her former participants. In her publication with García and Pincus, however, the consensus was that there was "no significant variation from comparable pregnancies in non-users [of Enovid] in the same locality."[44] Around the same time, another new non-contraceptive participant group emerged. At least twenty women took Enovid to treat their endometriosis. These participants might have also wanted Enovid for contraceptive purposes, but they did not follow a cyclical regimen. They took Enovid every day during their tenure in the trials, rendering them yet another subset of participants to be studied.[45]

Satterthwaite provided four other contraceptive pills while she was in Puerto Rico, although she did not publish extensively on these drugs nor the participants taking them. One hundred and thirty-four women consumed two doses of ORF 1658, a progestin-only pill from Ortho, under Satterthwaite's supervision. An additional one hundred and ninety-four women tried a "sequential therapy" that consisted of six-days taking ORF 1658 and fourteen days taking a synthetic estrogen. One hundred and three women tried a low-dose Ovulen.[46]

---

[42] Satterthwaite, "A Comparative Study of Low Dosage Oral Contraceptives," 7.
[43] García, Pendleton Satterthwaite, and Pincus, "Contraception Using Oral Progestin-Estrogen Medication," 4.
[44] García, Pendleton Satterthwaite, and Pincus, "Contraception Using Oral Progestin-Estrogen Medication," 4.
[45] García, Pendleton Satterthwaite, and Pincus, "Contraception Using Oral Progestin-Estrogen Medication," 3-4.
[46] Adaline P. Satterthwaite, "Oral Contraceptives," in *Family Planning and Population Programs: A Review of World Developments*, Bernard Berelson and Sheldon J. Segal, eds. (Chicago: The University of Chicago Press, 1965): 414.

Satterthwaite began offering participants the IUD at the same time she introduced more oral progestins to her field trials. Within a year of the IUD becoming available in Puerto Rico, five-hundred and twenty-two women enrolled as traditional participants in the field trials of IUDs under as a part of Satterthwaite's research enterprise in Puerto Rico. Of these participants, two hundred and seventy-two women received some version of the Margulies Spiral and two-hundred and fifty women had a Lippes Loop inserted. These participants ranged in age from sixteen to forty-eight years of age and usually had four living children. Unlike the traditional participants taking a pill, however, these women came from multiple locations on the island. As Chapter Three has detailed, these women received IUDs in either the basement clinic of Humacao or the outpost clinics in El Guacio and Castañer.[47] Across all locales, five-hundred and eighty-four participants received Lippes Loops, four-hundred and ninety-nine participants had Margulies Spirals inserted into their bodies, and seventy-seven women received some other IUD by June 1964.[48] Babies born to traditional IUD participants were discussed broadly in the literature, but no systematic physical examination of these participants' children occurred. A final group of non-traditional participants emerged in Satterthwaite's studies of the IUD after 1963. Satterthwaite and her colleagues fitted women with an IUD prior to a scheduled hysterectomy for vaginal or uterine prolapse. At least thirty-nine women between the ages of twenty-seven and sixty were inserted with an IUD for a hoped for study on possible morphological effects caused by the IUD on the uterus. The study never materialized. The vaginal prolapse group of participants only come to light due to Satterthwaite's retention of her research records, her oral history, and an abstract submitted, but

[47] Satterthwaite, "Progress Report on Intra-Uterine Devices," 416-417.
[48] Other IUDs included: Margulies tailless spiral, Birenberg Bow, or Nylon Ring. Satterthwaite, "Experience with Intra-Uterine Devices in Puerto Rico," 93; Adaline P. Satterthwaite, Eduardo Arandes, and Maria E. Negron, "Experience with Intra-Uterine Devices in Puerto Rico," in *Proceedings of Intra-Uterine Contraception: The Second International Conference*, S.J. Segal, A.L. Southman, and K.D. Shafer, eds. (Amsterdam: Excerpta Medica Foundation, 1965): 76-81.

not accepted, to the Second International Conference on Intra-Uterine Contraception. In the end, an additional fourteen women with vaginal prolapse, but no IUD, served as the control group for the study.[49]

Participants' Experiences As Portrayed in the Scientific Literature

I now turn to examine the direct interactions between participants and the ground-level architects of the trials. Much more than a regular check-in to acquire monthly supplies of pills or a "one shot" of IUD insertion, participants regularly interacted with researchers and healthcare workers to continue using contraceptives.[50] As earlier chapters have shown, participants were initially recruited to the trials in Río Piedras and Humacao, but as the trials persisted, women themselves came to the clinics to request pills or IUDs. Traditional participants in the pill and IUD studies were interviewed on their daily habits and overall health while using pills and IUDs. Answering biographical questions was not the only type of follow up work. Many traditional participants periodically visited physicians for physical exams and lab work. Participants encountering difficulties with their respective form of contraception, be it unintended pregnancy or expulsion of the IUD, had even more contact with medical practitioners. I have explored these experiences—initial engagement and recruitment, navigation of participation instructions, medical examination, and continuing interviews and testing to assess long-term efficacy/acceptability—from the perspective of medical researchers on the ground and through a lens of evolving research goals in the first three chapters. Here, I return to these facets of medical science from the angle of participants to consider an expanded realm of medical and social interactions between participants and the women they engaged to control their reproductive lives. By looking at the trials from the

[49] Arandes, Ramirez-Weiser, and Satterthwaite, "Study of Tissue Reaction in Hysterectomy Specimens," 232-233; Adaline Pendleton Satterthwaite, Hysterectomy Tabulations, n.d., box 32, APS Papers; APS OH, 30-31.
[50] "One shot" or "single inconvenience" appears throughout the scientific literature as a benefit of the IUD. See, Satterthwaite, "Experience with Oral and Intrauterine Contraception," 476.

lens of participants, I argue that participants exerted some influence, albeit constrained by multiple inequities, on the development of oral contraceptives and IUDs in Puerto Rico.

For participants, initial engagement in the field trials of contraceptives seemed like a social scientific survey or part of routine medical care. The earliest trial participants of Enovid were recruited by social workers and most likely to learn of the pill as part of what seemed to be a social scientific study. For example, I. Rodríguez of Río Piedras explained to possible participants that she was reaching out as a representative of "a private agency… that had no connection with the government…[to] survey of families to learn something of the size of the families in the housing development."[51] Only after review of the information did she transition to offering them medical therapies. Similarly, the Humacao team began with a census of neighborhoods to initiate the trials of Enovid in 1957.[52] Hence, traditional and non-traditional participants visited by social workers were most likely to begin the trials through social inquiries. Satterthwaite's direct participant groups, on the other hand, did not enter the trials of progestins and IUDs in this way. Rather, participants were originally "women coming from postpartum examinations," but "as word spread that the pills were available, increasing numbers came specifically to secure norethynodrel."[53] The same spike in requests, rather than physicians offering the contraceptive as part of a medical visit, occurred with the IUD.[54] Access to a contraceptive required a detailed intake interview regardless of how participants were brought into the trials. The nimble baseline questions of the interview easily could be coded as part of a survey or medical history, depending on context. In homes or clinics, researchers inquired about participants' status as a mother, proximity to the clinic, marital status, frequency of sexual activity, among others. Thus, traditional participants likely entered in

[51] Rice-Wray, "Field Study with Enovid," 79.
[52] Cook, Gamble, and Satterthwaite, "Oral Contraception by Norethynodrel," 438-439.
[53] Cook, Gamble, and Satterthwaite, "Oral Contraception by Norethynodrel," 439.
[54] Satterthwaite, "Experience with Oral and Intrauterine Contraception," 475-476.

the trials of contraceptives from two angles: either a social scientific survey in their homes or medical interview in the clinic. Whether under the premise of social or medical knowledge, participation required rendering of personal experience as intelligible to the professional. It may seem common sensical for participants to willingly offer information in a medical setting, but why did participants offer such details for surveys? In the 1950s, Puerto Ricans were becoming accustomed to researchers coming to their door due to a growing international interest in area studies linked to the US's super-power status in the early Cold War era.[55] Additionally, as Isabel M. Córdova argued in *Pushing in Silence*, the 1950s witnessed the medicalization of birthing and reproductive matters "took a decisive step into the realm of institutionalized medicine, and physicians claimed primary authority for the first time."[56] Hence, a possible parallel was the acceptance and belief amongst Puerto Ricans that physicians should help in the control of reproduction. Trial leaders pulled on this increasingly common phenomenon of social science investigation and medicalized birth to recruit the initial participants to test the pill.

Once accepted as a participant, women navigated complicated instructions of use for oral contraception. Researchers relied on tropes of gender and class to shape how they instructed participants to take a cyclical therapy. Researchers also relied on the expert knowledge of participants to enable the lengthy protocol:

> Take one pill each day with your evening meal. Begin on the fourth day after the day on which menses start. Stop when your bottle of 20 pills is empty. Wait until your next menses and secure another bottle of pills. Start the pills again on the fifth menstrual day. If, by any chance, you do not have a period within 10 days of stopping, get a new bottle and start taking the pills that evening. If you wait longer than 10 days you may become pregnant … If you begin to bleed while still taking the pills, take 2 pills every day until the bleeding stops, then one pill daily until the bottle is empty. If anything prevents you from getting the next bottle of pills

[55] Briggs, *Reproducing Empire*, 16-20; Duany, "¿Modernizar la Nación o Nacionalizar la Modernidad?;" Lapp, "The Rise and Fall of Puerto Rico as Social Laboratory;" López, "The Puerto Rico Family Life Study;" Ramírez de Arellano and Seipp, *Colonialism, Catholicism, and Contraception*, 93-104.
[56] Córdova, *Pushing in Silence*, 84.

> until later than the fifth day of menstruation, start again by taking 2 pills each day for as many days as you started late, after the fifth day, then one pill every day.[57]

For these instructions to work, researchers needed to assume that participants possessed expert knowledge of their bodies and fluctuations in their cycles. In this sense, participants were contributors to the researcher endeavor. On the other hand, researchers consistently noted that participants struggled with following the dense instructions. Because of this paradox—participant expertise of self, mixed with their frustration on the laborious regimen—willingness to follow instructions was another experimental parameter of the trials. In light of this complex instruction, participant compliance represent another important step in testing. Across participant groups, then, women underwent medical tests that contained elements of both social and physical scientific examinations. Indeed, participant experience was not limited to swallowing a pill or having an IUD inserted. Traditional and non-contraceptive participants donated parts of their bodies and lives to the examination of medical researchers over a period of time that started prior to receiving the contraceptive and often extended beyond ceasing contraception.

It is not surprising, then, that no report shows all active participants submitting to the variety of tests. From this disparity, it can be argued that some likely abandoned oral contraceptives to avoid persistent medical intervention. IUD users could not leave the trials as easily as the women who took oral progestins; a medical professional had to remove the IUD. However, like papers on the pill, no IUD study included medical test results for all contraceptive participants, making it clear that additional tests were encouraged but impossible to enforce. Given the power dynamism, some participants likely avoided returning to the clinic and ignored requests for follow-up visits, while others agreed to the tests willingly or unwillingly. Scientific publications suggest that many participants underwent some form of medical testing during their time as a participant. Within this

[57] Cook, Gamble, and Satterthwaite, "Oral Contraception by Norethynodrel," 439.

frame of murky consent and enforcement, participants endured medical exams that ranged from visual inspection of their bodies to sampling of their bodily fluids.

Medical testing typified women's entry into the studies of oral progestins and IUDs regardless of where their entries occurred. The typical "intake exam," as the researchers labeled it, included a physical exam, breast examination, and a Papanicolaou (Pap) smear. Physicians frequently performed endometrial biopsies on IUD participants prior to admitting them to the trials.[58] These medical tests mimic an annual gynecological exam. As the trials progressed and traditional participants and non-contraceptive participants alike returned to the clinic, however, more requests were made for medical tests.

The trials' focus on the contraceptives' acceptability in the 1960s prompted researchers to seek more information on how participants' bodies changed while on the pill or with the IUD and more testing over longer periods of time. For participants with IUDs, semi-annual Pap smears were highly encouraged. Regimented medical testing, though, was not a requirement nor the norm for most participants. Instead, medical researchers occasionally reached out to participants to request specific medical tests and interviews to address a particular vein of interest at that stage research, illustrating the level of dependency researchers had upon participants. Many tests required sampling of human fluids. Pill participants in Río Piedras were asked to return to the Profamilia offices for a pelvic exam, endometrial biopsy, blood draw for evaluation of hemoglobin level and clotting factors, and, if possible, a urine sample for evaluation of steroid levels.[59] Satterthwaite requested the same tests for all her oral progestin participants taking the pill longer than a month.[60]

[58] Cook, Gamble, and Satterthwaite, "Oral Contraception by Norethynodrel," 439; Satterthwaite, "A Comparative Study of Low Dosage Oral Contraceptives," 7; Satterthwaite, "Progress Report on Intra-Uterine Devices," 416.
[59] Pincus *et al*., "Fertility Control with Oral Medication," 1335.
[60] Cook, Gamble, and Satterthwaite, "Oral Contraception by Norethynodrel," 440; Satterthwaite, "A Comparative Study of Low Dosage Oral Contraceptives," 7-8.

Pill users and non-traditional participants' blood samples were used to evaluate if oral progestins caused liver problems.[61] Participants also underwent cervical biopsies, and one group of long-term progestin users also had biopsies of their ovaries.[62] Two critical observations can be made about the medical tests. First, IUD participants underwent fewer types of medical tests than participants on the pills. Researchers performed pap smears and biopsies on IUD users, but rarely drew blood or took fluid samples from them. This discrepancy is likely due to the lack of hormonal action by the IUD, as well as the shift to population control based research in the IUD. Second, although thromboembolism was a concern for pill participants, researchers largely assessed the incidence of thromboembolism only through visual inspection of participants for varicose veins. The published papers stated that no significant difference in the rate of varicose veins or thromboembolism was observed between those on the pill and the control groups.[63] In both cases, researchers and their medical and social agenda seemed to have overridden participants' interests in their individual health.

Reviewing the medical tests endured by participants adds to our understanding of the field trials. First, the medical encounters between participants and healthcare workers create a more complete picture of what belonging to a field study entails. Much more than a transaction for the exclusive purpose of testing, participation was always framed by the goals of health for future patients. A cervical biopsy, for example, was not meant solely to assist the participant in gaining the healthcare she may need, but also to prevent any harm coming to women beyond Puerto Rico both in time and space. Second, this vein of analysis allows a clearer delineation of when

[61] Pincus *et al.*, "Effectiveness of an Oral Contraceptive," 81; Pincus, Rock, and García, "Field Trials with Norethynodrel," 235-236.
[62] Cook, Gamble, and Satterthwaite, "Oral Contraception by Norethynodrel," 442; Satterthwaite, "A Comparative Study of Low Dosage Oral Contraceptives," 8; Satterthwaite, "Oral Contraceptives," 421.
[63] García, Pendleton Satterthwaite, and Pincus, "Contraception Using Oral Progestin-Estrogen Medication," 5.

participation begins and ends. Participants underwent tests at recruitment, while actively using a contraceptive, and after they ceased using the pill or IUD. Medical professionals might reach out to offer a medical test to the participant or a physical exam of the participant's child years after the woman ceased using a contraceptive. Third, by going beyond the timespan of contraceptive use, questions of consent and power dynamics become even more relevant and help clarify the manifold dynamics of research/physician to participant/patient relationship. It was a mutually dependent relationship that extended longer than previously assumed, and the relationship's continuation was consequential for both the researchers and participants. Last, medical testing further complicates our understanding of doctor-patient relationships. As participants underwent testing, they might have gained insight into their own health, but physicians also gained necessary information for their own career development as researchers. Participants, not patients, helped create researchers.

Turning our attention to the interviews conducted for the trials, we begin to see with further clarity participants' lives during and after the trials: the joys and struggles of participation experienced in their personal lives, concerns about reproductive ability, and side-effects. Researchers reported that participants became pregnant, nauseous, and experienced fluctuation in weight, to name a few. Researchers, not necessarily participants, deemed these experiences as meaningful. And yet, it is still notable that the reported participant experience within the scientific literature were largely negative besides the ability to prevent reproduction temporarily. Researchers knew that in order to have the FDA sign off on the safety of oral progestins and IUDs, and to educate clinicians on how to use the therapeutics within their practices, possible drawbacks and reactions had to be detailed. As the Nelson Senate Pill hearings and public outcry over the real problems faced while on the pill demonstrate, medical researchers did not go out of their way to

detail all negative side effects.[64] However, a careful reading of the scientific literature illustrates a less than perfect participant experience while on oral progestins or with an IUD. Trial directors sat down with traditional participants to ask them how they felt and what they experienced while on contraception. From these reports, we learn what side-effects participants endured, how they navigated unintended and intended pregnancy, and how and why they left the trials.

Side-effects ranged from the unpleasant to the life altering for participants. For those using the any progestin, the most common experience was general discomfort that manifested quickly. In Rice-Wray's presentation on Enovid, thirty-eight participants voiced at least one or more forms of discomfort: twenty-nine women became dizzy, twenty-six experienced pernicious dizzy spells, eighteen suffered from chronic headaches, seventeen vomited fairly regularly, nine had abdominal pain, seven reported general weakness in their bodies, and one cited diarrhea. Of the thirty-nine women who shared their side effects, twenty-nine ultimately abandoned taking Enovid.[65] In the Humacao trials of Enovid, three-hundred and eighty-eight participants had reported similar complaints at least once and "frequently volunteered that they felt pregnant" by 1960.[66] Satterthwaite's participants taking oral progestins also reported chloasma—a discoloration of the skin associated with changes in hormonal balances—as a drawback to the pill. For the initial Enovid participants, one out of twelve women reported this skin discoloration.[67] In the comparative pill studies, eighteen low-dose Enovid users, thirty-four Ortho Novum participants, and thirty Ovulen users complained of chloasma. Ten participants of these trials ceased taking the pill because of the splotchy skin marks.[68] When Satterthwaite began offering participants the chance

[64] Gordan, *The Moral Property of Women*, 332-334; Tone, *Devices and Desires*, 246-250; Tyler May, *America and the Pill*, 130-134; Watkins, *On the Pill*, 103-131.
[65] Rice-Wray, "Field Study with Enovid," 83.
[66] Cook, Gamble, and Satterthwaite, "Oral Contraception by Norethynodrel," 441-442.
[67] Cook, Gamble, and Satterthwaite, "Oral Contraception by Norethynodrel," 443.
[68] Satterthwaite, "A Comparative Study of Low Dosage Oral Contraceptives," 9-10.

to try the IUDs, many women with chloasma pivoted to the IUD rather than abandon contraception. In fact, new research protocols had to be implemented to prevent participants from swapping between IUDs and oral progestins. According to Satterthwaite, "No one was allowed to change directly from pills to intrauterine contraception unless there was a medical indication (usually chloasma). It became necessary to insist that the patients use some vaginal method for three months, in order to discourage shifting from one method to the other."[69]

Participants issues with chloasma suggest one of the ways they exert influence in the development of contraceptives. Chloasma is a beauty issue, defined as culturally and individually deleterious because dark splotches on the face detract from the ideal feminine beauty.[70] In the comparative trials of progestins, nineteen percent of low-dose Enovid users, thirty-four percent of Ortho Novum users, and approximately thirty-five percent of Ovulen users complained of chloasma. Only four participants cited chloasma as their primary reason for leaving the trials, yet continuing participants argued that chloasma was unacceptable. In fact, they used chloasma symptoms to gain access to a different contraceptive.[71] Satterthwaite tried to quell switching between the pills and IUDs by imposing a waiting period of three months, but participants executed enough force to make chloasma an exception to three-month rule.

Participants' gripes with chloasma also hint at the underlying social identities, cultural values, and gender relations within Puerto Rico that shaped the trials. First, researchers usually glossed over racial diversity in Puerto Rico by solely noting participants' nationality rather than race. For the researchers, to be Puerto Rican was sufficient to designate participants as separate and different. Yet, Satterthwaite's note that chloasma was "common during pregnancy among lighter

[69] Satterthwaite, "A Comparative Study of Low Dosage Oral Contraceptives," 8; Satterthwaite, "Satterthwaite, "Experience with Oral and Intrauterine Contraception," 476.
[70] The colloquial name for chloasma is *máscara de embarazo* (pregnancy mask).
[71] Satterthwaite, "A Comparative Study of Low Dosage Oral Contraceptives," 9-10.

Puerto Rican women" illustrates at least Satterthwaite's limited familiarity with the heterogeneity of Puerto Rico. Second, participants' strong reactions to chloasma demonstrate their attention to racialized, and likely in their view modern, ideals of femininity[72] Scholars have documented political attempts to flatten racial difference in *la gran familia* (the big family) of modernizing Puerto Rico in the 1950s that, in effect, elevated whiteness and paleness within Puerto Rico.[73] Participants' unwillingness to accept side-effects like chloasma that detracted from the whitened, modern ideal of femininity provide evidence into the racialized aesthetics, gendered standards, and colorism in Puerto Rico. Chloasma also hints at the pressure racialized, gendered expectations placed on female participants. Satterthwaite did not provide the percent of women who left the trials due to their husbands' wishes, but she noted, "Often times it was the husband who forbade his wife to continue the method."[74] It is quite possible that visible marks of chloasma prompted participants' husbands to discourage contraceptive use. In sum, all these cultural values shaped how participants evaluated side-effects and what they would not accept.

IUDs provided some participants with a palatable alternative to oral progestins, but the devices also caused their own chronic issues. The most common complaints were infection, bleeding, pain, and "discomfort to husband."[75] Within the first year of IUD trials, nineteen women reported infections, sixty-four bled at irregular intervals, eight experienced persistent pain, and twenty-two women argued that the method was unacceptable for their husbands.[76] IUD participants also frequently expelled their IUD. In 1963, seventy-two women "expelled the devices ninety-two

[72] Cook, Gamble, and Satterthwaite, "Oral Contraception by Norethynodrel," 443.
[73] Ayala and Bernabe, *Puerto Rico in the American Century*, 256-258; Córdova, *Pushing in Silence*, 54-57; Findlay, *We Are Left Without a Father Here*, 76-89; Isar Godreau, *Scripts of Blackness: Race, Cultural Nationalism, and U.S. Colonialism in Puerto Rico* (Urbana, IL: University of Illinois Press, 2015): 177-186.
[74] Satterthwaite, "A Comparative Study of Low Dosage Oral Contraceptives," 8.
[75] Satterthwaite, "Progress Report on Intra-Uterine Devices," 417; Satterthwaite, Arandes, and Negron, "Experience with Intra-Uterine Devices in Puerto Rico,", 80.
[76] Satterthwaite, "Progress Report on Intra-Uterine Devices 417

times. Sixteen women expelled the device twice and two have expelled three times." Women who expelled the IUD were not necessarily dismissed from the trials. To the contrary, "often if the loop or spiral was expelled the first time the other device was inserted."[77] By 1965, two hundred and nine women had expelled their IUD. Forty-eight women did not notice the expulsion until informed by a healthcare worker.[78]

Participation in the trials entailed grappling with a host of physical side effects and gendered expectations. As participants visited with the ground-level directors of the trials, they met with healthcare workers who understood their reproductive ability as dangerous and in need of correcting. As shown in Chapter Two, Satterthwaite believed Puerto Rican femininity entailed impoverished motherhood that required mitigating a burgeoning population at the same time it allowed participants to offer the prospect of future children to their husbands. From this perspective, participants entered into a relationship that sought not to treat the individual participant, but the woes of the family and gender relations. As such, Satterthwaite and others did not exclusively consider the woman coming to them for contraceptives, but also participants' husbands. Researchers anticipated and effected research protocols to satisfy what they believed husbands wanted: beautiful Puerto Rican women that caused the least inconvenience to their male partners, who could regain reproductive ability if and when appropriate. No sources from participants detail exactly what they navigated in their homes as they took the pill or had an IUD, but researchers believed that they had to treat the husband and, by extension, the children as much as the participant to make contraceptives acceptable. Researchers' view of participants as always bound to their husbands, families, and the dynamisms of gender relations instead of as autonomous actors in their health further illustrates why participants cannot be framed as patients.

[77] Satterthwaite, "Progress Report on Intra-Uterine Devices," 419
[78] Satterthwaite, "Experience with Oral and Intrauterine Contraception," 5.

Narrating Participants' Experience with Documentary Interviews

The scientific literature on the pills and IUDs illustrates the limits of ascribing patient status to the women who took experimental pills and IUDs in the 1950s-1960s and hints at some of the broad contours of participation in the trials. However, the publications on the oral progestins and IUD fail to highlight individual experience and the full meaning of participation for the women who tested these contraceptives. This comes into sharper focus by examining participant interviews conducted for Erna Buffie's and Elise Swerhone's documentary, *The Pill.* While the interviews speak to a plethora of experiences and themes, I first focus on medical experimentation, the trope of "guinea pigs," and patienthood to further illustrate the necessity of participation as a framework for considering the people who participated in the trials. My focus originates from how Satterthwaite refers to the trial participants in the film and her publications as patients. As a practicing obstetrician, Satterthwaite learned her trade by treating women as patients, not as subjects. Referring to her research participants as patients likely legitimized her work, evoked the ethic of care, and rendered the pill and other contraceptives as part of a familiar service to the physicians she was trying to convince to adopt using contraceptives in their practice. By evaluating how participants might, or might not have, experienced patienthood allows for a comparison of the medical gaze versus participants' experiences in the context of medical experimentation. Second, I interrogate the trope of medical experimentation and "guinea pigs" so as to put it in conversation with the patienthood. The notion of "guinea pigs" came up in virtually every interview conducted by Kelly Saxberg, the research assistant for *The Pill*. By focusing on this recurring theme for five different women, I highlight shared and divergent experiences. This opens a way to investigate subjectivity—patient, experimental subject, and/or guinea pig—because each provides a sometimes unique, other times overlapping, framework. This, in turn, allows us to

conceptualize the notion of "doctor-patient relationship" with a careful attention to what it meant to participants.

1998 marked the one-hundred year anniversary of US presence in Puerto Rico. Scholars, activists, politicians, and lay people across the United States and on the island meditated on the meanings of this hundred year anniversary. Amidst this furry of evaluation, Canadian documentary makers Swerhone and Buffie pondered the Puerto Rican field trials of contraceptives that occurred between 1956 and 1965. Somewhat erroneously, Swerhone and Buffie conflated Enovid with the other pills and IUDs being tested across the island. Regardless, their film and personal understandings of the trials are well documented by their research notes. This offers a unique lens through which we may inquire into researcher-participant relations and elements of patient subjectivity.

By May 1998, Swerhone and Buffie had completed enough preliminary research to believe that the documentary was not only feasible, but a worthwhile project. They hired Saxberg, a Canadian graduate student, to conduct on-the-ground research in Puerto Rico. With the information provided by the filmmakers, Saxberg set out to connect with experts on the trials, community activists knowledgeable about issues of contraception on the island, identify surviving medical directors of the trials, and, of the upmost importance, locate and interview the Puerto Rican women who had ingested the pill. Saxberg reached out to various family planning agencies, Puerto Rican journalists and activists, mainland scholars, and two of the directors of the clinical trials of Enovid between May and June of 1998.[79] With the evidence and possible interviewees lining-up, Swerhone and Buffie instructed Saxberg on the interpretation to be put forth in the documentary. Saxberg wrote in her field and research notes,

[79] "Research Report," Kelly Saxberg's Personal Records of Research for *The Pill* (New York: Women Make Movies, 1998). Hereafter Saxberg Papers.

> Position we are taking in the film: Overpopulation scare tied to Cold War and US xenophobia pushed to get pill out there. AND used as excuse; birth control way earlier than it should have been … Dumping high dose birth control pills … Two kinds of pills used … U.S. power and influence … Open film on present day Puerto Rico … back in time.[80]

Saxberg knew the desired angle of the documentary before she sat down with the trial participants, and Buffie's and Swerhone's interpretation of the trials of Enovid determined the questions Saxberg asked the women. Framing the trials as shaped by US xenophobia and Cold War strategy meant that Saxberg asked about the participant's experiences through a lens of medical experimentation.

Devoid of cultural context, medical experimentation implies trying of a new therapy (in this case oral contraception) on a population (in this case Puerto Rican women). In practice, use of the word experimentation to describe a medical encounter arouses sentiments of disempowerment and implies a gulf between researcher and trial participant. When combined with Puerto Rico, experimentation acts as a meaningful allegory for US colonialism. Facile use of medical experimentation as the guiding principle for the interviews evidences an *a priori* gendering, racialization, and classing of trial participants. For the film makers, the women who ingested the pill were passive, unknowing, presumably working class, women of color in a colonized land. Furthermore, trial participants embodied the perpetual and idealized victim of US colonialism for a film premiering contemporaneously with the centennial of US presence in Puerto Rico. Yet, participants did not unequivocally embrace the mantle bestowed on them by the filmmakers. Rather, each woman responded with a measured evaluation of experimentation and explained how she chose to take the pill. Their ambivalent responses epitomize why participant, not (experimental) subject, is the best frame from which to understand these women.

[80] "Notes on Film," 3, Saxberg Papers.

Marcolina Reyes: Experimental Subject and Patient Are Not Incommensurable

Sometime in the 1950s, Marcolina Rojas Reyes, a woman living in San Juan, began taking Enovid to control her reproduction. To acquire this pill, M. Reyes first went to Señor Perez in Río Piedras. He directed her to Paquita López in Humacao, a rural municipality about thirty miles east of M. Reyes' home.[81] López, a healthcare professional, met with M. Reyes, but directed her to Satterthwaite to acquire the medication. In their first meeting, Satterthwaite gave M. Reyes a physical, prescribed her the pill, and consulted her on how to take the pill daily. Through 1960, M. Reyes traveled monthly to Satterthwaite for an exam and a refill. In Satterthwaite's clinic, she met many other women from across Puerto Rico seeking the same pill. M. Reyes stopped taking the pill once she was sterilized in 1960.[82]

In narrating how she acquired Enovid, M. Reyes presented herself as purposeful and self-driven. It was M. Reyes herself who sought out Enovid, M. Reyes who chose to be sterilized. Saxberg accepted M. Reyes' claims without much follow-up or concern over the validity of her statements. Even when M. Reyes responded that she sought sterilization because her husband did not like other reversible forms of contraception, Saxberg did not push the issue. Only on the issue of experimentation did Saxberg counter M. Reyes.

> Saxberg: Did you know that at that time, not now, but at that time, that women in Puerto Rico were the first women in the world to take the pill?
> M. Reyes: Yes, Yes.
> Saxberg: Can you say this?
> M. Reyes: Yes, at this time there were many women who were taking the pill and who went to Dr. Pendleton's clinic. I can state that because we all met at the clinic, because we all came from different places. But I always found the clinic very, very full.
> Saxberg: But, but at that time, did you know that you were the first women in the world to ever used this drug?
> M. Reyes: Yes, I knew. And Señora Hilda Reyes and her other neighbor Vera Sanper was another person who used the pill…
> Saxberg: Did you know that this was the first time?

[81] Marcolina Rojas Reyes, interview by Kelly Saxberg, *The Pill*, 1, Saxberg Papers.
[82] M. Reyes Interview, 2, Saxberg Papers.

> M. Reyes: Yes, the first time. Well there were really many women from all over, many, many who used the pill.
> M. Saxberg: Did you know that the people were using this pill for the first time, really it was an experiment?
> M. Reyes: I never knew it was an experiment, the question was not to have a lot of kids. Because I never knew it was an experiment, no. I used it as part of a routine visit to the gynecologist.[83]

It initially appears that Saxberg was only trying to clarify her question, and M. Reyes' shift in tone suggests that M. Reyes did misunderstand the question. M. Reyes might also have been trying to evade the loaded question of experimentation. As Saxberg pushed the issue of experimentation, the interview moved from a question and answer session to a contestation over meaning. Whereas Saxberg likely anticipated M. Reyes to damn those who hid the experimental nature of the drug she took, M. Reyes presented a more complex and nuanced picture of what it meant to participate in the field trials of Enovid.

For M. Reyes, she was a patient just as much as she was an experimental subject; she created the conditions of the trials as much as she was affected by the trials. M. Reyes acquiesced that she did not know Enovid was experimental, but she refused to outright depict herself as a passive victim of US colonial power. Rather, she understood the experiment as a means to control her own reproduction and as "part of a routine visit to the gynecologist."[84] Tangible power disparities animated M. Reyes' experiences with the pill and Satterthwaite, but for M. Reyes, power disparities were not the only meaningful aspect of her time on the pill. Clearly, Saxberg and M. Reyes disagreed over the meaning of the experimentation and participation:

> Saxberg: I'm going to ask this question again. Did you think, when you were taking the pill, that other women in North America were using the pill at the same time?
> M. Reyes: No, I never thought of it because I live here in Puerto Rico…what happened in other places I don't know.
> Saxberg: When you used the pill, did someone tell you, like Dr. Pendleton, about the possibility of long term effects of the drug?

[83] M. Reyes Interview, 2, Saxberg Papers.
[84] M. Reyes Interview, 1, Saxberg Papers.

> M. Reyes: No, did they tell me about the possibility of the pill having damaging affects? No, no.
> Saxberg: They never talked to you about the possibility? Because they really didn't know a lot about this drug, what would happen ten years after using it, or with children later, they never mentioned things like that?
> M. Reyes: No, and neither have I ever heard of anyone taking the pill having deformed children, or with any kind of condition.
> …
> Saxberg: Now that we are in the '90s, there are some people who think that women in Puerto Rico were used like guinea pigs …
> M. Reyes: Believe me I have never heard any comments like that. Moreover, the people who had their children and didn't want to take the pill any more it was because they decided to quit because they wanted to be sterilized. And I know other people who wanted to be sterilized …
> Saxberg: Why do you think they tested the pill here and not in the U.S.?
> M. Reyes: Really because we were people who were more ignorant, there is no other way to do it, with such a dangerous thing, you understand, a drug. So they took us instead of the United States. They were very generous with the pill…The people always went to get it. When they would quit they would solicit them to come back…And we went along ignorant…of the possible dangers of the drug.[85]

Attention to how participants respond to pointed questions of experimentation provides a unique opportunity to evaluate what it meant to be a participant. M. Reyes' multifactorial answers begin to illustrate that participation in the pill trials meant making decisions, if not choices, that incorporated "personal motivations and gender awareness, cultural influences, social structural constraints, and historical experience" to address one's desire to control her reproductive life.[86] Since participants' experiences differed from one another—as M. Reyes' description of "other people who wanted to be sterilized" suggests— a key beginning point might be to ask whether trial participants were experimental subjects devoid of the rights of patienthood. If the answer is no, as it seemed to be for M. Reyes, a rigid binary between subject and patient does a disservice to a historical sound characterization of trial participants' experiences with the pill.

[85] M. Reyes Interview, 2-3, Saxberg Papers.
[86] López, *Matters of Choice*, 148.

Though never directly evoked in her response, M. Reyes might even be seen as claiming that she was a patient and Puerto Rican women at large were experimental subjects. In almost every question on experimentation, M. Reyes' responds in the collective voice of "we" or "Puerto Ricans." Only once, the first time Saxberg directly calls Satterthwaite's program an experiment, does M. Reyes use "I" and "experiment" in the same response. Even in this affirmation of experimentation, Reyes continued to claim patienthood and a doctor-patient relationship between she and Satterthwaite. M. Reyes did not know the pills she ingested for two years were experimental, but she did know she "used it as a part of a routine visit to the gynecologist."[87] She believed that Satterthwaite was a responsible doctor, and "a beautiful, beautiful person. Very nice with her clients. Very good, Very good. You can confide any personal secret to her and she was really good at counseling you. I was very satisfied."[88] For M. Reyes', she was a patient, though Puerto Rican women at large might have been the experimental subject, denied the benefits of congeniality and concern afforded by a doctor. Collectively, Puerto Rican women, including M. Reyes, "went along ignorant, we were innocent, you know, of the possible dangers of the drug."[89] Saxberg's framing of the trials of Enovid as experimental did not adequately encompass M. Reyes' personal experience. However, Saxberg's limited frame created a tension for M. Reyes that demonstrates a salient concern on the personal versus collective experience of the trials. For M. Reyes, she understood that she visited a doctor, not a researcher, that attended to her personal health needs. Though Satterthwaite translated Reyes' and others' experiences into fodder for her research, some participants enjoyed a positive doctor-patient relationship at the clinic. Holding this tension to light, an individual's belief in the doctor-patient relationship coexists with a

[87] M. Reyes Interview, 1, Saxberg Papers.
[88] M. Reyes Interview, 2, Saxberg Papers.
[89] M. Reyes Interview, 3, Saxberg Papers.

collective participant-researcher relationship in tension, illustrating the agency participants exuded in the trials. This tension also hints at the way trial participants used access to oral contraceptives as a means to differentiate Puerto Rican women of the mid-twentieth century from contemporary Puerto Rican women and Puerto Rico at large, a central strand of Pura Clarevol's memories of the trials.

Pura Clarevol: Experimental Subjects, A Thing of the Past

Pura Clarevol was an indirect participant in the field trials. Clarevol's medical history never entered into the publications tracing the efficacy and long term effects of oral progestins because she acquired the pill through an informal network of nurses and friends. After her first child, Clarevol searched for a contraceptive method other than sterilization. As a nurse, she turned to her colleagues for assistance. And eventually, "the pill fell into [her] hands, by way of a girlfriend who was a nurse. It wasn't any doctor who gave it to [her], it was a girlfriend who brought them to [her], and [she] used them for a cycle of 28 days."[90] Clarevol's friend cautioned her to get refills ahead of time to prevent risk of pregnancy. Clarevol said her friend informed her of nothing else. Clarevol did not report for routine visits, have her vitals taken, or do anything else that suggested formal participation in the trials. Yet, Clarevol took an experimental pill along with thousands of other women in Puerto Rico. Saxberg highlighted that Clarevol was not a formal participant in the trials and asked Clarevol about medical experimentation. In particular, Saxberg focused on the possible side-effects of the pill:

> Saxberg: So, why had you quit using the pill?
> Clarevol: Yes, I quit using them after two years and later I thought that maybe I shouldn't be using them … I thought no, no I won't use them because I would like to get pregnant again. That was the idea, to get pregnant again, to have another child and to quit using the pill.
> Saxberg: You never worried about the possibilities?

[90] Pura Clarevol, interview by Kelly Saxberg, *The Pill*, 3, Saxberg Papers.

> Clarevol: No, nothing. Youth is very beautiful, we look at things from another point of view … if today I was offered [the pill] … I wouldn't have taken it. Because I think that we were taken for guinea pigs, here in Puerto Rico … I am certain that with what I know now that yes, they used us like guinea pigs. They didn't force us, because it was voluntary but yes we were guinea pigs.[91]

Whereas Saxberg introduced the term "guinea pig" in her interview with Reyes, Clarevol first used the term in her session with the graduate student. This reveals how individual Puerto Rican women differentially viewed the rise of contraceptives, their subjectivity, and the history of Puerto Rico. Unlike Reyes, Clarevol did not struggle with what the trials of oral progestins meant for herself. She knew the trials were an experiment and she was denied the rights of patienthood. Puerto Rican women were "guinea pigs" and experimental subjects. Clarevol explained the context, as she understood it, further:

> Saxberg: Why do you think that it wasn't women in the US but women here, as you say, that were as guinea pigs?
> Clarevol: 40 years ago Puerto Rico wasn't like it is today, the people were more … accepting of things without questioning … People who were very humble, with little schooling, it was much easier to take advantage of people. Remember that Ryder Memorial, in a town outside of the urban district, and right here in San Juan, made use of poor people to begin with … In my case, a person from a professional background, I never questioned it. And you can imagine a person with less preparation, nobody would question it. And really it was our need to not have fewer children in this period that led us to this.
> Saxberg: How do you feel when other people think of Puerto Rican women as used?
> Clarevol: Very sad … because they were using us Puerto Ricans. I don't know if that is the correct word … but like I always say, they took us for guinea pigs because, one doesn't know. Let's use those people who are ignorant, as if they think we still used loincloths like the Indians ... Instead of going to the US … better to go to an underdeveloped country, we have to think that we are still a bit behind here in Puerto Rico … Now though, nobody would take a pill without knowing what it was and where it came from. Even in the most remote village on the island, people would ask, what kind of medicine is this and why I am I taking it. Before no.
> Saxberg: A large change?
> Clarevol: Indisputably, yes.[92]

[91] Clarevol Interview, 4, Saxberg Papers.
[92] Clarevol Interview, 4-5, Saxberg Papers.

For Clarevol, a discussion of experimentation and subjectivity afforded her the opportunity to trace change overtime in Puerto Rico. The pertinent issue was not if Puerto Rican women were experimental subjects; they absolutely were. Why Puerto Rican women became experimental subjects, as well as how such an experiment was impossible at the end of the twentieth century, was most important for Clarevol. She eschewed US colonialism as the singular cause of the trials. Instead, Clarevol argued that Puerto Ricans of the 1950s and 1960s were "more…accepting of things without questioning" and "underdeveloped."[93] Puerto Rican women, in particular, needed a means to have fewer children. Clarevol's framing mirrored the development and overpopulation language of both Puerto Rican political elites and mainland family planners of the 1950s. Clarevol did not call attention to Muñoz Marin's, the PPD's, and the Population Council's rhetoric in relation to population size. Instead, Clarevol lumped herself, a member of the professional class, into a narrative of progress because it served a purpose and substantiated a teleology. By 1998, Puerto Rico and Puerto Ricans belonged in the same echelons as those who experimented upon Puerto Rican women in the mid-twentieth century. By embracing subjectivity as an experimental subject and the term "guinea pig," Clarevol sent a clear message to Saxberg: Puerto Rico was a different, a more modern, society than it had been during the trials. Furthermore, embrace of experimental subject and "guinea pig" allowed Clarevol to claim Puerto Rico's constitutive role in transforming the world:

> But that was the beginning, naturally it wasn't the correct way of doing things, but it led to what we have today. The planned family—where you can have children when you want to have them, decide when you don't want, or to have them when you can have them. Because it is very important not to have a large family if you are unable to raise them well. It is better to have fewer children and raise them well.[94]

[93] Clarevol Interview, 5, Saxberg Papers.
[94] Clarevol Interview, 5, Saxberg Papers.

In sum, Clarevol used "guinea pig" to highlight the changes Puerto Rico underwent during the second half of the twentieth century. Diana Frances Marcano, another participant, more directly embraced experimental subjectivity. Unlike Clarevol, though, experimental subject was not synonymous with the term "guinea pig."

Diana Frances Marcano: Patient (Yes), Experimental Subject (Absolutely), Guinea Pig (No)

Diana Frances Marcano was a traditional participant in the trials. After her second child, Marcano decided she did not want another child, and asked a family friend, a doctor in Río Piedras, about sterilization. He informed her, "No, Diana, no. There [is] this new pill, and we'll tell you how to use it to avoid any more pregnancies. It [is] a contraceptive."[95] Marcano welcomed the idea of a contraceptive pill, despite her friend's caution that there might be side effects.[96] She followed up with another physician to acquire the pill. Saxberg connected side effects with experimentation and directed Marcano to consider the possible negative aspects of being a trial participant:

> Saxberg: So what kind of instructions did they give you about the pill?
> Marcano: Well, they said there could be side effects, nausea, weight gain. And that happened. I gained a few pounds, not much though. I weighed 80 pounds at the time, and I went up to 118 on the pill, and they said I could suffer nausea or pains, but none of that happened to me.
> Saxberg: And examinations?
> Marcano: Yes, periodically. They did a pap smear, all negative, thank God. And so I took them for eight years and then I quit. Because I wanted a girl. And I had a girl, beautiful, a precious girl that I have now… And they checked her, periodically. They never found anything wrong with her, a very healthy girl. And I was a very healthy woman.
> Saxberg: So you quit simply to have another child?
> Marcano: Yes, for that reason.
> Saxberg: And you never had any problems taking the pill?
> Marcano: Nothing, I would keep them in my kitchen, when I would go for breakfast I would see them and just swallow one, I never had any problem. On the contrary, it helped me because my periods were heavy and when I took the pill my period was regulated ... I felt a lot better because I had a lot of problems with my period. For me it was really fabulous.[97]

[95] Diana Frances Marcano, interview by Kelly Saxberg, *The Pill*, 6, Saxberg Papers.
[96] Marcano Interview, 5, Saxberg Papers.
[97] Marcano Interview, 5, Saxberg Papers.

Saxberg knew that participants often experienced excruciating side effects and likely anticipated that a conversation on side effects would lead to a meditation on the drawbacks of experiments. Saxberg's correlation of side effects and experimentation worked in her interviews with Clarevol and M. Reyes. However, Marcano's experiences in the trials differed markedly from Reyes and Clarevol.

Unlike M. Reyes, Marcano did not have to travel monthly to Humacao to acquire the pill. Satterthwaite was not the physician who counseled her. After Marcano's acceptance to the trials, she received guidance from a nurse in Río Piedras named Ana Reyes. During the eight years Marcano took the pill, A. Reyes called from time-to-time to remind Marcano about an appointment with a physician in Río Piedras. At the clinic in Río Piedras, Marcano underwent "a checkup, a pap smear, and a physical," then returned to her daily activities.[98] Marcano continued with the pill for eight years, possibly because she was closer to her pill provider and underwent fewer examinations than Reyes.[99] Another enticement for Marcano's long tenure with the pill might have been the access to routine health care, something Reyes valued as well. However, the starkest difference between M. Reyes and Marcano was the meaning they attached to their time in the trials. Both Reyes and Marcano understood themselves as patients, gaining medical care and a relationship with their medical provider,. Unlike M. Reyes, though, Marcano argued that she did know the pill was experimental, opening a further line of inquiry by Saxberg:

> Saxberg: During the time when you were taking the pill, did you know that you women were the first in the world to use them?
> Marcano: Yes, because they told us, yes … I think it was Ana Reyes, yes. She came to my house. She called when there were appointments, and told me when I had to go in and see her. Everything was great, everything was normal. I never had a problem with her.
> Saxberg: Did you know that it was part of an experiment?

[98] Marcano Interview, 6, Saxberg Papers
[99] From her rendering of the trials, it is possible that Marcano was one of the long-term Enovid patients in Río Piedras that began under Rice-Wray and were monitored by Manuel Paniagua and Gregory Pincus' team.

> Marcano: An experiment, they let us know. Oh yes they told us. That we were the first women.
> Saxberg: Can you say that?
> Marcano: Sure, why not.
> Saxberg: Can you say it in a sentence?
> Marcano: Yes, I knew for sure that we were part of an experiment, myself personally, for the pill. Positively. I am absolutely certain, yes.[100]

Almost forty years after she took the first oral contraceptive, Marcano deemed her subjectivity as a subject as given, a known fact of the trials. She did not deploy the contraceptive trials to make a comment on Puerto Rican femininity or Puerto Rican history. Marcano instead embraced a narrative of self-determination and informed consent. Interestingly, being part of a trial or an experiment did not seem to alter her framing. Others, like Clarevol and Reyes, might have used the collective "we" to work through feelings of disempowerment implied by the interviewer, but Marcano did not need this. She did no create a distinction between herself and other participants who claimed maltreatment. Again, Marcano's approach significantly differed from the perspective that Saxberg had been instructed to capture, prompting her to ask about issues of "guinea pigs:"

> Saxberg: Some people think that Puerto Rican women were used like guinea pigs…
> Marcano: Guinea pigs?
> Saxberg: What do you think of these ideas?
> Marcano: I think it's wrong, this idea, we took the pills voluntarily, we weren't forced. I say, I know for myself nobody forced me to take the pill. I took it voluntarily, and I am grateful to the pill and to the people who recommended it. Because I didn't want to be saddled with a lot of children. I didn't want any more than two. And thank goodness, I took them because I was able to have another girl. I was able to give my children an education. If I had 4 or 5 they would not all have gotten than education. It's thanks to the pill, my children are all educated and doing well.[101]

Unlike M. Reyes and Clarevol, Marcano rendered the trials as a fundamentally personal and individual experience. Her individual experience allowed for subjecthood and patienthood to coexist, but not "guinea pig." This shows that for Marcano, the progress and development

[100] Marcano Interview, 7, Saxberg Papers.
[101] Marcano Interview, 7, Saxberg Papers.

narrative, a flagship cause of the PPD government during the years of the trials, only could be demonstrated at the individual level. She herself had realized the promises of modernization. It was her children, not the children of Puerto Rico, who gained an education, and successful in the 1990s. Because of Marcano's focus on the individual, she accepted both experimentation and patienthood as integral to her experiences in the trials. Yet, the group-oriented term "guinea pig" had no space in Marcano's mind because it undermined her individual-driven narrative of progress. Marcano and Saxberg arrived at different conclusions, but they shared a similar mindset on the parameters of what it meant to be a "guinea pig." The term implied victimization for both interviewer and interviewee. Because the two women had different goals, Saxberg connected "guinea pig" and US colonialism, while Marcano dismissed the correlation. It hinted at collective power disparities with which she refused to empathize in describing her life. Marcano's framing had important corollaries with the political and economic promises from the PPD at the time of the trials. Like Muñoz Marín's framing of the new economic dependency on US and a constitution as a basis for solidifying the new colonial relationship, Marcano rendered the pill as an alliance that allowed her to make decisions to improve her life. Marcano enjoyed a relationship with the healthcare workers who provided her the pills; they provided her the medicine necessary to make her health, and the lives of her children, healthier. At an impasse over this issue, Saxberg quickly wrapped up the interview with Marcano.

Elsa Robles: Saxberg's Sympathy for the Perfect Case

Robles' description of the trials most perfectly fit within the documentary makers' perspective. However, this might have been exaggerated because Saxberg had only retained partial transcripts of the interviews. I am left to wonder why certain parts of these interviews are transcribed and only guess at the information not present. From viewing Swerhone's and Buffie's

The Pill, I recognize some of the participants' responses, so it is likely that transcriptions are the parts of the interviews that most align with the assumptions of the film on colonialism and the pill. Robles' transcript consists of four, single-space pages, which is twice the length of the other transcripts. At first glance, Robles' telling of her experience evokes the trope of uneducated, poor, woman of color living in a colonized land, victimized and held at arm's length from the white, mainland US-origin medical profession. She was an unknowing experimental subject and did not incur the benefits of patienthood. Robles was the perfect trial participant. At second glance, however, Robles' narrative evidences a different experience than the other interviews: chronic patienthood.

Robles experienced totalizing side effects during her time on the pill. From swelling and pains in her breast to a month-long menses, Robles lived in pain and fear for years after she began the pill. This meaning of the pill was so salient for Robles, that Saxberg did not have to raise the issue of side-effects. Robles addressed it within the first three questions of the interview.

> Saxberg: How did you hear about the pills then?
> Robles: They showed me the pill because I didn't want to get pregnant again... But when I started, right away, I had horrible pains in my breast … But I kept using them because I didn't want to get pregnant … I stated using them right away after my first baby in 1957 until 1959. I used the pill all that time even though I had all this pain in my breasts … I even went to a cancer specialist because I thought I had breast cancer. And he checked me and said no, but that I had formed a lot of fibroids.
> Saxberg: As for the side effects, the only one you experiences was pain in your breasts?
> Robles: It caused me to have prolonged periods. Very heavy periods. I had many problems. I had to have … a scraping of the uterus … four times. And I kept having problems … I had to have a hysterectomy.
> Saxberg: And this was at the time when you were using the pill?
> Robles: I didn't want to take it anymore. After 6 months, I got pregnant … After I had my baby, they sterilized me. But later I still had problems so eventually they had to take out my womb and one ovary …. Eventually … they had to take the rest out.
> Saxberg: Do you think that was related to the pill?
> Robles: I thought so, but really I don't know. I was a very healthy girl, the only thing I ever had problems with was this. It also gave me a lot of stomach problems. I thought I don't

want to use anything anymore. That's why I got sterilized. I said I didn't want any more children. But neither did I want to use other methods. So I got sterilized.[102]

Robles experienced horrific side effects from the pill. Unlike the other participants that Saxberg interviewed, Robles went into great detail without much prompting about her negative experiences with the pill. Her narration of pain, suffering, and relative neglect by the medical professionals fit perfectly within the filmmakers' perspective that medical experimentation was a vein of mainland US exploitation. Because Robles represented the expectation of medical experimentation without the benefits of patienthood, Saxberg sympathized with Robles in a way she did not with the other women. Almost all the women Saxberg interviewed mentioned that sterilization as a method of birth control in Puerto Rico. Except in the case of Robles, Saxberg did not delve deeper. For Robles, by contrast, Saxberg paused on sterilization because it fit with the narrative of hidden side-effects in the trials.

Saxberg: Do you have any regrets about having the sterilization or did you feel sorry at all or were you just happy and relieved?
Robles: Yes, I was sorry about it because my husband wanted more children, but I said I didn't want to experiment with anything else. For me, it was sad … I knew… that I didn't want any more children, so they operated on me … The doctor noticed I had an enlarged womb.
Saxberg: Did you explain to the doctor that you had taken the pill?
Robles: No, I never did say anything. I was young. I just looked at the problem I was experiencing at the moment ... But I know it was the pill because it happened immediately after I started using it.
Saxberg: Do you think that if someone had been caring for you when you had been taking the pill, explaining to you, if you have such and such a symptom…
Robles: Perhaps if I had been under a closer observation … maybe I would have said something … but they didn't orient us. The only told us about the family planning …Who knows if it had anything to do with the birth rate here … My mother's generation and before, they had … up to 20 children … I went into my marriage with complete ignorance, because my parents hadn't told me anything ... No be careful. Nothing like that they do now. They hear everything. Now they talk about birth control ... Before they never talked about anything.[103]

[102] Elsa Robles, interview by Kelly Saxberg, *The Pill*, 8-9, Saxberg Papers.
[103] Robles Interview, 11, Saxberg Papers.

Saxberg's framework of medical experimentation generated a conversation on side-effects and disempowerment for Robles. This framework provided a space for Robles to articulate her own experiences. Whereas all interviewees except Marcano understood experimentation as deleterious, Robles was unique in that she identified no moment in the trials in which she could be seen as benefiting from patienthood. For Robles, participation entailed chronic illness and lack of communication. Her testimonial on excruciating pain from the pill and resorting to sterilization demonstrates some of the real and long-lasting effects of the trials for the individuals. Saxberg's interest in participants as "guinea pigs" amplified this aspect of Robles' narrative. Robles' lengthy discussion of her side-effects again demonstrates the need for more than a patient-subject binary in discussing the contraceptive trials in Puerto Rico.

The contours of participation in the field trials of oral progestins and IUDs varied over the long span of the trials and entailed a relationship that did not neatly fit within a traditional doctor-patient relationship. As this chapter has shown, participants sought medical assistance from their doctors and healthcare providers, but they also served as informants for the medical researcher. With varying degrees of success, participants navigated this complex power dynamic to access a means to control their reproduction. When participants came to Rice-Wray and Satterthwaite worried about fluctuations in their weight, disruptions to their menstrual cycle, chloasma, and other serious side-effects, they likely saw Rice-Wray and Satterthwaite as their doctor, a professional tasked with attending to their individual need. In these same moments, Rice-Wray and Satterthwaite might have seen the women as their patient or as a subject detailing the limits of contraceptives. In either case, participants' ability to make claims of the directors of the field trials reminded the physician-researcher of the human in front of them. This demonstrates participants' circumscribed, but present, agency. Participants made decisions, if not choices, as they met with

healthcare providers to create new medical technologies. In making claims, pushing for changes in trial protocols, or leaving the trials, they served as more than conduits of information for a researcher to interpret. Participants created medical knowledge and therapies through collaboration and contestation.

CHAPTER FIVE

ON BECOMING A PUBLIC "CAFETERIA" OF CONTRACEPTION: BIRTH CONTROL PROGRAMS AND RETURN OF CONTRACEPTIVE RESEARCH TO THE CAPITAL AREA, 1963-1966

In June 1974, Adaline Pendleton Satterthwaite sat down with James Reed, a recent Ph.D. from Harvard University, in the Population Council's offices in New York. They met in New York when Satterthwaite was between field assignments. As a medical advisor to the Council, Satterthwaite had traveled to Thailand, Pakistan, Venezuela, and the Dominican Republic over the previous eight years to help grow birth control programs in those countries. She would soon depart to Mexico for a similar endeavor.[1] Reed was there to interview Satterthwaite about her time with the Population Council and as a contraceptive researcher for the Schlesinger Library Oral History Project on "women in population issues" funded by the Rockefeller Foundation.[2] Satterthwaite had been on the Council's pay roll since late 1964, but her first year-and-a-half of employment was an extension of her already existing work in Puerto Rico, not as a transitory field advisor. Satterthwaite's eight years as a field worker (1966-1974) for the Council slightly altered her views on contraceptives, policy, and what role governments versus international agencies played in providing reproductive health care. Satterthwaite still believed that overpopulation was an existential crisis, but she was less sure of who should address those issues than when she conducted contraceptive research in Puerto Rico. "The decisions that have to be made," she offered, "must be made by the countries themselves … We as outsiders … we can offer a response to requests,

[1] For an examination of Satterthwaite's tenure with the Population Council's Medical Advisory, see, Bourbonnais, "Population Control, Family Planning, and Maternal Health Networks in the 1960s/1970s," 335-264. Satterthwaite, "Curriculum Vitae," 1-2.
[2] "Introduction" in APS OH, *i*.

but I think that the policy decisions have to be made by nationals themselves."[3] Satterthwaite left the Population Council's employ a year later in 1975.

Nicole Bourbonnais convincingly argues that "over the course of ten years [Satterthwaite] transformed from an enthusiastic IUD missionary to a more cautious and reflexive advocate" due to her qualms with the Council's support of coercive programs and assumption of a one-size fits all programming for all countries.[4] As previous chapters have shown, Satterthwaite eagerly welcomed the testing of oral progestins and IUDs in Puerto Rico, courted support from the Population Council, and felt she played a catalytic role in the developing new contraceptives. By looking to the longer history of the trials of contraceptives in Puerto Rico and Satterthwaite's role in them, however, it becomes clear that Satterthwaite's reflexivity, attentiveness to on the ground dynamics, and desire for local support of birth control and population control programs predate her tenure as field staff for the Population Council. As Satterthwaite collaborated, and at times at disagreed, with professionals in Puerto Rico and the US, the trials evolved in response to changes in Puerto Rico.

This chapter examines the final years (1963-1966) of the field trials of oral progestins and IUDs in Puerto Rico. During these years, radical changes from the earliest field trials of Enovid in Río Piedras occurred. The trials in Puerto Rico added new research questions that shifted the trials scope of research from solely characterizing drugs to evaluating the efficiency of birth control programming. As the purview of the trials once again expanded, so too did the type of medical research happening in Puerto Rico. Since the first trials of Enovid in 1956, the research in Puerto Rico largely attended to issues of the drug or medical device use in the field. Studies of the pill and IUD prior to 1963 variously aimed to evaluate "safeness for the periods of usage under study,

[3] APS OH, 50.
[4] Bourbonnais, "Population Control, Family Planning, and Maternal Health Networks," quote on 363, 361-363.

their effectiveness—both theoretical and practical, their acceptability, and the reversibility of their action."[5] This research remained at the fore of the trials, but researchers in Puerto Rico also began running the basic science reviews of contraceptives. Researchers in Puerto Rico had always taken samples from participants, but initially sent them to the mainland US to be analyzed for physiological changes induced by contraceptives. In the final era of the Puerto Rican field trials, assessment of samples happened in Puerto Rican laboratories and universities. This was made possible by the inclusion of public institutions like the Department of Health and University of Puerto Rico (UPR) School of Medicine in the research endeavor, an untenable partnership in 1956.

The incorporation of UPR, Puerto Rico's premier public university, and Department of Health marked yet another physical move of the trials from private organizations in rural municipalities to public institutions in the greater San Juan area. Through this move, more Puerto Rican physicians and scientists collaborated to conduct the trials. Somewhat contradictory, the shift to the public institutions and inclusion of more Puerto Rican researchers at the helm was made possible by private funds and Satterthwaite's affiliation with private organizations. Satterthwaite and trial participants found new identities and meanings in the last years of the trials of contraceptives. Satterthwaite continued to visit Humacao for research in her clinic, but she lived in the metropolitan area of San Juan and spent her average workday in public institutions. Through this, she became a researcher with physician responsibilities. Participants out of the basement clinic, El Guacio, and Castañer continued to receive contraceptives, but new participants entered the trials through the Bayamón Health Center, a public clinic of the Department of Health and training site for UPR School of Medicine. The participants navigated testing of birth control programs and contraceptives.

[5]In this dissertation, efficacy has included issues of acceptability and reversibility. Satterthwaite, "Oral Contraceptives," 411.

This chapter illustrates that family planning and contraceptives ultimately won out in Puerto Rico due to both personal ambitions and a changing political and social landscape. Puerto Rican and mainland American family planners advocated and pushed for a public option of family planning services that presented a "cafeteria" of contraceptive options.[6] The public option for contraception, offered as part of a public health program spurred by overpopulation concerns, was not fully realized at the time of Satterthwaite's departure for field work with the Population Council in 1966. Nor should the public option be solely linked to Satterthwaite and her research. As other historians have shown and the work of such Puerto Rican organizations as Profamilia illustrated, Puerto Ricans had been advocating for forms of birth control ranging from sterilization to pills to devices since at least the late 1930s.[7] However, by following Satterthwaite's professional trajectory and the trials she oversaw between 1963 and 1966, we can intuit the shifting landscape of contraceptive research and family planning in Puerto Rico. By examining Satterthwaite's and others work with contraception during these years, there emerges many sites of pill and IUD trials. These proliferating sites, especially in the greater metropolitan area of San Juan, ultimately laid the groundwork for a publicly funded family planning program that offered everything from information of the rhythm method, the EMKO aerosol foam, hormonal pills, and IUDs.[8] From seeking a single panacea to population, family, and individual concerns, health care professionals promoted a host of contraceptives as necessary for the goal of sustainable birth control and population control programming. In this context, the earlier concern about Puerto Rican public entities implementing a population control program under the US mainland's pressure largely

[6] For an example, see, Satterthwaite, "The Role of Antepartum and Postpartum Education in Maternal Health," 741.
[7] Briggs, *Reproducing Empire*, 90-99, 122-128; José Nine Curt, "Puerto Rico," in *Family Planning and Population Programs: A Review of World Developments*, Bernard Berelson and Sheldon J. Segal, eds. (Chicago: The University of Chicago Press, 1965): 229-231; Ramírez de Arellano and Seipp, *Colonialism, Catholicism, and Contraception*; Rivera Céspedes, "Recuento Histórica de PROFAMILIA," 1-5.
[8] Nine Curt, "Puerto Rico," 230-231; Satterthwaite, "Oral Contraceptives,"422-424; Satterthwaite, "The Role of Antepartum and Postpartum Education in Maternal Health," 741-742.

disappeared. Promotion of multiple forms of birth control in Puerto Rico were not necessarily spurred by the 1970s ideals of reproductive justice and individual choice.[9] Rather, as Takeshita argues, a "cafeteria" of options "was conceptualized as a way to secure overall fertility reduction" and as a palliative for population concerns.[10] Yet, the local context mattered just as much. Contraception and contraceptive research had successfully become part of the modernization project that percolated throughout Puerto Rico during the tenure of the trials. Regardless, the first step to moving into these roles meant Satterthwaite had to get more fully out from under her affiliation with two major private enterprises that had shaped her career: Ryder and Clarence Gamble.

Affiliating in the Capital Area: Satterthwaite, the Population Council, Department of Health, and UPR School of Medicine

One year into the relatively autonomous family planning clinic and research program under Satterthwaite, she "was simply floored by the clinic[s]" on the western part of the island.[11] Funds from the mainland US accrued to enable the work, and more allied health workers from Ryder joined Satterthwaite on her monthly sojourn west to insert IUDs and perform wellness checks on the continuing Margulies Spiral and Lippes Loops patients. Social workers staffed fewer of these outpost clinics. Instead, Satterthwaite recruited practical nursing students and nurses to accompany her to the outpost clinics.[12] Despite the frequent trips and Satterthwaite's enjoyment of the work

[9] For the role Puerto Rican women and men played in pursuing this premise in the US in the 1970s, see, Fernández, *The Young Lords*, 233-270; Gordan, *The Moral Property of Women*, 344-347; Nelson, *Women of Color and the Reproductive Rights Movement*, 113-130.
[10] Takeshita, *The Global Biopolitics of the IUD*, 130-131. Takeshita's argument, with which I concur, counters Oudshoorn's periodization that the paradigm of "one-size-fits-all" did not arise until the 1970s amidst the adaptation of postmodern frameworks in reproductive sciences. See, Nelly Oudshoorn, "The Decline of the One-Size-Fits-All Paradigm, or, How Reproductive Scientists Try to Cope With Postmodernity," in *Between Monsters, Goddesses, and Cyborgs: Feminist Confrontations with Science, Medicine, and Cyberspace*, eds. Nina Lykke and Rosi Braidotti (London: Zed Books, 1996): 162-165.
[11] APS to Family, November 11, 1962.
[12] Betty MacDonald, social worker central to the Enovid trials, had resigned by October of 1962.

in the outpost clinics, her letters and research confirmed her continuing patronage and importance of her home base in Humacao, especially for institutional backing.[13]

Satterthwaite had achieved an independent research hub in the basement of Ryder by 1963, but her nominal connection to Ryder facilitated her accrual of support from the Population Council and Planned Parenthood. In 1964 and 1965, Ryder Hospital was awarded ten-thousand dollars' worth of grants from the Population Council for "studies on intra-uterine device" and "field study of intrauterine device."[14] In practice, the grants went directly to Satterthwaite's clinic, not the hospital's coffer. Planned Parenthood's support of Satterthwaite's contraceptive research was more indirect. Satterthwaite's basement clinic provided a space to host interns, including Susan Guttmacher, daughter of then president of Planned Parenthood and member of the Committee on Intrauterine Device for the Population Council, Alan Guttmacher. In the summer of 1962, S. Guttmacher spent her summer vacation from University of Wisconsin at the basement clinic in Humacao assisting with the tabulations on the low-dose progestin trials. Upon S. Guttmacher's return to University of Wisconsin for the fall term, Satterthwaite was again reminded that she "must get a full-time secretary who is capable of helping with the statistical work. [She] learned that [she] was leaning a great deal on Susan's volunteer work."[15] Satterthwaite needed a particular type of assistance in Humacao; she needed someone who could help her maintain the administrative side of things. This sort of work, Satterthwaite reasoned, could be funded "from the drug companies or from the National Institute of Health, or maybe the Population Council."[16]

[13] Upon her departure from Puerto Rico, Satterthwaite could identify one hundred and fifty-one participants who began the trials of Enovid with the initial dose. Satterthwaite, "Oral Contraceptives," 414.
[14] *The Population Council Annual Report for the Year Ended December 31, 1964* (New York: The Population Council Administrative Offices, 1964): 50; *The Population Council Annual Report for the Year Ended December 31, 1965* (New York: The Population Council Administrative Offices, 1965): 63.
[15] Adaline Pendleton Satterthwaite to Family, June 9, 1962, box 10, folder 7, APS Papers.
[16] Adaline Pendleton Satterthwaite to Family, August 20, 1962, box 10, folder 7, APS Papers.

The medical work in Castañer and El Guacio, however, demanded another kind of collaboration. Satterthwaite often bemoaned in her letters to family her need "to get another doctor to go with [her] out there. There [was] so much interest. There were 30 new cases and about 40 rechecks. Women had come from San German, Lajas, etc."[17] In an effort to gain assistance with these clinics, Satterthwaite befriended and ultimately recruited physicians Ivan Pelagrina and Eduardo Arandes to come west to learn about IUDs. She explained the fortuitous first trip to El Guacio to her family:

> The days in the office are terribly busy now since I'm trying to do annual examinations on all of the pill users. The medical school is preparing the endometrial biopsies for me and I'm terribly anxious to get in and study some of the slides. I'm so pleased at this cooperation with the school because this helps to achieve my desire to involve the local physicians and also because I can have the chance to learn something of the changes which occur at first-hand instead of simply reading reports made by others. In addition to this cooperation, Drs. Pelagrina and Arandes of the Department of Obs-Gyn went with me to El Guacio on Nov. 30 and stayed about 3 hours helping in the clinic. They had the opportunity to insert several coils and to talk with the woman about the treatment and recheck those who have been using the method. They were so excited that they declare they'd like to try in some of their private patients. Dr. Arandes will return with when I go back on January 11th.[18]

Though seemingly just another visit from interested health professionals, Satterthwaite's emerging relationship with Pelagrina and Arandes portended three shifts in Satterthwaite's professional trajectory with ramifications for the broader history of contraceptive trials in Puerto Rico between 1963 and 1966. Beginning with her alliance with Pelagrina and Arandes, Satterthwaite increasingly shifted her labor and the contraceptive research project to publicly funded, Puerto Rican institutions like the UPR School of Medicine and Department of Health. The field experiments of birth control pills and IUDs were integrated into public institutions by the mid-1960s. To be certain, the contraceptive trials did not fully occupy public spaces nor exclusively

[17] APS to Family, November 11th, 1962.
[18] Adaline Pendleton Satterthwaite to Family, December 9, 1962, box 10, folder 7, APS Papers.

receive funding from public sources. Rather, physicians at the UPR School of Medicine and Department of Health gradually became involved in the work to characterize the contraceptives. Only after public professionals became involved did the physical spaces of the public institutes become a second-home for the tests. In other words, public institutions' work was made possible by private population control and birth control agencies, much like the economic program of modernization was made possible by US mainland funds and companies. Both programs promised social uplift through public organizations in Puerto Rico and to strengthen the Puerto Rican state. However, Puerto Rican, public organizations and national economy depended upon private investment from outside the island. The public and national were upheld by private, international interests. Second, as seen in Chapter Three, Satterthwaite increasingly wanted to affiliate with a host of medical professionals locally on the island and internationally. No longer confined to the halls of Ryder, Satterthwaite envisioned her career and the future of contraceptives to be directly correlated to the integration and collaboration amongst local and international parties. Third, Satterthwaite's eagerness to recruit Arandes and Pelagrina marks a change in her perspective of gender, class, and colonialism. Unlike Satterthwaite's active dissociation of herself from participant-mothers and Puerto Rican social workers early in the trials, she seemingly no longer needed to distinguish herself from the people of Puerto Rico. Arandes and Pelagrina identities as physicians likely shaped this, as well as the shifting landscape of contraceptive research under her guidance. Satterthwaite, however, continued to desire being separate from her colleagues at Ryder.

Satterthwaite's faith in Ryder's Board of Directors had almost completely evaporated by January of 1963. "Oh, yes, they are interested in the Family Planning Research—oh, yes this is important," quipped Satterthwaite, "but it will have to be carried on by someone else, since I am

person non gratis."[19] Though Satterthwaite's imminent dismissal from Ryder never materialized, the growing tensions confirmed her need for "studying as to what can be done to carry on the research under auspices and in a different form."[20] Ryder remained committed to family planning services, but Satterthwaite's long hours at the basement clinic took her away from the daily responsibilities of an obstetrician in a service hospital. Participants who came specifically for contraceptives also did not have to pay Ryder. At an impasse, Satterthwaite had two options for continuing the trials outside the supervision of Ryder. She could continue the research through Profamilia or "under the University which [she] would prefer."[21] Ultimately, Satterthwaite decided to become affiliated with the UPR School of Medicine due to fortuitous and sought after connections with the faculty. Before turning to her affiliation, it is worth considering why she preferred moving to the university rather than the flourishing family planning organization, Profamilia, of which she was already on the board.

Since the mid-1950s, Profamilia had been headed by committed social worker and family planning advocate Celestina Zalduondo. As Chapter One detailed, the first Enovid trials in Puerto Rico occurred through Profamilia, but they effectively ceased to generate distinguishable results within a year due to local pressures, the departure of Edris Rice-Wray, and increased supervision by Gregory Pincus in Massachusetts. Despite the evaporation of the trials of Enovid, Zalduondo continued to herald the private organization forward by attending to the organization's mission to identify and provide new contraceptives.[22] Pivoting to simpler methods, Zalduondo oversaw trials

[19] In addition to concerns around her research future, Satterthwaite was concerned about her replacement in the obstetrics ward. Citing that her replacement was a general practitioner rather than an obstetrician, Satterthwaite disagreed with the incoming physician's approach to hysterectomies and sterilization. She felt that the surgical approach he utilized was more dangerous for women. Adaline Pendleton Satterthwaite to Family, January 6, 1963, box 10, folder 7, APS Papers.
[20] APS to Family, January 6, 1963.
[21] APS to Family, January 6, 1963.
[22] Rivera Céspedes, "Recuento Histórica de PROFAMILIA," 5.

of the contraceptive foam EMKO provided by mainland entrepreneur and friend of Gamble, Joseph Sunnen.[23] Zalduondo's work with Sunnen and his foundation, led to Profamilia gaining donations in excess of one million dollar by February 1964. This represented eighty-two percent of the total operating budget of Profamilia.[24] Because of this relationship with Sunnen, Zalduondo possessed the financial means to train and send out a coterie of family planners across the island to legitimize contraceptives, make demands of public officials, and indeed provide a private option for reproductive health. Ultimately, she oversaw one thousand and two hundred private citizens in this family planning brigade.[25]

Figure 8: *Celestina Zalduondo with Joseph Sunnen.* Organizational Records of Asociación Puertorriqueña Pro Bienestar de las Familias, Clínica Celestina Zalduondo, San Juan, Puerto Rico. Hereafter Profamilia Records.

[23] Briggs, *Reproducing Empire*, 123-124; Lcda. Julia Carmen Marchand, "Su Obra Pro Bienestar de la Familia," in *Celestina Zalduondo: Su Vida y Su Obra Profesional,* Colegio de Trabajadores Sociales de Puerto Rico, eds. (Río Piedras, PR: Colegio de Trabajadores Sociales de Puerto Rico): 29-31.
[24] Rivera Céspedes, "Recuento Histórica de PROFAMILIA," 7.
[25] Zalduondo, "A Family Planning Program," 301-307.

Figure 9: *Profamilia volunteers in a seminar at headquarters in San Juan*. Gregory Pincus' portrait is third from the left on the wall. Profamilia Records.

With shared commitments and ample funding, then, it made sense for Satterthwaite to explore Profamilia as her future professional home and backer of the trials outside of Ryder. Yet, Satterthwaite feared aligning totally with Profamilia would threaten how others viewed the research findings of her work. Satterthwaite believed physicians, researchers, and lay persons alike would anticipate a "perceived bias" in the research if carried out under the supervisions of an International Planned Parenthood Federation (IPPF) affiliate and explicitly pro-birth control organization.[26] Satterthwaite voiced no similar concerns about accepting funds from international birth control and population control agencies like the Population Council and Planned Parenthood, once again illustrating the limits of her ability to recognize her own bias. Despite Satterthwaite's reservations on moving her research to Profamilia clinics, she maintained her Board of Director position and friendly relations with Zalduondo for the entirety of her tenure in Puerto Rico. Indeed,

[26] APS to Family, February 17th, 1963; APS to Family, March 14th, 1963.

Zalduondo wrote that Satterthwaite "contributed to the welfare and happiness of many … families by assisting expertly in the coming of children into this world and … preventing the coming of children when their families were not ready for them."[27] Satterthwaite's alliances with Zalduondo and Profamilia proved fruitful in the move towards a public option of birth control services.

Satterthwaite preferred affiliation with the UPR School of Medicine, but she did not exactly choose the medical school over Profamilia. Instead, Satterthwaite created new alliances as she crisscrossed the island to provide IUDs en route to the outpost clinics in Castañer and El Guacio. From the meetings of Profamilia, the Puerto Rican Medical Association, and connections made by funders like the Population Council, Satterthwaite continued to meet like-minded physicians interested in contraception and research. Two such physicians were Ivan Pelagrina and Eduardo Arandes, both on the faculty in the Department of Obstetrics and Gynecology at UPR, who "were very much in favor of ... and believed in the importance of birth control."[28] By February of 1963, Pelagrina and Arandes had joined Satterthwaite in El Guacio on two separate occasions to learn the techniques of IUD insertion and observe participants' experiences.[29] Whether Satterthwaite used the shared clinical spaces or car rides across the island to implant the idea, it was "almost certainly arranged that [Satterthwaite would] go to Río Piedras in June and start a combined residency and fellowship."[30] In addition to new patronage, the shift to the UPR School of Medicine provided Satterthwaite the "opportunity to continue to follow at least part of [the] cases and do more basic studies on the mechanism of action."[31]

[27] Zalduondo to APS, November 30, 1965.
[28] APS OH, 31.
[29] Eduardo Arandes also held a post in the Department of Health under the umbrella of Maternal and Child Welfare, see "Satterthwaite, "Contraceptive Clinical Trials," 5.
[30] Adaline Pendleton Satterthwaite to Family, February 17, 1963, box 10, folder 7, APS Papers.
[31] APS to Family, February 17, 1963.

As previous chapters have illustrated, contraceptive research in Puerto Rico from 1956 through the early 1960s centered efficacy and patient experience, not biochemical and basic science analysis. Through all the trials, women in Puerto Rico had undergone medical tests and provided parts of themselves to the scientific research. However, almost of all the work on these women's samples occurred in the United States until 1963. Satterthwaite's move to UPR School of Medicine would allow her to use the school's facilities and pinpoint UPR faculty to run basic science analysis. This would mark a new step in contraceptive research in Puerto Rico.[32] Satterthwaite's interest in the prospect of such scientific work provides evidence into how Satterthwaite's perception of Puerto Rican institutions and persons as other than her own shifted.

Satterthwaite's first interaction with Pelagrina was not in the clinic of El Guacio nor Castañer, but through a professional connection. Because of her personal and professional commitments to rooting contraceptive research in Puerto Rico, Satterthwaite sought to have as many parts of the research enterprise located on the island as possible. By the early 1960s, that meant having the analysis of biomedical tests conducted in Puerto Rico, not at Massachusetts under Pincus or through her other connections like Tietze. Satterthwaite must have been vocal about her goal because a Ryder colleague suggested that she should reach out to Pelagrina at UPR School of Medicine, who clearly shared the same goals. The talks must have gone well because she sent Pelagrina twelve samples from her patients without him requesting even financial backing to compensate the labor at UPR. Pelagrina, as Satterthwaite wrote to her family, told her to worry about the cost later. Explaining this seemingly serendipitous connection, Satterthwaite ended her letter to her family by stating:

> Dr. Pelagrina indicated that he felt that no matter what might be the personal religious beliefs of the various members of the staff, that there was a tremendous scientific

[32] Arandes, Ramirez-Weiser, and Satterthwaite, "Study of Tissue Reaction in Hysterectomy Specimens Removed After Insertion of Intrauterine Contraceptive Devices," 232-233.

> responsibility on the part of the profession to offer better and more practical solutions for the population problem. I felt like shouting Hallelujah! to hear a Puerto Rican physician speaking in these terms.[33]

Despite years of comradery and partnership with Puerto Ricans on the issues of contraceptives and birth control, Satterthwaite still held firm beliefs about how Puerto Ricans related to the topic in reserved ways. Whereas her early rationalizations centered Puerto Rican gender relations as necessitating a reversible form of contraception, in this instance, Satterthwaite relied on Puerto Rican religiosity and disbelief in population control to make Pelagrina's partnership meaningful to her family. Pelagrina's partnership seemed exceptional to Satterthwaite for a few reasons, but she had reason to hope his perspective was becoming more common at UPR. Pelagrina was able to assure Satterthwaite that regardless of whether or not faculty members were Catholic, they would labor for improved contraception. Why might this dissonance—assumed Catholic researchers working to improve a contraceptive—have seemed feasible to Satterthwaite at this moment? One possibility was Satterthwaite's goal to have more of the basic science research conducted in Puerto Rico. By having biochemical tests analyzed in Puerto Rico, UPR researchers could potentially work and publish solely on observed morphological changes without needing to explicitly endorse, or castigate, contraceptives or population control. Potentially, basic science research could enable possibly anti-birth and population control scientists to join the endeavor. UPR scientists and physicians could limit their work to the less politically and religiously charged realm of pathology, eschew commenting on the necessity of a contraceptive, and thus create a grey zone that pro- and anti-population control scientists could occupy. Yet, Pelagrina's comments did allow Satterthwaite to envision a Catholic faculty of a public institute convinced of the population problem in Puerto Rico. If faculty members could be convinced of a population issue and the

[33] APS to Family, November 12th, 1962.

necessity of contraceptives as they worked on their parts of the research project, a path forward for contraceptive research by way of public, Puerto Rican organizations was tenable. The idea that Pelagrina, Arandes, and other faculty of UPR School of Medicine might drive new veins of contraceptive research was a marked difference from just three year earlier when some of UPR School of Medicine's faculty condemned the pill as cancer inducing in the local media.[34] Pelagrina's comments allowed Satterthwaite to hope that there was no longer a threat of the School of Medicine's faculty appearing in local television programs or commenting in the newspapers on the dangers of contraceptives. In turn, the public institution's increasing openness to contraception research meant a better acceptance of contraception in general, mitigating a need to conduct research in private venues as in year priors.

By June of 1963, Satterthwaite and the hub of her research relocated to the metropolitan San Juan area under the auspices of the School of Medicine at UPR in Río Piedras. For this to be feasible, Satterthwaite needed to further restrict her presence in the clinics in Humacao and the western outposts. In Humacao, she turned to newly minted physician, Maria Negron, to handle much of the day-to-day interaction for participants entering into the basement clinic.[35] However, Satterthwaite would not be completely absent from her clinic she worked so hard to establish. She agreed to visit weekly to check in on long time pill users and perform IUD insertions. In El Guacio and Castañer, Satterthwaite also sought to pinpoint local healthcare professionals to carry on the IUD clinics fairly regularly, thus allowing her to take on a more supervisory role. In the case of El Guacio, Satterthwaite turned to Mary Anne Woodring, a fellow missionary physician, and an

[34] APS to Family, March 27, 1959.
[35] Unlike Satterthwaite's collaborations with social workers in the trials of Enovid in the 1950s, Arandes and Negron gained co-authorships on some of the studies, marking another shift in Satterthwaite's alliances in the trials. Adaline Pendleton Satterthwaite to Family, November 17, 1963, box 10, folder 7, APS Papers.; Adaline Pendleton Satterthwaite to Family, August 30, 1964, box 10, folder 7, APS Papers; Satterthwaite, Arandes, and Negron, "Experience with Intra-Uterine Devices in Puerto Rico."

unnamed graduate of Ryder's Nursing school to carry out regular clinics. Before releasing them on their own, Satterthwaite taught Woodring how to insert the IUD properly and saw to her continuing education by giving her old prints of the *American Journal of Obstetrics and Gynecology* to the doctor.[36] Their presence meant that Satterthwaite would still "go every month, but only to pick up specimens and the duplicate records and check over my problem cases with them."[37] Satterthwaite reasoned that this new arrangement, she as manager and others as executors of regular clinics, would " make it possible to have smaller clinics and do a much better job."[38] At least at El Guacio, Woodring felt that the IUD had "not only been a benefit to all the patients, but it [had] also been a benefit to the clinic. Especially in the past couple of years when the future was looking a bit shaky."[39] The IUD, according to Woodring, helped the small clinic continue because it brought in so many new participants who would then turn to the clinic for other health care needs as patients.

Satterthwaite remained a persistent and directive force in her research program and family planning clinics, but her everyday actions within those programs and her wider professional actions shifted in 1963. First, because of her affiliation with professors Pelagrina and Arandes in the Department of Obstetrics and Gynecology, the scope of contraceptive research expanded to include the basic science of contraception. Though funders like Gamble's Pathfinder Fund and the Population Council remained adamant on the import of use over mechanism for the IUD, money from the Population Council filtered to the School of Medicine and enabled "endocrinology, blood chemistry, and pathology…[and] examination of the endometrial biopsies [to occur] at the medical

[36] Mary Anne Woodring to Adaline Pendleton, January 10, 1965, in *Homenaje*, loose leaf insert, box 21, folder 10, APS Papers.
[37] Adaline Pendleton Satterthwaite to Family, April 15, 1963, box 10, folder 7, APS Papers.
[38] APS to Family, April 15, 1963.
[39] Mary Anne Woodring to Adaline Pendleton, January 10, 1965.

school" where "pathologists [were] anxious to continue the work instead of having all the specimens sent to Boston and Worcester for study."[40] Satterthwaite's relocation to Río Piedras also led to the creation of more one-day clinics for the insertion of IUDs, some provision of oral contraceptives, and overall increase of the participant population. For example, Satterthwaite initially visited Union Church as her possible new church home in the capital area. She ultimately affiliated with another congregation, but the Union Church members supported Satterthwaite's contraceptive research and allowed her to use their facilities on Monday nights to host a family planning clinic.[41] The Union Church credited Satterthwaite and the contraceptive clinics for allowing them to "become more aware of [their] neighbors" and enabled the Benevolence Committee to extend their community service work.[42] These two experiences—increasing wet lab research in the halls of the School of Medicine and adding another clinic closely linked to the community—seem to contradict each other. However, they fit nicely with a number of interwoven posts held by Satterthwaite as she relocated to Río Piedras with a hope to augment her collaboration with local medical professionals. Such collaborations were essential for Puerto Rican birth control programs that went beyond research on contraceptive efficacy because they provided the necessary staffing requirements and a sense of familiarity by way of community ties.

The School of Medicine employed Satterthwaite from June 1963 until her departure from Puerto Rico in 1966, but the Population Council paid for her position. Part of Satterthwaite's compensation came directly from the post she held with the Council: Field Staff for the Technical

[40] Arandes, Ramirez-Weiser, and Satterthwaite, "Study of Tissue Reaction in Hysterectomy Specimens Removed After Insertion of Intrauterine Contraceptive Devices," 232-233; Adaline Pendleton Satterthwaite to Family, March 14, 1963, box 10, folder 7, APS Papers; Satterthwaite, Arandes, and Negron, "Experiences with the Intra-uterine Devices in Puerto Rico."
[41] APS to Family, September 20th, 1963; APS to Family, January 17th, 1965.
[42] John E. Shapell to Adaline Pendleton Satterthwaite, December 5, 1965, in *Homenaje*, loose leaf insert, box 21, folder 10, APS Papers.

Assistance Division, Puerto Rico.[43] Started in 1964, "the Council's new Technical Assistance Division began function with a director and small staff and an already sizeable program…Fifteen staff members [were] posted around the world."[44] The Technical Assistance Division aimed to facilitate any and all state-sponsored studies of population demography and control, as well as programs for birth control.

By moving to Río Piedras, Satterthwaite had to attend to her own professional goals, as well as those of her sponsors. To achieve the Council's goal and to respond to the desires of a burgeoning medical school that was just beginning to be open to the idea that contraceptive research was appropriate amongst its faculty, Satterthwaite worked across three organizations in these years—UPR's School of Nurse Midwifery, the Department of Health's Bayamón Health Clinic, and the University Hospital.[45] These were overlapping positions as UPR medical students utilized both Department of Health units like Bayamón and other hospitals due to the regionalization of the public health services in Puerto Rico.[46] Thus, identifying exactly in what capacity Satterthwaite labors in each is difficult. Nonetheless, her position with the School of Nurse Midwifery had explicit connections to UPR funds.

To make her salary comparable to the one provided by Gamble and Ryder at the basement clinic, the School of Medicine supplemented Satterthwaite's income by assigning her to an instructorship within the School of Nurse Midwifery.[47] It is also noteworthy that, by the time when she obtained the instructorship, Satterthwaite's relationship with Gamble had soured. Remaining

---

[43] *The Population Council Annual Report for the Year Ended December 31, 1964,* 7; *The Population Council Annual Report for the Year Ended December 31, 1965,* 8.
[44] Aside from the director, staff members were located in the Philippines, Pakistan, Turkey, Tunisia, Thailand, Korea, and Taiwan. *The Population Council Annual Report for the Year Ended December 31, 1964,* 17.
[45] Satterthwaite, "Curriculum Vitae," 1; Satterthwaite, "The Role of Antepartum and Postpartum Education in Maternal Health," 739.
[46] Arbona and Ramírez de Arellano, *Regionalization of Health Services*, 30-31.
[47] Adaline Pendleton Satterthwaite to Family, May 29, 1963, box 10, folder 7, APS Papers.

committed solely to utility of a contraceptive within a program, Gamble balked as Satterthwaite aimed to move into more basic science research. As Satterthwaite explained to her family, "Dr. Gamble…is much more interested in the figures which we could give him on the reduction in birth rates in Humacao as a result of our work than in the pap smears, endometrial biopsies, studies on cervical lesions and other things that we are doing. So I felt that really … [he was] against me and not with me in the cold war."[48] This "cold war" was Satterthwaite's longstanding tension with Ryder Hospital. Satterthwaite knew that if she spent more of her time away from the clinics specifically backed by Gamble and Ryder to attend to basic science of contraceptives, there would be a loss of income and support. Hence, monetary compensation in addition to an institutional home was necessary; the School of Nurse Midwifery provided just that. As instructor, Satterthwaite served as the clinical lead for the nurse midwives and medical students in the University Hospital and health center in Bayamón. Satterthwaite again returned to hospital rounds and clinical work within these institutions. She taught her students for six months after earning their undergraduate degree in order to attend to the mounting hospital births in Puerto Rico during the 1960s. In particular, Satterthwaite guided them on how to conduct seminars with expecting mothers on nutrition and weight gain during pregnancy, "helping [the mothers] understand the development of the fetus in utero, the birth of the baby, signs of danger and signs of onset of labor, what to expect in the hospital, what to provide for the baby and the importance of postpartum examination for maternal health."[49] These were in addition to her sporadic, but continuing, clinics in Humacao, El Guacio, and Castañer.

It is worth pausing to consider Satterthwaite's instructorship as a window into the increasingly specialized position of nurse-midwife. Historian and anthropologist Isabel M. Córdova brought

[48] Adaline Pendleton Satterthwaite to Family, January 29, 1963, box 10, folder 7, APS Papers.
[49] Satterthwaite, "The Role of Antepartum and Postpartum Education in Maternal Health," 739.

attention to the changing roles of midwives in Puerto Rico amidst the twentieth century phenomenon of medicalized childbirth in her monograph, *Pushing in Silence*. In the work, Córdova argues that the rise of the nurse-midwife played directly into the medicalization of birth as a process to be regulated by physicians rather than a natural event to be witnessed by *comadronas* (traditional midwives) in a mother's home. For the nurse-midwife, "it was indispensable … to be part of the biomedical model of care" in a society working towards hospital births.[50] Satterthwaite's publication on the program evidence such training of aspiring nurse-midwives, but her personal feelings towards midwives complicate Córdova's rendering that nurse midwives were never to be autonomous practitioners.[51] Satterthwaite taught the students techniques like "Papanicolaou (cancer) smears … for an island-wide campaign for testing … because doctors wouldn't take the time and the interest to do pelvic exams and take smears."[52] At first glance, Satterthwaite's rendering of the nurse-midwife-doctor relationship appear hierarchical, a training for nurse-midwives to alleviate the demand upon physicians for more pressing work in the hospital. Yet, Satterthwaite continuously advocated for "paramedical'" autonomy in family planning programs by the 1960s. Be it from her earlier experiences with social workers on Enovid, reliance on nurses in her autonomous family planning clinic, or deep appreciation of the volunteer program developed by Zalduondo, Satterthwaite advocated in her publications, presentations, and later memories of her work that, "it often seems … that those who reject the idea are those who themselves lack a certain sense of security and they are threatened by the idea that paramedicals can do a specific job."[53] Satterthwaite's warm embrace of paramedicals

[50] Córdova, *Pushing in Silence*, 98.
[51] Additionally, Satterthwaite's collaborator at UPR School of Medicine, Arandes were instrumental in having the School of Nurse Midwifery integrated into the medical school. Córdova, *Pushing in Silence*, 70-71.
[52] APS to Family, November 17, 1963.
[53] APS OH, 10-11.

by the mid-1960s illustrate how far Satterthwaite had travelled in her professional career. As shown in Chapters Two and Three, Satterthwaite felt a strong need to highlight the difference between professional Puerto Rican women, including the "paramedical" Noemí Rodríguez, and herself due to anxieties about her status as a physician. By the mid-1960s, however, Satterthwaite was an established physician and researcher in Puerto Rico and internationally, thus assuaging the pressing need to demonstrate her professional merit as compared to other health care professionals.

Satterthwaite's earlier efforts to differentiate herself from Puerto Rican women, however, were not limited to her professional endeavors. Satterthwaite also worked to distinguish her form of motherhood from those of her patients and later participants. By the final years of the trials, however, this reflex appeared much less frequently in her letters to family in the mainland United States. By 1965, David was in his senior year at a boarding school in Pennsylvania, running cross country for the school, and applying to colleges. Rather than fret about his lack of proficiency in English or worry about his future as she did in previous years, Satterthwaite "[took] her hat off to him and his persistence and enthusiasm" for competitive running and attempts to apply for college.[54] David reaching this stage of his life, a successful student athlete on the verge of college, likely conferred a level of ease to Satterthwaite. David's success evidenced that she had been a good mother, thus likely easing the pressure to actively separate herself from the mothers she served.

The final take away that may be intuited from Satterthwaite's professional transition into UPR School of Medicine and its affiliated centers in Bayamón and San Juan is the increasingly public role and home of contraceptive research and family planning. Whereas in the 1950s and early 1960s contraceptive research existed completely under private funds and non-governmental

[54] Adaline Pendleton Satterthwaite to Family, February 14, 1965, box 10, folder 7, APS Papers.

agencies, by 1964 it was becoming more legitimate for Puerto Rican, public institutions to affiliate with family planning. Contraceptives were not only approved and had been available on the island for almost a decade, but women were going to their healthcare provides asking for contraceptives and Puerto Rican physicians and scientists were contributing to contraceptives' continued development.

There exists a fable of sorts in Satterthwaite's personal records and within Profamilia's records as to how Puerto Rico gained a public family program that endorse contraceptives that went beyond the rhythm method. From the various interpretations, certain facts emerge. In 1964, either at a Public Health association or Profamilia meeting, Guillermo Arbona, Secretary of Health, and Celestina Zalduondo, Executive Director of Profamilia, entered into a public squabble. As funds from international and mainland US sources flowed into the School of Medicine and Profamilia for the propagation of contraceptive services, the Department of Health remained silent at times, or obstinately opposed at other times, to the idea of contraceptive counseling and provision of therapies within public clinics. Satterthwaite and her colleagues had introduced pills, IUDs, and contraceptive foams to innumerable women, both in private and public settings, but no program existed to perpetuate these contraceptives beyond the tenure of a grant. Purportedly, Zalduondo demanded Arbona to tell his colleagues *when* such a sustainable program might arrive. In a quip, Arbona responded when the demand is present.[55] As a participant in the meeting, Satterthwaite reflected later that week; "As far as I can see the public is demanding them. At Bayamón we have increased our postpartum clinic attendees three-fold because we are offering acceptable and effective contraceptive methods."[56]

[55] Rivera Céspedes, "Recuento Histórica de PROFAMILIA," 8-9; APS OH, 33; Satterthwaite, "Contraceptive Clinical Trials," 6; Adaline Pendleton Satterthwaite to Family, February 9, 1964, box 10, folder 7, APS Papers.
[56] APS to Family, February 9, 1964.

Figure 10: *Profamilia Meeting in the 1960s*. Celestina Zalduondo stands at the microphone. Adaline Pendleton Satterthwaite sits fourth from the left. Profamilia Records.

Though the Arbona-Zalduondo exchange has become mythic in family planning circles in Puerto Rico, the clear beginnings of a public, family planning program did emerge in the final two years of Satterthwaite's tenure in Puerto Rico. No longer solely meant for creating data research to be sent off the island, family planning clinics housed in Department of Health units meant to provide a cafeteria of contraceptives fully studied in the Northeast region of Puerto Rico. Satterthwaite was not the sole or principle agent of the rise of Department of Health family planning clinics in the mid-1960s, but her connections both off and on the island, extensive research programs, training of emerging health professionals, and positioning within public institutions facilitated this rise. Satterthwaite's post in the School of Medicine introduced the first keen advocate for contraception to the staff, as well as new funds. The Population Council continued to pay her salary within the School, and provided the means for basic science research on the mechanisms of the IUD and physiological changes induced by oral contraception to occur

in their research labs. Satterthwaite also brought in new trials to the Department of Health affiliated Bayamón clinics. In addition to earlier low-dose pills and IUDs, a new pharmaceutical house to Puerto Rico, the Wyeth, sought to test their pill in Bayamón.[57] Thirdly, Satterthwaite and her colleagues began to expand their scholarly papers to include information not only on user experience and basic science, but also the acceptability of contraception as a means for public health. Often filtered through a lens of overpopulation, reports and articles offered insight like, "when one considers use—effectiveness in a public health situation the intrauterine devices have the advantage of continuing protection from a single non-repetitive action."[58] And, "effective public health family planning programs must offer several methods since no one method will meet the needs of every couple. Although the oral contraceptives offer the highest degree of effectiveness for the individual woman under the conditions of private practice, in the public health program their usefulness is limited."[59]

Participation of Puerto Ricans in contraceptive research and family programs animate all of Satterthwaite's time on the island, yet in her mind, the presence of Puerto Rican involvement was a recent phenomenon. So much, in fact, that Satterthwaite delayed her full transition to work with the Population Council in New York, and then Thailand, to 1966 because "one of the greatest satisfactions is to see the almost unbelievable growth in the interest and concern among the medical profession—many of whom had previously been openly antagonistic. Of course there is still plenty of opposition, but the increasing demand of the public for services is growing like an avalanche."[60] What had convinced Satterthwaite of the rise of Puerto Rican was Arbona's support for the growth

[57] Satterthwaite did not publish on the trials of the Wyeth pill, so it remains unclear which of Wyeth's birth control pills were tested in Puerto Rico. Adaline Pendleton Satterthwaite to Family, January 17, 1965, box 10, folder 7, APS Papers; APS OH, 32.
[58] Satterthwaite, Arandes, and Negron,, "Experience with Intra-Uterine Devices in Puerto Rico,"
[59] Satterthwaite, "Oral Contraceptives,"423.
[60] Adaline Pendleton Satterthwaite to Friends, December 1965, box 10, folder 7, APS Papers.

of family planning clinics in the Northeast Region. Convinced by rising attendance at Bayamón of women wanting contraceptives, Arbona purportedly tasked Arandes and Satterthwaite to "implement the contraceptive program including the newer methods (pills and coils) and of course rhythm" through the Department of Health clinics Satterthwaite, her colleagues, and her students staffed.[61] Added to that, Satterthwaite's colleague was able to gain funds from various federal agencies to support the effort. Working for 1965 as a full time employee of the Department of Health, on lend from the Population Council, family planning clinics offering a host of options existed in "all the health units in San Juan," and with over 5000 women protected.[62]

A public option of birth control in Puerto Rico hinged upon the actors on the ground and the alliances they made, as well as the changing power dynamic amongst the Catholic Church and the PPD in the first half of the 1960s. In the 1960 elections, tensions between the church and the PPD came to a head over contraception and reproduction with prominent bishops banning Catholics from voting for the populist party. The PPD and Muñoz Marín clearly abated this challenge by earning fifty-eight percent of the vote that election, but the party remained conciliatory to the church by way of their tone on contraception. Ramírez de Arellano showed that Muñoz Marín maintained his public silence and private support for contraception in 1960.[63] He met privately with the Profamilia and affirmed his personal support for birth control to the group after the election, but maintained that "he would not touch the subject 'with a ten-foot pole'" in his capacity as governor.[64] However, the PPD's ability to mitigate direct assault created sufficient belief that Catholicism was not a barrier to creating birth control programs that Catholic physicians, like José Nine Curt, felt empowered to broker public programs that seek "the church's blessing but rather

[61] Adaline Pendleton Satterthwaite to Family, July 22, 1964, box 10, folder 7, APS Papers.
[62] Adaline Pendleton Satterthwaite to Family, December 1965, box 10, folder 7, APS Papers.
[63] Ramírez de Arellano and Seipp, *Colonialism, Catholicism, and Contraception*, 149-155.
[64] Ramírez de Arellano and Seipp, *Colonialism, Catholicism, and Contraception*, 156.

its adoption of a policy of noninterference. [A prominent priest] was willing to grant this so long as the rhythm method was included as one of the program's offerings."[65] Hence, at least in the period under study in this dissertation, the apparatus of the Puerto Rican state brokered a balance between the influence of the Catholic Church and promotion of contraception as a means of modernization that seemingly countered the teachings of the church.

Participation in Testing Birth Control Programs in Bayamón and the Closing Trials of Contraceptives in Puerto Rico

In August of 1965, family planners from around the globe descended upon Geneva, Switzerland to take stock of the status and future of contraceptives and population programs. The conference arose from a collaboration between the Population Council and Ford Foundation; the Rockefeller Foundation chipped in additional funds to support travel expenses for presenters and participants.[66] The state of population questions had changed since the last Population Council conference that focused on promoting the IUD. Such conferences no longer needed to profess the gravity of population concerns. Attendees came from Japan to Tunisia, the United States to Chile, representing a whole host of emerging and planned programs to address birth and population control. "A major *raison d'être* for the Conference," reflected Bernard Berelson, head of the Planning Committee, "was precisely that developments in this field had been so numerous and rapid in recent months that some review and consolidation was needed."[67] To synthesize this increased recognition of the population problem, Puerto Rico was very well represented in the presenters roster. José Nine Curt, Head of the Department of Preventative Medicine and Public Health School of Medicine at UPR, and Adaline Pendleton Satterthwaite, Research Associate in

[65] Ramírez de Arellano and Seipp, *Colonialism, Catholicism, and Contraception*, 157
[66] Bernard Berelson and Sheldon J. Segal, eds., *Family Planning and Population Programs: A Review of World Developments*, (Chicago: The University of Chicago Press, 1965): *vii*.
[67] Berelson and Segal, eds. *Family Planning and Population Programs*, *vii.*

the Department of Obstetrics and Gynecology of UPR School of Medicine and Technical Assistance Division of the Population Council, spoke to the congregation on the development of a public birth control program in Puerto Rico and the state of oral contraceptive research in Puerto Rico, respectively.

The conference in Geneva captures the state of birth control program research and contraceptive trials in Puerto Rico in the mid-1960s. It was public and present on a national level, and it had proven its staying power. Despite the continuity, what it meant to be a participant changed in the final years of birth control research. Participants came from a variety of rural and urban communities and social classes, gained access to a host of contraceptives and birth control methods, and engaged a wide-array of Puerto Rican and mainland US physicians to take, be inserted with, or practice birth control. Their experiences, also, were no longer codified and analyzed simply for questions on the efficacy of contraceptives; participants' data were accumulated to determine if the "cafeteria" of options approach gained greater traction and retention. Though the trials in Humacao, El Guacio, Castañer, and Union Church continued, Bayamón Health Center became a new hub for programmatic research under Satterthwaite and her colleagues in the Department of Health and UPR School of Medicine. Bayamón also became testing ground for a new type of participants: allied health care workers, specifically nurse midwives, and their ability to manage maternal health programs. Hence, a new form of participant, the professional participant, emerged in the waning days of the field trials of contraceptives in Puerto Rico. By examining participant experience in Bayamón and the other localities of the trials, new meanings of participation and continuing power dynamisms between researchers and participants emerge.

Bayamón had been a center of programmatic research in Puerto Rico since 1954. Using funds from the Rockefeller Foundation, the Department of Health and UPR School of Medicine took a survey of the publicly-funded health care options in the Bayamón district to "discover whether the existing resources could be employed more effectively through improvement in the organization of health services."[68] Bayamón had been chosen as the testing ground because it included the metropolitan area of San Juan and adjacent rural communities, the University Hospital, the UPR School of Medicine, and numerous Department of Health clinics. From the survey, the researchers found that all necessary components for a sustainable health care program were present, but the region needed more communication across centers, standardized procedures for referring patients to appropriate resources and providing sufficient services, more educated professionals to staff the clinics and hospitals, and buy-in from the community.[69] Of particular interest, in the mid-1950s, "The high proportion of physicians in Puerto Rico trained outside the island made the need for medical re-training and orientation particularly important but particularly difficult."[70] To address this concern, a hub within Bayamón was picked to bolster skills in high-demand areas of medicine and provide interpersonal training for healthcare workers to connect with Puerto Rican patients in the region. Using Bayamón health district as the justification for the possibility improved health care in Puerto Rico, an "an allocation of an additional $6,000,000" was passed by the Commonwealth legislature to the Department of Health in 1960 to spread a vertically integrated health provision program, "to replicate the Bayamón scheme," within all regions of the island.[71] Hence, prior to Satterthwaite's arrival in the metropolitan area and the

[68] Arbona and Ramírez de Arellano, *Regionalization of Health Services: The Puerto Rican Experience*, quote on 19, 19-21.
[69] Arbona and Ramírez de Arellano, *Regionalization of Health Services: The Puerto Rican Experience*, 27-34.
[70] Arbona and Ramírez de Arellano, *Regionalization of Health Services: The Puerto Rican Experience*, 32.
[71] Arbona and Ramírez de Arellano, *Regionalization of Health Services: The Puerto Rican Experience*, 39.

infamous debate on the role of government in birth control provision, an ethic of testing national health programs within the Bayamón, also called Northeast District, existed and facilitated the initiation of birth control program research.

The testing of birth control programming in Bayamón required two types of participants to convince two different entities of the utility of such programming. The first group of participants were women entering into the maternal health centers in Bayamón prior to, during, or after pregnancy between 1963 and 1966. Some of these women ingested or received contraceptives, while others would receive educational material on women's and children's health. The second group of participants were the allied health care workers, community partners, and physicians staffing the programming. For these professional participants, their participation entailed continuing education, as well as evaluation of their engagement and retention of patients and participants in the various offices of the Northeast District. The professional participants, however, did not bear the physical risks and emotional tribulations endured by other traditional and non-traditional participants. Taken together, the results of the tests experienced by both groups were meant for consumption by local government officials and the international agencies, like the Population Council. Researchers hoped that Puerto Rican officials and population control agencies would be convinced of the necessity of a public option for birth control and that the Bayamón approach was an excellent case study for modification and export to other countries seeking birth control, respectively.

Nine Curt framed birth control programming as an extension of a "pluralistic democracy" to the Geneva conference, something that required consideration of "different beliefs and religious convictions" to be sustainable.[72] Because of this, "all methods and procedures [need] to be offered

[72] Nine Curt, "Puerto Rico," 231.

and health workers must not impose their personal bias. We place strong emphasis on human dignity and individual rights in dealing with people."[73] Nine Curt and others from the Department of Health and UPR School of Medicine collaborated with seemingly strange bedfellows, Profamilia and Catholics, to realize a plethora of contraception. The Bayamón team of professionals turned to Profamilia to propagate community education outside the clinics and spread the message on the dangers of overpopulation, while they also turned to Catholic physicians to provide rhythm method clinics to round out the buffet of contraception options.[74] Indirectly, then, the Catholic physicians and Profamilia volunteers became professional participants. Nine Curt's and Satterthwaite's ability to point to such disparate groups' collaboration as evidence of the voracity of their program. For these professional participants, a doctor-patient relationship does not fit because of the interprofessional collaboration; it is also notable that little information about the collaboration can be found in the extant literature. However, a clearer analysis of researcher-participant relations and power dynamisms is possible for the third professional participants: the nurse midwives and other allied health care workers who were trained to proliferate birth control programs. These participants supplied medical services and thus generally held power over the participants who received these services. At the same time, these professionals belonged to the lower status in the professional hierarchy in the birth control research community than physicians like Satterthwaite.

After two years with the School of Nurse Midwifery, Satterthwaite wrote to her family that she did not "have the responsibility of the didactic conferences [with the midwives], just actual training clinics which pleased me very much. I was always ashamed of her Spanish in the formal

[73] Nine Curt, "Puerto Rico," 231.
[74] Nine Curt, "Puerto Rico," 233; APS OH, 34; Satterthwaite, "The Role of Antepartum and Postpartum Education in Maternal Health," 741.

lectures and they were such a chore to prepare. I love the clinic work with the girls and I feel that I can do my best there."[75] At Bayamón, Satterthwaite trained nurse midwives in the taking of pap smears and a whole host of other gynecological care procedures to prepare the nurse midwives to run the ante-, intra-, and post-partum educational clinics at Bayamón during their training.[76] Of particular importance, nurse midwives needed to understand the various techniques of birth control because attendance at postpartum clinics were growing. In 1964, the year nurse midwives were attached to these clinics in the area, there were five-hundred and forty-eight new mothers attending the maternal health clinics for the first time. Of these new cases, two-hundred and two women attended exclusively for the postpartum clinics. Including continuing cases, eighty-five percent of postpartum clinic attendees wanted "child-spacing information."[77] Midwives needed to know all forms of birth control because attendees preferred method ranged widely: "5 percent ask[ed] to have rhythm explained; 10 percent want[ed] vaginal foams or suppositories, condoms or diaphragms; 65 percent want[ed] oral tablets…; and 20 percent want[ed] the intrauterine device."[78] Beyond the maternal health clinics, increased hospital birthing necessitated nurse midwives, according to Satterthwaite, because there were "not enough general practitioners with interest and training in obstetrics to do these deliveries."[79] As such, nurse midwives' six-month training period with Satterthwaite in the maternal health clinics at Bayamón served the immediate need of proving the demand for birth control information and longer term goal of allaying the pressure in hospitals of the medicalization of births. Unfortunately, as Córdova illuminates, autonomous practice of

[75] Adaline Pendleton Satterthwaite to Family, March 19, 1965, box 10, folder 7, APS Papers.
[76] Satterthwaite, "The Role of Antepartum and Postpartum Education in Maternal Health," 742.
[77] A total of one thousand four-hundred and twelve women utilized the Bayamón Maternal Health Clinics in 1964. Satterthwaite, "The Role of Antepartum and Postpartum Education in Maternal Health," 741.
[78] Satterthwaite, "The Role of Antepartum and Postpartum Education in Maternal Health," 741.
[79] Satterthwaite, "The Role of Antepartum and Postpartum Education in Maternal Health," 739.

obstetrics for nurse midwives in hospitals during the 1960s did not occur. Instead, they were rendered as "medical support."[80]

Nurse midwives gained professional skills and training as a form of participation in the trials of birth control programs. From all available sources, Satterthwaite genuinely believed in the elevation of "paramedicals," as she phrased it, in the provision of reproductive health.[81] However, Satterthwaite was not simply investing her time for the benefit of the nurse midwives. These nurse midwives' medical acumen, deft understanding of contraceptives, and community skills were necessary to convince the Puerto Rican government and international agencies of the viability of national birth control programs. The clinics, educational programs, and services rendered by nurse midwives must demonstrate a marked improvement in the health of the families for Puerto Rican officials and provision of contraceptive services for the international bodies. And at least for Satterthwaite, the participation of midwives bore fruit worthy of publication. As she reported in the *Journal of the American Women's Medical Association*, "It has thus become evident that the public is demanding information and services and that it is the responsibility of government to offer all types of methods to all its citizens regardless of religion or cultural background."[82] To her family in 1965, she detailed success as the Secretary of Health Arbona wanting to use United States Agency for International Development (USAID) monies to propagate similar programs to all regions of health services, other Puerto Rican professionals wanting to take the lead on the project, and approximately five thousand women gaining contraceptives through the maternal health clinics through the nurse midwife, and other, programs.[83] Indeed, professional participants in the

[80] Córdova, *Pushing in Silence*, 98-99.
[81] APS OH, 9-10. Bourbonnais further illustrates this by showing Satterthwaite's continuing support of allied health care workers in her Population Council endeavors. See, Bourbonnais, "Population Control, Family Planning, and Maternal Health Networks in the 1960s/1970s."
[82] Satterthwaite, "The Role of Antepartum and Postpartum Education in Maternal Health," 741.
[83] Adaline Pendleton Satterthwaite to Family, February 11, 1965, box 10, folder 7, APS Papers; Adaline Pendleton Satterthwaite to Family, September 30, 1965, box 10, folder 7, APS Papers.

birth control programs affirmed Satterthwaite's belief that "the degree of acceptability and satisfaction in continued use is directly related to the confidence which the which the women have in the medical personnel with whom they come in contact."[84] Professional participants did not endure the physical ramifications that contraceptive users did. However, like traditional, contraceptive participants, they variably navigated issues of gender, class, and colonialism.

What of the women who continued taking contraceptives as part of linked tests of birth control programs and trials of oral progestins and IUDs? In Satterthwaite's increasingly administrative role in Bayamón, other physicians and allied health care workers recruited new traditional participants as much as Satterthwaite. Still, Satterthwaite reported on these traditional participants. In the Northeast district, traditional participants were offered IUDs, pills, and other methods. One-hundred and ninety-four women took a new sequential pill therapy that consisted of six days of Ortho's ORF-1658 norethindrone-only pill and two-weeks of taking synthetic estrogen-only pills.[85] Because of the basic science inquiries occurring in Puerto Rican labs, participants on oral progestins from Bayamón submitted to wedge biopsies of their ovaries before, during, and after ceasing the medication to determine physiological changes in the menstrual cycle at the molecular level.[86] Like earlier participants, these women likely did not know the larger purpose of these tests, and thus decided, rather than chose, to participate. Researchers were particularly interested in comparing participant experiences and test results from the sequential regimen to those from other pills like Ovulen and Ortho Novum because sequential therapy was substantially

[84] Satterthwaite, "Oral Contraceptives," 422.
[85] Satterthwaite, "Oral Contraceptives," 414, 420.
[86] Satterthwaite, "The Role of Antepartum and Postpartum Education in Maternal Health," 741; Satterthwaite, "Oral Contraceptives," 421.

cheaper.[87] However, participants did not take to the sequential therapy in greater percentages than others because of the difficulty of regimen and irregular bleeding patterns.

In Bayamón, an additional group of women were recruited to the trials of IUDs for explicitly non-therapeutic reasons. These trials, meant to evaluate the long term safety of IUDs in relation to cancer, relied on a "group of women with uterine prolapse who needed vaginal hysterectomies [and] were fitted with the polyethylene intrauterine devices to study tissue reaction in the presence of foreign bodies."[88] The hope for these trials were widely mentioned in scientific literature, but no specific articles on these participants were written. The only published evidence to these women as participants comes from an abstract:

> Sixty-two women from the postpartum clinic at the Bayamón Health Center, for whom hysterectomy is planned for mechanical difficulties (i.e. prolapse) have been fitted with intrauterine contraceptive devices. Hysterectomy is performed at various intervals … Pre-insertion endometrial biopsies have been studied. Twenty-three hysterectomies have been performed; 11 with Margulis spirals … and 12 with Lippes loops … Two patients had experienced insertion with two different devices because of the expulsion of the first device inserted. The time of the devices *in utero* had varied from one week to 36 weeks…16 cultures of the endometrial cavity [were taken] … Eight controls were taken from controls…Four uteri without devices have been examined histologically as controls.[89]

Although no published article materialized out of this study of IUD participants, Satterthwaite retained more records related to these tests in her personal collection than any other contraceptive field trials. The comparative wealth of documents on this subset of trials allows a fuller, though still incomplete, sketch of the contours of participation. Women presenting with "mechanical abnormalities" at the University Hospital or Bayamón Health Center were examined and interviewed.[90] A health care worker asked them about their menstrual cycle, whether they

[87] Satterthwaite, "Oral Contraceptives," 415-420.
[88] Satterthwaite, "The Role of Antepartum and Postpartum Education in Maternal Health," 741
[89] Arandes, Ramirez-Weiser, and Satterthwaite, "Study of Tissue Reaction in Hysterectomy Specimens," 232-233.
[90] "Objective of Study," box 21, file 7, APS Papers.

experienced bouts of nausea, and if coitus was painful.[91] If the woman enrolled in the study, she received an endometrial biopsy.[92] Twenty eight days later, participants received an IUD and underwent blood tests. On the day of insertion, physicians "scheduled [the participant] for vaginal or abdominal hysterectomy so the tissue reaction to the coil or spiral [could] be studied."[93] Participants' tissues were then sent to Rafael Ramirez-Weiser of UPR School of Medicine for pathology testing.[94] Ramirez-Weiser's results were compared to a control group of women who required a hysterectomy, but did not accept the IUD.[95] The traditional participants in this study engaged specifically with physicians, but they did not garner many benefits of patienthood. No therapeutic rationale justified inserting these women with IUDs and possibly delayed necessary corrective surgery for prolapse. For the control group participants, interestingly, there were likely medical reasons for the histological tests. Hence, as the field trials of contraceptives and testing of a public cafeteria of contraceptive tests concluded in 1966, participation carried ambiguous benefits for some, detractions for others. Some participant experiences in the IUD tests might have meshed with Ana Delia Reyes' opinions of the trials in Puerto Rico.

Like Diana Frances Marcano and the other women discussed in Chapter Four, Ana Delia Reyes participated in the interviews for *The Pill* documentary by Swerhone and Buffie because she took an oral contraceptive as part of field trial. A.D. Reyes was not a participant in the trials IUDs, but her responses intimate some of the complexities suggested by the vaginal prolapse trial responses. A.D. Reyes responded in short, declarative sentences to Saxberg's questions on her use of the birth control pill. Possibly because of A.D. Reyes' terse responses, Saxberg did not push

[91]"Intrauterine Coil Study: Tissue Reaction," box 21, folder 7, APS Papers
[92] "Objective of Study," box 21, folder 7," APS Papers.
[93] "Objective of Study," box 21, folder 7, APS Papers.
[94] "Participant Report," box 21, folder 7, APS Papers.
[95] "Objective of Study," box 21, folder 7, APS Papers.

her. Maybe, Saxberg was trying to be conscious of her role as interviewer and be respectful of Reyes' reticence to share too much of her personal experience. It is also possible that Saxberg had already gotten the sound clips she needed for the film. Reyes was the last interviewee scheduled for the shoot.[96] At this point, Saxberg might have been only looking for something striking, something new to add to the themes of medical experimentation, Cold War antics, and colonialism. A.D. Reyes' to the point responses provided no real fodder for a shining new example of such abuses, though she used the same language Saxberg understood to epitomize field trial participants, "guinea pigs:"

> Saxberg: Why do you think the first women were here in Puerto Rico?
> A.D. Reyes: Well, us Puerto Ricans have always been used like guinea pigs in many situations. But I just learned that recently.
> Saxberg: How do you feel about this?
> A.D. Reyes: I don't know what to say … Well, lately there is a lot more consciousness. There are people who defend us, from many things. They don't always achieve their goals, but they defend us. There is a group that defends us. There is opposition, demonstrations, and protests.
> Saxberg: So the point of view has changed?
> A.D. Reyes: Yes.
> Saxberg: Is there anything you would like to add?
> A.D. Reyes: I can't think of anything.
> Saxberg: I think we are good. Thanks.[97]

In her likely quest for rich detail on the meaning of medical experimentation and US colonialism, Saxberg missed an opportunity to explore how A.D. Reyes, like other participants including Pura Clarevol discussed in Chapter Four, used the clinical trials to denote a change in Puerto Rican history and collective experience. Reyes links the pill trials to a shift in Puerto Rican experience and identity. From "guinea pigs" in the mid-twentieth century to having protests to stand up for rights, Puerto Ricans as they understood themselves were not the passive victims of U.S. colonialism.

---

[96] "Research Report," Saxberg Papers.
[97] Ana Delia Reyes, interview by Kelly Saxberg, *The Pill*, 13, Saxberg Papers.

In December of 1965, family planners, physicians, community members, and missionaries flocked to Ryder Hospital to say goodbye to Adaline Pendleton Satterthwaite. Satterthwaite continued on in Puerto Rico for a few months into 1966, but her tenure with the hospital, the trials of contraceptives, and family planning programs had come to an end. She would take up a full time post with Population Council, working in collaboration with other medical professionals across the world, to establish birth control programs. For those who could not attend, Ryder collected letters. Some of the letters came from more renowned persons like Alan Guttmacher, Clarence Gamble, Celestina Zalduondo, and Guillermo Arbona. Other letters came from former patients at Ryder, collaborators across the island, and former missionaries who had worked with Satterthwaite. The letters ranged from poems written in Satterthwaite's honors and short telegraphs from abroad. Many patients included pictures of the children the former Doctora Penny had helped birth at Ryder. In general, the sentiment was glowing, as an homage is expected to be.[98] At least from this curated view of Satterthwaite's tenure, her time in Puerto Rico had been a success. From the perspective of a longer history of contraceptive trials in Puerto Rico, as this dissertation has shown, the takeaway is more complicated.

Between 1952 and 1957, Satterthwaite had felt there was a population problem in Puerto Rico exacerbated by gender relations, class, and Catholic persuasions. Her goal, at that time, had been to find a reversible contraceptive that would allow for nuclear family formation based on the contemporary Puerto Rican cultural norms at the same time the therapeutic that allowed for a decrease in population size. Satterthwaite's and others work had definitely led to the creation of such technologies via the pill and IUDs. However, the question remained if the pill and IUD were effective for long term birth control program. Satterthwaite had come to realize, "there is no ideal

[98]*Homenaje*, box 21, folder 10, APS Papers.

method for every couple. The oral contraceptives offer a useful and effective method of family planning in certain situations; but widespread application in public health programming seems to be of limited value."[99] This qualified appraisal of the pill, specifically, derived from her recent embrace of the IUD, as well as the relatively low long-term continuation rates across all oral progestins. Of the eight-hundred and thirty-eight women she provided Enovid five-milligrams and ten-milligrams since 1957, only one-hundred and fifty-one of these participants were still using Enovid, or about twelve percent of participants. This number included women who stepped away from Enovid to have children.[100] Of the women in the comparative trials of low-dose Enovid, Ortho Novum, and Ovulen, four-hundred and thirty-five participants of the initial six-hundred had ceased using those pills at some point. By June 1965, only one-hundred and twenty-seven participants had not abandoned the oral progestins in the comparative studies; forty-eight women returned to the method after stopping some period.[101] For the remaining birth control pills, sixteen women still took five-milligrams of Ortho's ORF 1658, seventeen persisted with the one-milligram ORF 1658 pill, sixty-two women consumed low-dose Ovulen daily, and one hundred and twenty four participants still followed the sequential therapy regimen. Across all oral contraceptives, thirty percent of participants were "continuous uses" by mid-1965.[102] No comparable data is available on continuing use of the IUD. The oral contraceptive and IUD tests had benefits, but they were not the panacea she once envisioned. Participants, rather than a single technology, determined the long term viability of contraceptives by staying, and leaving, the trials.

[99] Satterthwaite, "Oral Contraceptives," 424.
[100] Satterthwaite, "Oral Contraceptives," 414.
[101] Satterthwaite, "Oral Contraceptives," 414-415
[102] Satterthwaite, "Oral Contraceptives," 414.

Concluding Thoughts: Limits to a Longer History of Contraceptive Field Trials in Puerto Rico

In our understanding of the longer history of the trials and a range of contexts, it is useful to take a brief look at what happened after Satterthwaite's departure. In 1969, G.D. Searle and Company began its effort to establish a pharmaceutical production plant in Puerto Rico. Searle needed a sizeable building to manufacture medicines, so they leased an industrial space of over sixty-thousand square feet in Hato Ray for $114,000 per year in February 1969. The pharmaceutical house also acquired a small office space in Río Piedras for administrative purposes.[103] Both the plant and business office were located in the San Juan metropolitan area. Searle's Hato Rey needed machinery to produce pills and liquid drugs and then distribute those drugs across the world. By April 1969, Searle was in the process of moving over one-million dollars of manufacturing and shipping equipment from their home-base in Skokie, Illinois, to the island for that purpose.[104] Searle also planned to hire skilled and semi-skilled employees from the island to staff the Hato Rey plant rather than transferring current employees from Skokie. Searle felt confident that they could find a competent and willing workforce in the metropolitan area, so Searle made plans to provide extensive professional training to early recruits to get operations off the ground. As such, some Hato Rey employees spent the first part of their tenure at the Skokie facility, not at the Hato Rey facility. While at Searle's headquarters for training, the operator earned one hundred and twenty dollars a week and had his round-trip flight covered up to two-hundred and seventy-two dollars.[105] Upon their return to Puerto Rico, the employee was expected to train

[103] "Application for Training Services—Economic Development Agency," Searle & Co. Folder, Compañía de Fomento Industrial de Puerto Rico (Unprocessed), Archivo General de Puerto Rico, Instituto de Cultura Puertorriqueña, San Juan, Puerto Rico, hereafter Fomento Papers; "Questionnaire for Fixing Date of Commencement of Operations," Searle & Co. folder, Fomento Papers.
[104] "Report of the Economic Development Administration of the Application for Tax Exemption for G.D. Searle & Co.," April 8, 1969, Searle & Co. folder, Fomento Papers.
[105] "Application for Training Services—Economic Development Agency," Searle & Co. folder, Fomento Papers.

the other employees of the Hato Rey workforce.[106] From this workforce, Searle anticipated producing thirty to forty-five million dollars of medicines, including the oral contraceptives Enovid and Ovulen, each year in Puerto Rico.[107]

This glimpse into the origins of Searle's pharmaceutical production plant in 1969 is possible because Searle sought tax-exemption status. The Puerto Rican Economic Development Agency (*El Fomento* or PRIDCO colloquially), a product of the grand reimagining of Puerto Rico in the mid-twentieth century and accelerated by the PPD, recruited mainland US industries to the island by way of tax exemptions and lower-salary expectations by a highly educated workforce. To gain the tax-exemption status, Searle had to provide clear details on their hopes for employment numbers, justify that they had no business interests on the island prior to 1947 (the goal was *new* industry), and generally convince El Fomento of what a useful asset the company would be able to offer to Puerto Rico. In their initial session with El Fomento representatives in January 1969, Searle responded to the government agency's questions cordially and succinctly:

> Q: Will you please identify the products for which tax exemption is requested?
> A: The products identified are … Enovid tablets and Ovulen tablets.
> Q: Will you briefly indicate the pharmaceutical usage of these products, sir?
> A: … Enovid and Ovulen are oral contraceptives. Enovid was first tested in Puerto Rico many years ago in some of the family planning clinics and had a good acceptance.
> Q: [Are they] dually approved by the Federal Agencies?
> A: They are.[108]

No other mention of the field trials of Searle's contraceptives appear in the hefty application. In applying for tax exemption status and substantiating how Searle might benefit Puerto Rico, the

[106] "Memorandum—Eduardo Aponte Hernández to Francisco M. Arias," Searle & Co. folder, Fomento Papers.
[107] "Report of the Economic Development Administration of the Application for Tax Exemption for G.D. Searle & Co.," April 8, 1969, Searle & Co. folder, Fomento Papers.
[108] "Stenographic Record—G.D. Searle & Co, Petitioner, Before the Special Master Appointment by the Governor of Puerto Rico," January 10, 1969, Searle & Co. folder, 4-5, Fomento Papers.

trials of Enovid had become a factoid to be highlighted, but not interrogated. There was no need to question this well-known "successful" product.

This dissertation has offered a longer history of the field trials of contraceptives in Puerto Rico, but there were limits to lengthening the time frame. The trials of Enovid informed Searle's desire to set up production on the island, but they were not the primary reason for Searle's choice of its factory location nor for El Fomento to grant tax exemption status to the company. The same modernization programs and economic restructuring generated by Operation Bootstrap that facilitated the field trials of contraceptives directly caused the rise of Searle's, and other pharmaceutical companies', manufacturing plants, in Puerto Rico.[109] No other sources in the long application to El Fomento linked the tests of Searle's Enovid and Ovulen to the pharmaceutical house's hopes for a production plant. As such, the longer history of the trials of contraceptives in Puerto Rico, if not their legacy, ended in 1966, not in 1969. In a way, though, the lack of direct evidence to connect the trials and growth of pharmaceutical production in Puerto Rico more clearly substantiates the founding premise of this dissertation. By the late 1960s, there was no need for either the company or the insular government to prove the efficacy, safety, and acceptability of the contraceptives including the pills. Indeed, then, the field trials of Enovid, other contraceptive pills, IUDs, and the emerging, public birth control program in Puerto Rico it begot, were no mere way station. The trials were a meaningful, semi-autonomous endeavor meriting sustained attention as a lens onto the everyday practices in the creation of consequential medical knowledge and drugs that benefited from the modernization and industrialization ethos of Puerto Rico in the 1950s and 1960s.

[109] Gonzalez, *Harvest of Empire*, 281.

By focusing exclusively on the ground-level health care professionals and participants, this dissertation has illuminated the personal, professional, gendered, and colonial practices that shape medical research. The doing of medical science under Rice-Wray, Satterthwaite, Iris Rodríguez, N. Rodríguez, Betty MacDonald, and others in Puerto Rico evolved over ten years. The research questions they pursued on the pill began as inquiries into progestin's contraceptive action and basic science, morphed to address the safety of progestins in pill form, and swelled to include questions of efficacy of individual pills and across multiple pills. In considering the efficacy of oral contraception as a panacea to fears of overpopulation, ground-level dynamisms and desires allowed for continued search for a better means of contraception. In 1961, Satterthwaite and her team began inserting IUDs with no clue to the technology's contraceptive mechanism. Instead, ground-level researchers jumped to questions of safety and quickly pivoted to evaluating the efficacy of the IUD as a means of population, rather than birth, control. Through these ten years, it was clear that collaborators in the mainland US did not determine how Satterthwaite and the rest pursued their growing research enterprise. Instead, the research and questions investigated shifted in relation to personal and local happenings.

The architects of the trials in Puerto Rico were predominantly professional women, once again countering inherited adages that medical research was a reified, masculine space for much of the twentieth century. Gendered power dynamisms persisted in and beyond the trials in Puerto Rico; the confluence of mainland gender norms and gendered perceptions of Puerto Rican families, filtered through the lens of colonialism did shape the research. However, the field trials provided a cohesive example of medical research as feminine space and endeavor, though more male physicians became associated with the trials from 1963 to 1966. The prevalence of women professionals did not imply an utopian experience of sisterhood. White, middle-class, and

mainland US-origin women largely sat atop the research hierarchy in Puerto Rico. Rice-Wray and Satterthwaite came to Puerto Rico before the trials due to personal and professional aspirations circumscribed by gender norms at home. These gendered pressures shaped how they viewed their collaborators, responded to Puerto Rican modernization projects, and interpreted US colonialism in Puerto Rico. Yet, Rice-Wray's and Satterthwaite's actions within the trials did not represent an untransformed transference of mainland US values to their work in Puerto Rico. They worked with, and at times at odds, with I. Rodríguez, N. Rodríguez, and other Puerto Rican professionals. The day-to-day aspects of their relationships, shaped by interprofessional tensions and colonial scripts of gender, shaped what can and cannot be known of their collaborators and the participants from the primary and secondary sources. Gender, colonialism, and power dynamisms animated the professional and personal relationships of the trials.

If gender prescriptions, colonialism, and professional mores animated the motivations of the trials of pills and IUDs, they also shaped how the trials were conducted. Evolving, gendered views of Puerto Ricans, filtered through the added layer of US colonialism and Puerto Rico's modernization campaigns, recruited the trials to the island. From the ground-level, it was clear that the trials under Satterthwaite's supervision, her animating logics shifted from one of a physician concerned about the communities she served, to a physician conducting medical research in service of these communities, to a physician doing medical research for national and international audiences, and culminated in her as a medical research with limited physician responsibilities. In Satterthwaite's professional trajectory, care for the women she engaged variably relied on seeing these women and their families as patients and as experimental subjects. Concomitantly, the trials moved from the semi-urban enclave of Río Piedras, to the rural outpost of Humacao, and back to

the capital region. Along the way, new sponsors came to field trials based upon the medical and family planning's world changing notions of participants.

Participant experience and influence was the hardest facet to ascertain in constructing the history of the longer trials of contraceptives. Interestingly, qualitative snapshots of participants decreased as the trials progressed and quantitative analyses that obscured individual and singular experiences increased. In 1956, Rice-Wray offered short vignettes of participants' experiences. Names, though likely pseudonyms, were offered, giving at least the sense of human drawbacks and benefits of being a participant seeking to control one's reproduction. Rice-Wray used these women's experiences to remind her colleagues that though Enovid unequivocally prevented conception, the pill "[caused] too many side reactions to be acceptable generally" in 1956.[110] How individual women felt on the pill mattered. Even in Satterthwaite's earliest publications, participants appeared sporadically as individual women navigating their reproductive lives. Their stories were accompanied by hints to the larger groups of participants: husbands, children, and fellow-women whose vitals were taken to serve as a comparison point for the action, safety, and efficacy of Enovid and other pills. As the pill trials became comparative in nature and overpopulation rhetoric informed all aspects of IUD research in Puerto Rico in the 1960s, patient anecdotes largely disappeared. Numbers of menstrual cycles, numbers of insertions, tables of side effects, and percent of side effects came to populate the pages of scientific and medical journals. Yet, as this dissertation has shown, their absence in the established medical literature and history scholarship does not indicate that participants were passive objects awaiting the dictates of the researchers. From 1956 to 1966, traditional participants entered and left the trials to meet their individual needs. By mid-1965, only five-hundred and forty-five traditional, pill participants were

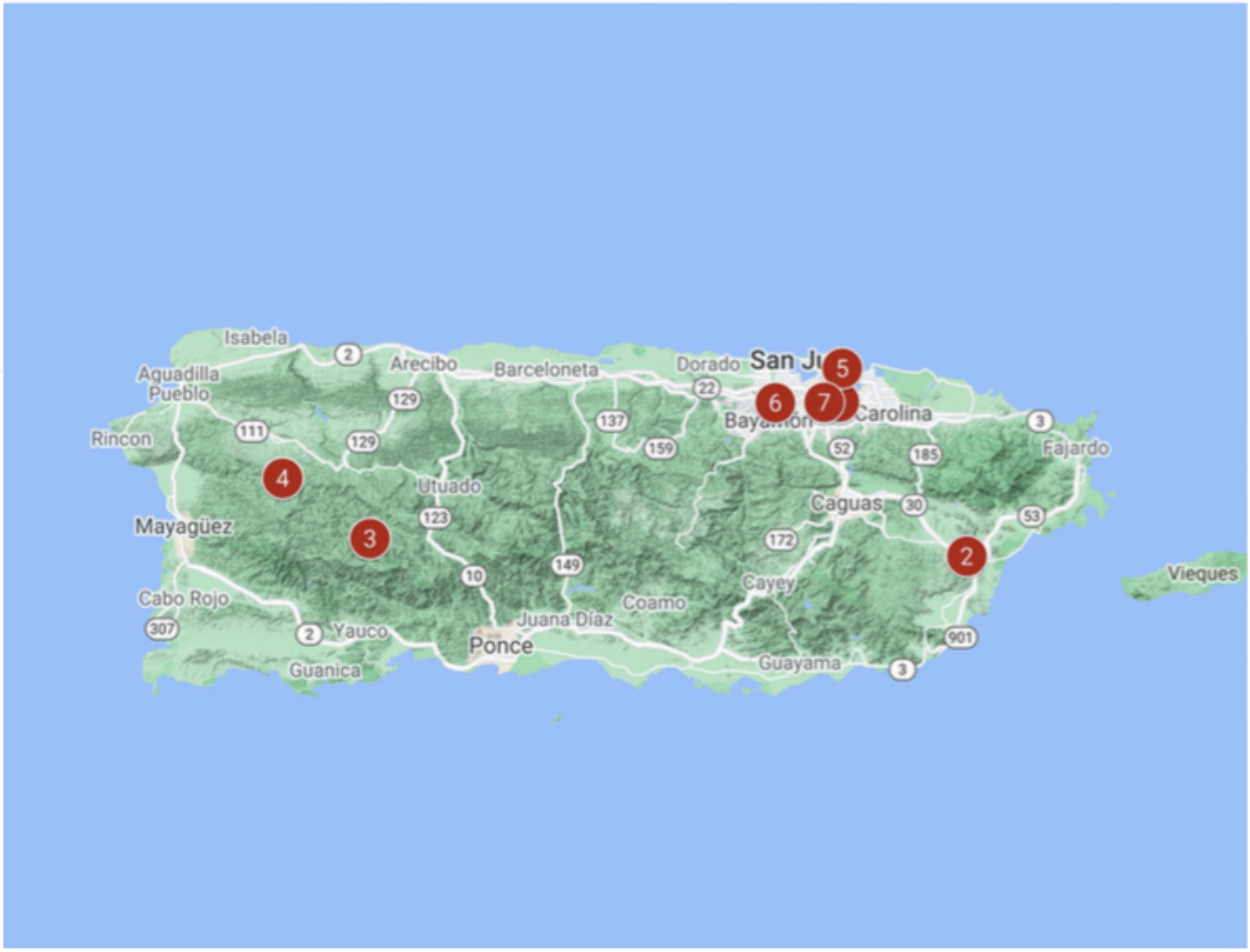
[110] Rice-Wray, Edris. "Field Study with Enovid," 85.

still in the trials of the two-thousand, three-hundred, and seven women who had taken the pill in the trials. These continuous users, as well as those who had taken and then stopped taking the pills, helped create a social acceptance of public birth control programs. Their partners, children, and families, too, filled out the picture. Indeed, researchers depended upon all participants for the generation of medical knowledge. In the long history of fields trials of contraceptives in Puerto Rico, participants, social workers, and physicians generated medical science.

APPENDICES

APPENDIX A

MAPS OF FIELD TRIALS IN PUERTO RICO, 1956-1966



1. Asociación Puertorriqueña Pro Bienestar de las Familias (Profamilia), Río Piedras, 1956
2. Ryder Memorial Hospital, Humacao, 1957
3. Castañer Clinic, Lares, 1962
4. El Guacio Clinic, San Sebastián, 1962
5. Union Church Clinic, San Juan, 1964
6. Bayamón Health Clinic, Bayamón,1964
7. University Hospital, Río Piedras, 1964

Figure 11: *Map of field trials across all of Puerto Rico, 1956-1966.* Map Created by Kathryn D. Lankford.

APPENDIX A (Continued)

1. Asociación Puertorriqueña Pro Bienestar de las Familias (Profamilia), Río Piedras, 1956
2. Ryder Memorial Hospital, Humacao, 1957
3. Castañer Clinic, Lares, 1962
4. El Guacio Clinic, San Sebastián, 1962
5. Union Church Clinic, San Juan, 1964
6. Bayamón Health Clinic, Bayamón,1964
7. University Hospital, Río Piedras, 1964

Figure 12: *Map of field trials in the greater San Juan area, 1956-1966.* Map Created by Kathryn D. Lankford.

APPENDIX B

TABLE OF CONTRACEPTIVES TESTED IN PUERTO RICO, 1956-1966

Date of Introduction	Trade Name	Pharmaceutical Company	Active Ingredients	Trial Locations
1956	Enovid, 10 mg	G.D. Searle & Company	Norethynodrel, 10 mg Mestranol, 0.15 mg	Río Piedras Humacao
1959	Enovid, 5 mg	G.D. Searle & Company	Norethynodrel, 5 mg Mestranol, 0.075 mg	Humacao
April 1961	Ovulen, 1 mg	G.D. Searle & Company	Ethynodiol diacetate, 1.0 mg Mestranol, 0.1 mg	Humacao Bayamón ?
November 1961	Enovid, 2.5 mg	G.D. Searle & Company	Norethynodrel, 2.5 mg Mestranol, 0.1 mg	Humacao Bayamón ?
November 1961	Ortho Novum, 2 mg	Ortho Company	Norethindrone, 2mg Mestranol, 0.1 mg	Humacao Bayamón ?
November 1961	Margulies Spiral	*Mount Sinai Hospital, New York	---	Humacao El Guacio Castañer Bayamón
January 1962	Lippes Loop	*University of Buffalo, School of Medicine	---	Humacao El Guacio Castañer Bayamón
December 1962	---	Ortho Company	ORF 1658, 5 mg	Humacao Bayamón ?
August 1963	---	Ortho Company	ORF 1658, 1 mg	Humacao Bayamón ?
December 1963	Ovulen, 0.5 mg	Ortho Company	Ethynodiol diacetate, 0.5 mg Mestranol, 0.1 mg	Humacao Bayamón ?
1964 +	Sequential Therapy	Ortho Company	ORF 1658-E, 2mg, 6 days Mestranol, 0.1 mg, 14 days	Humacao ? Bayamón

+: Approximate date of introduction of the contraceptive
?: Likely field trial location for the contraceptive, but not conclusive
*: Location of development; no company sponsor for the contraceptive during field trials

Table 1: *Contraceptives tested in Puerto Rico by year of introduction, trade name, and location(s) of trials, 1956-1966.* Table created by Kathryn D. Lankford.

APPENDIX C

GRAPHS OF PARTICIPANTS OVER COURSE OF FIELD TRIALS, 1956-1966

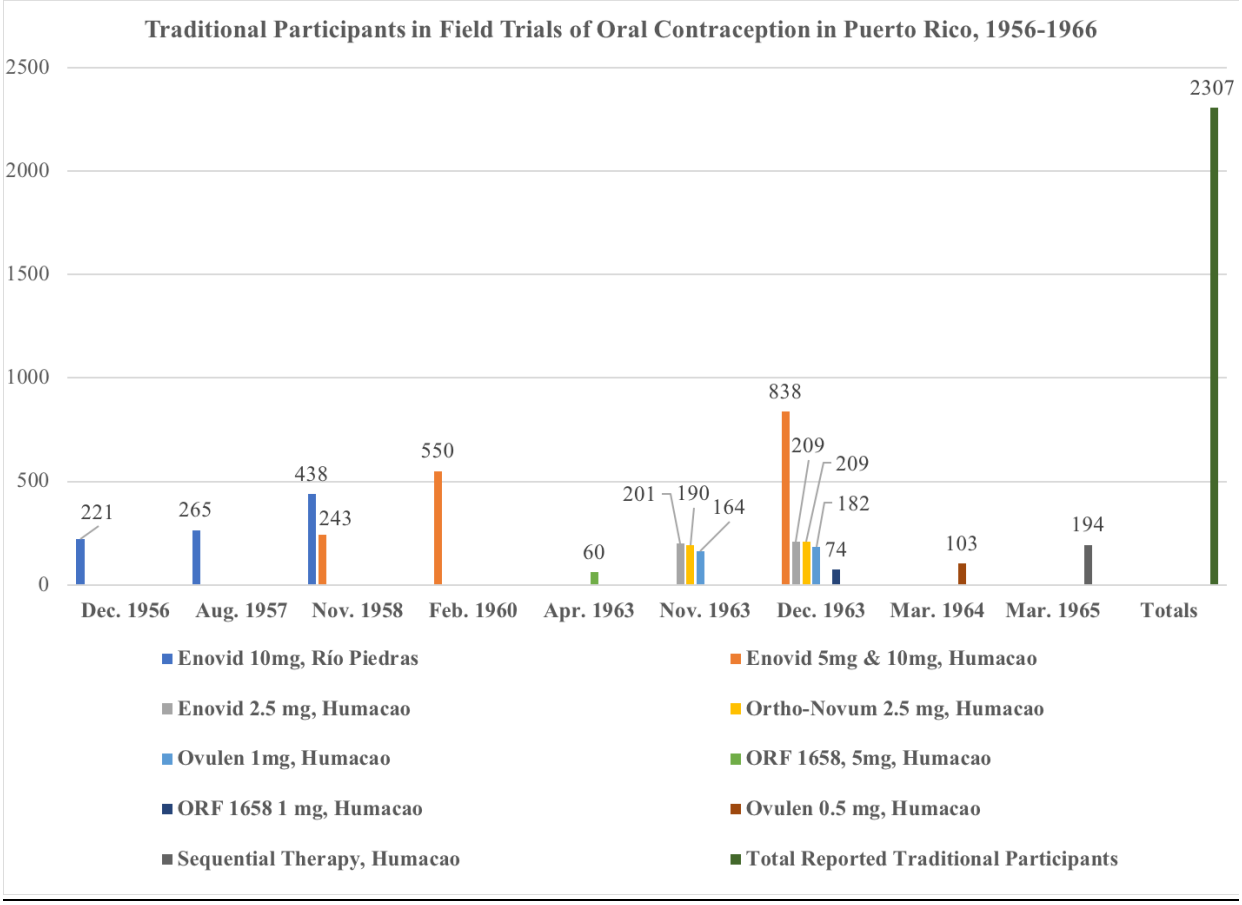


Figure 13: *Graph of traditional participants in field trials of oral contraceptives, 1956-1966.* Graph created by Kathryn D. Lankford.

APPENDIX C (Continued)

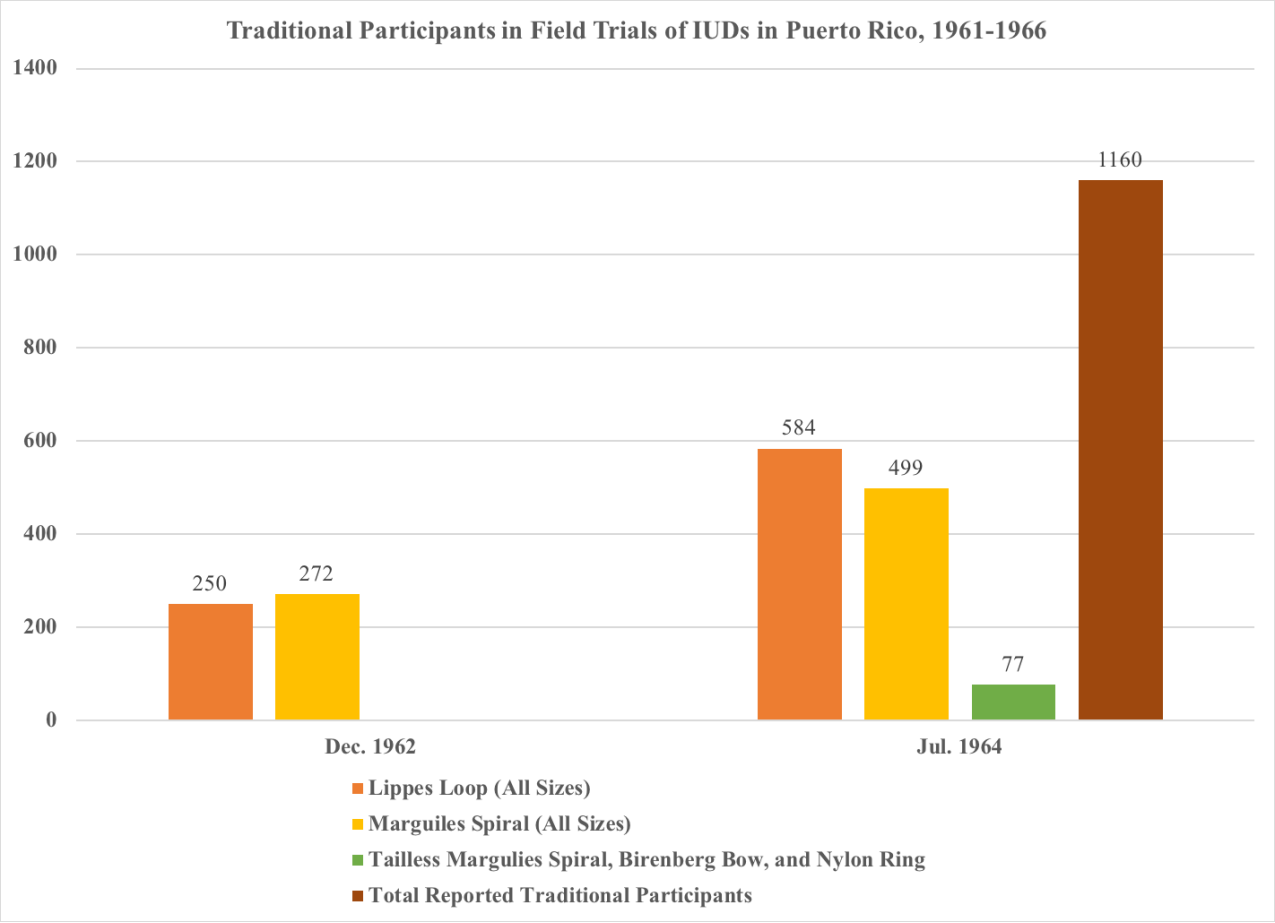


Figure 14: *Graph of traditional participants in field trials of intrauterine devices, 1961-1966.* Graph created by Kathryn D. Lankford.

APPENDIX C (Continued)

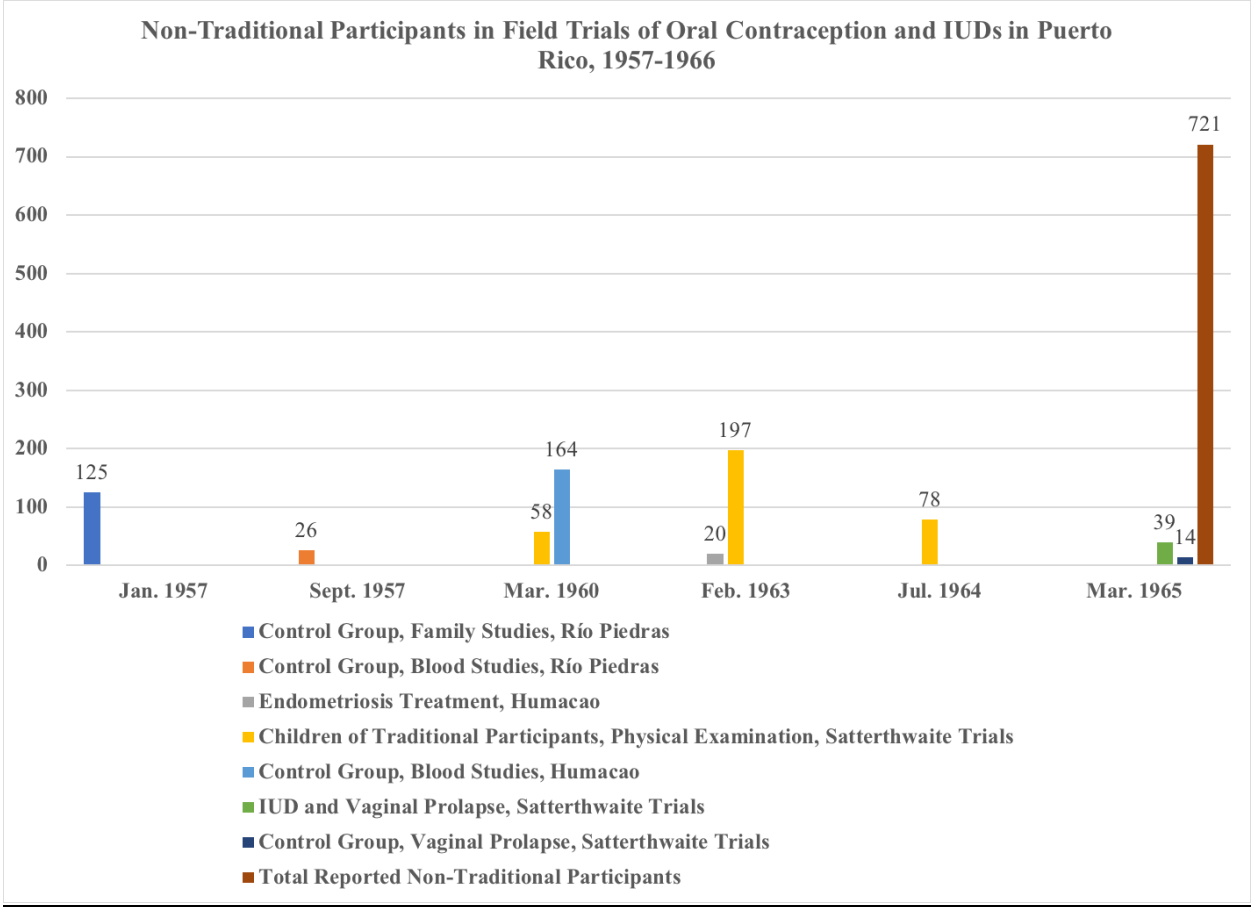


Figure 15: *Graph of non-traditional participants in field trials of oral contraceptives and intrauterine devices, 1957-1966.* Graph created by Kathryn D. Lankford.

APPENDIX C (Continued)

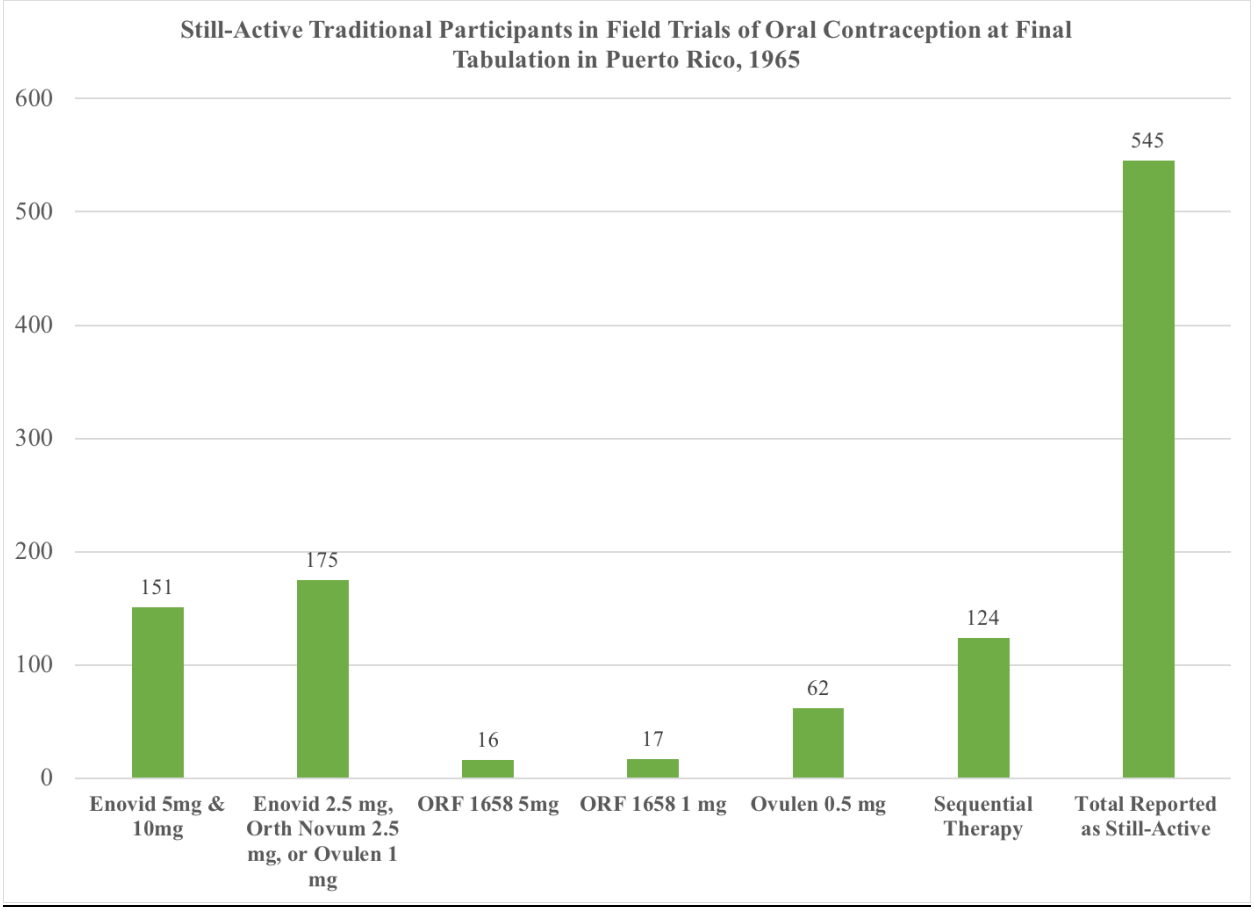
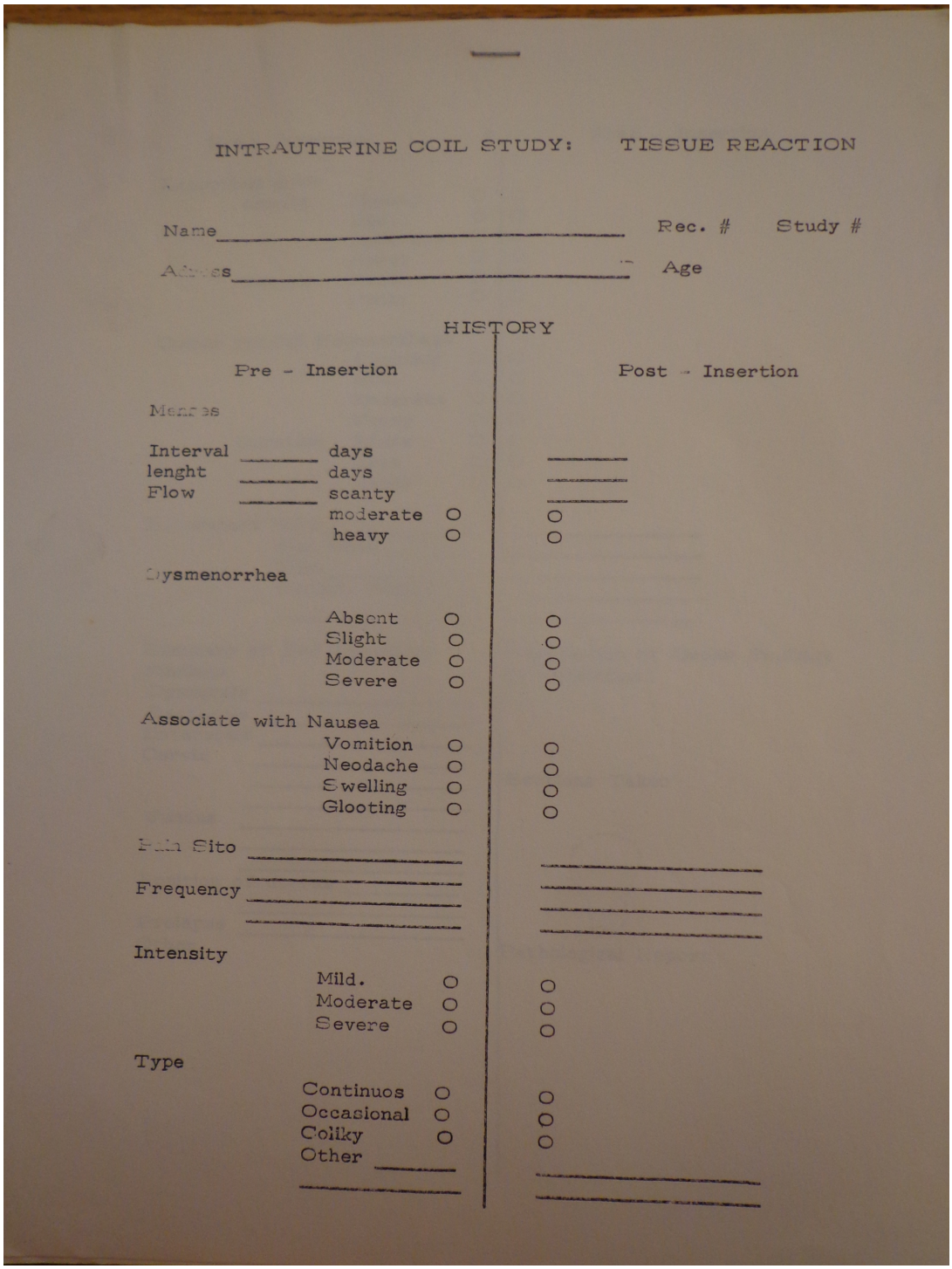


Figure 16: *Graph of active participants in field trials of oral contraceptives at final tabulation, 1965.* Graph created by Kathryn D. Lankford.

APPENDIX D

INTAKE AND FINDINGS FORM FOR IUD-PROLAPSE STUDY, 1964-1965



INTRAUTERINE COIL STUDY: TISSUE REACTION

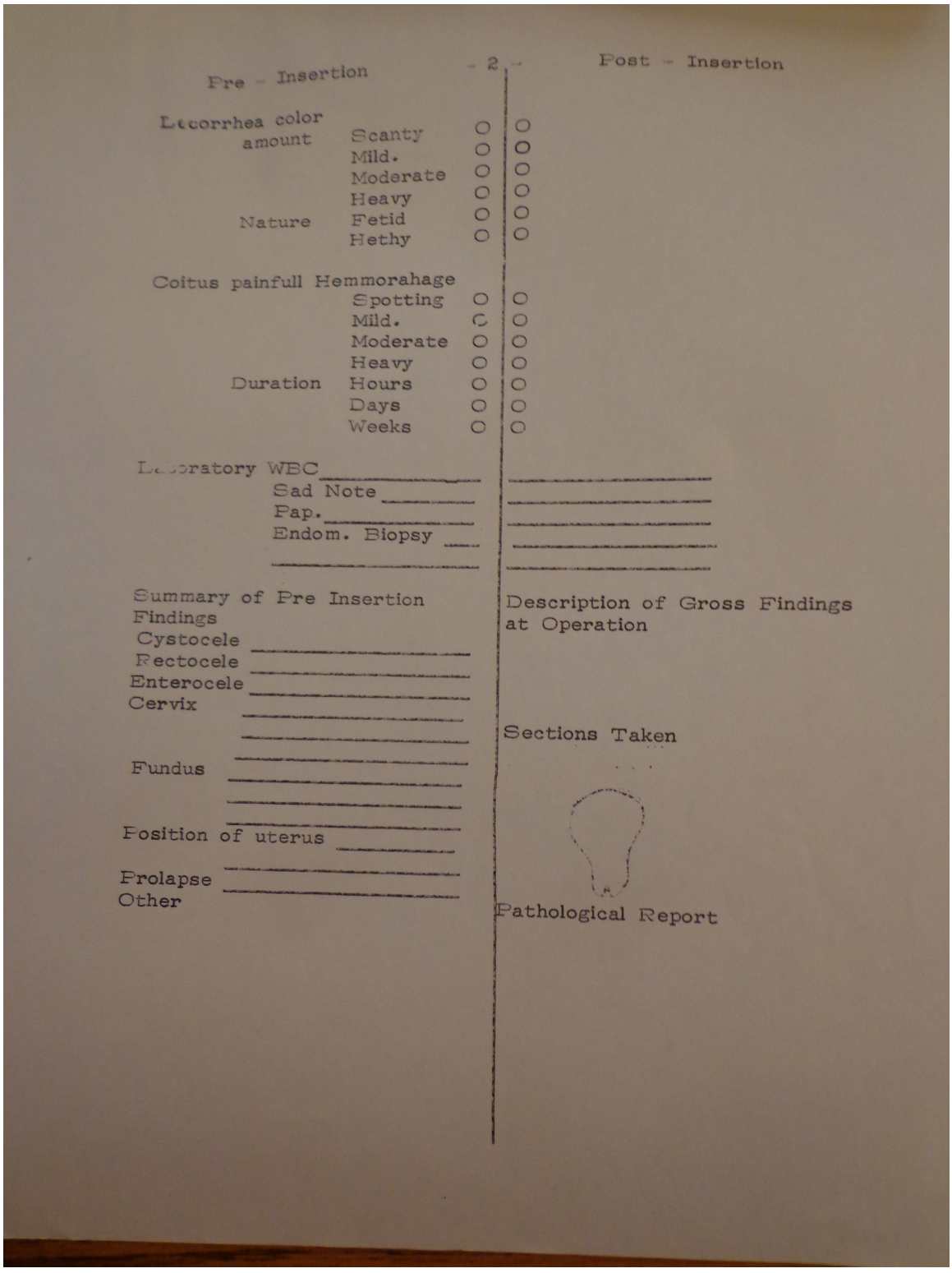
Name _____ Rec. # Study #

Address _____ Age

HISTORY

	Pre - Insertion	Post - Insertion
Menses		
Interval	_____ days	_____
lenght	_____ days	_____
Flow	_____ scanty	_____
	moderate O	O
	heavy O	O
Dysmenorrhea		
	Absent O	O
	Slight O	O
	Moderate O	O
	Severe O	O
Associate with Nausea		
	Vomition O	O
	Neodache O	O
	Swelling O	O
	Glooting O	O
Pain Site	_____	_____
	_____	_____
Frequency	_____	_____
	_____	_____
Intensity		
	Mild. O	O
	Moderate O	O
	Severe O	O
Type		
	Continuos O	O
	Occasional O	O
	Colíky O	O
	Other _____	_____
	_____	_____

Figure 17: *First page of blank intake and findings form for IUD-prolapse study, no date.* APS Papers.



Pre - Insertion — 2 — Post - Insertion

Leucorrhea color
amount: Scanty ○ ○ / Mild. ○ ○ / Moderate ○ ○ / Heavy ○ ○
Nature: Fetid ○ ○ / Hethy ○ ○

Coitus painfull Hemmorahage
Spotting ○ ○ / Mild. ○ ○ / Moderate ○ ○ / Heavy ○ ○
Duration: Hours ○ ○ / Days ○ ○ / Weeks ○ ○

Laboratory WBC _____ _____
Sad Note _____ _____
Pap. _____ _____
Endom. Biopsy ___ _____
_____ _____

Summary of Pre Insertion Findings
Cystocele _____
Rectocele _____
Enterocele _____
Cervix _____
_____
_____
Fundus _____
_____
_____
_____
Position of uterus _____
_____
Prolapse _____
Other _____

Description of Gross Findings at Operation

Sections Taken

Pathological Report

Figure 18: *Second page of blank intake and findings form for IUD-prolapse study, no date.* APS Papers.

BIBLIOGRAPHY

BIBLIOGRPAHY

ARCHIVAL PAPERS

Adaline Pendleton Satterthwaite Papers. Sophia Smith Collection. Smith College. Northampton, Massachusetts.

Annette B. Ramírez de Arellano Collection. Colleciones Especiales. Biblioteca Conrado F. Asenjo. Universidad de Puerto Rico—Recinto Ciencias Médicas. San Juan, Puerto Rico.

Clarence Gamble Papers (Digitized). Center for the History of Medicine. Francis A. Countway Library of Medicine. Harvard University, Cambridge, Massachusetts. https://collections.countway.harvard.edu/onview/files/original/3d96a84f0ca2605ae62af42f26acebd5.jpg

Compañía de Fomento Industrial de Puerto Rico (Unprocessed). Archivo General de Puerto Rico. Instituto de Cultura Puertorriqueña. San Juan, Puerto Rico.

Edris Rice-Wray Oral History. Sophia Smith Collection. Smith College. Northampton, Massachusetts.

Margaret Sanger Papers (Unfilmed). Sophia Smith Collection. Smith College. Northampton, Massachusetts.

Oficina del Gobernador, Tarea 96-20, Parte 2. Archivo General de Puerto Rico. Instituto de Cultura Puertorriqueña. San Juan, Puerto Rico.

Sección V: Luis Muñoz Marín, Gobernador de Puerto Rico (1949-1964). Archivo Historíco. La Fundación Luis Muñoz Marín. Trujillo Alto, Puerto Rico.

ORGANIZATIONAL AND PERSONAL PAPERS

Kelly Saxberg's Personal Records of Research for *The Pill*. New York: Women Make Movies, 1999.

Organizational Records of Asociación Puertorriqueña Pro Bienestar de las Familias, Clínica Celestina Zalduondo, San Juan, Puerto Rico.

The Population Council Annual Report for the Year Ended December 31, 1961. New York: The Population Council Administrative Offices, 1961.

The Population Council Annual Report for the Year Ended December 31, 1964. New York: The Population Council Administrative Offices, 1964.

The Population Council Annual Report for the Year Ended December 31, 1965. New York: The Population Council Administrative Offices, 1965.

PERSONAL CONVERSATION

Ana María García. Conversation with Kathryn D. Lankford. December 21, 2016. Notes.

INTERVIEWS, NOT CONDUCTED BY AUTHOR

Adaline Pendleton Satterthwaite. Family Planning Oral History Project Interviews, 1973-1977. Interview XX. Schlesinger Library on the History of Women in America. Radcliffe Institute for Advanced Study. Transcript.

Ana Delia Reyes. Interview by Kelly Saxberg. 1998. Transcript.

Diana Frances Marcano. Interview by Kelly Saxberg. 1998. Transcript.

Elsa Robles. Interview by Kelly Saxberg. 1998. Transcript.

Marcolina Rojas Reyes. Interview by Kelly Saxberg. 1998. Transcript.

Pura Clarevol. Interview by Kelly Saxberg, 1998. Transcript.

FILMS

Buffie, Erna and Elise Swerhone, dirs. *The Pill*. New York: Women Make Movies, 1999. DVD.

García, Ana María, dir. *La Operación*. New York: Latin American Film Project, 1982. DVD.

Roots of Happiness, presented by Department of Health—Puerto Rico. New York: Sun Dial Films Inc., 1953. http://resource.nlm.nih.gov/101685926.

PUBLISHED REPORTS, ARTICLES, PRESENTATIONS, AND SPEECHES

Arandes, Eduardo, Rafael Ramirez-Weiser, and A.P. Satterthwaite. "Study of Tissue Reaction in Hysterectomy Specimens Removed After Insertion of Intrauterine Contraceptive Devices." In *Proceedings of Intra-Uterine Contraception: The Second International Conference*, edited by S.J. Segal, A.L. Southman, and K.D. Shafer, 232-233. Amsterdam: Excerpta Medica Foundation, 1965.

Cebollero, Angeles and María E. Díaz. "Action Research as a Method in Public Health Education." *American Journal of Public Health* 47, no. 10 (October 1957): 1265-1268.

Cofresí, Emilio. *Maltusianismo o Neomaltusianismo: Nuestro Gran Problema*. San Juan, PR: Editorial Cultural, 1968.

Cook, Hale H. Clarence J. Gamble, and Adaline Pendleton Satterthwaite. "Oral Contraception by Norethynodrel." *American Journal of Obstetrics and Gynecology* 82, no. 2 (August 1961): 437-445.

García, C.R., A. Pendleton Satterthwaite, and G. Pincus. "Contraception Using Oral Progestin-Estrogen Medication." *Addendum to Proceedings of the Seventh International Conference on Planned Parenthood* (February 10-16, 1963): 3-7.

Hansen, Millard. "The Family in Puerto Rico Research Project." In *Approaches to Problems of High Fertility in Agrarian Societies: Papers Presented at the 1951 Annual Conference of the Millbank Memorial Fund*, foreword by Frank G. Boudrea and Clyde V. Kiser, 53-57. New York: Millbank Memorial Fund, 1952.

Hill, Reuben, J. Mayone Stycos, and Kurt W. Back. *The Family and Population Control: A Puerto Rican Experiment in Social Change*. Chapel Hill, NC: The University of North Carolina Press, 1959.

Lube, Catalina and Angeles Cebellero. "Puerto Rico Launches an Island-Wide Program of Health Education." *The High School Journal* 30, no. 3 (May 1947): 129-130.

Muñoz Marín, Luis. "The Commonwealth of Puerto Rico-A House of Goodwill." Speech, Annual Convention of the International Ladies Garment Workers' Union. Atlantic City, New Jersey. May 18, 1956.

Nine Curt, José. "Puerto Rico." In *Family Planning and Population Programs: A Review of World Developments*, edited by Bernard Berelson and Sheldon J. Segal, 229-231. Chicago: The University of Chicago Press, 1965.

Pincus, Gregory, Celso R. García, John Rock, Manuel Paniagua, Adaline Pendleton, Felix Laraque, Rene Nicolas, Raymond Borno, and Vergniaud Pean. "Effectiveness of an Oral Contraceptive," *Science* 130, no. 3367 (July 1959): 81-83.

Pincus, Gregory, John Rock, and Celso R. García. "Field Trials with Norethynodrel as an Oral Contraceptive." In *Proceedings of the Sixth International Conference on Planned Parenthood: Family Planning, Motivations and Methods* (February 14-21, 1959): 216-230.

Pincus, Gregory, John Rock, Celso-Ramón García, Edris Rice Wray, Manuel Paniagua, and Iris Rodríguez. "Fertility Control with Oral Medication." *American Journal of Obstetrics and Gynecology* 75 (June 1958): 1333-1346.

Rice-Wray, Edris, Cristina Avila, and Juvenal Gutiérrez. "Norgestrel and Ethynyl Estradiol: A New Low-Dosage Oral Agent for Fertility Control. "*Obstetrics & Gynecology* 31, no. 3 (March 1968): 368-374.

Rice-Wray, Edris, Héctor Márquez-Monter, Jaime Gorodovsky. "Chromosomal Studies in Children Born to Mothers Who Previously Used Hormonal Contraceptives: A Preliminary Report." *Contraception* 1, no. 1 (January 1970): 81-85.

Rice-Wray, Edris. "Field Study with Enovid as a Contraceptive Agent." In *Proceedings of a Symposium on 19-Nor Progestational Steroids*, foreword by Irwin C. Winter, 78-85. Chicago: Searle Research Laboratories, 1957.

Rice-Wray, Edris. “The Provoked Abortion—A Major Public Health Problem.” *American Journal of Public Health*, 54, no .2 (February 1964): 313-321.

Satterthwaite, Adaline P. “A Comparative Study of Low Dosage Oral Contraceptives.” *Proceedings of the First International Symposium on Ortho-Novum* (April 22, 1964): 6-14.

Satterthwaite, Adaline P. “Experience with Intra-Uterine Devices in Puerto Rico.” *Caribbean Medical Journal* 27, no.1 (1964): 92-100.

Satterthwaite, Adaline P. “Experience with Oral and Intrauterine Contraception in Rural Puerto Rico.” In *Public Health and Population Change*, edited by. Mindel C. Sheps and Jeanne Clare Ridley, 474-480. Pittsburgh: University of Pittsburgh Press, 1965.

Satterthwaite, Adaline P. “Oral Contraceptives.” In *Family Planning and Population Programs: A Review of World Developments*, edited by Bernard Berelson and Sheldon J. Segal, 411-424. Chicago: The University of Chicago Press, 1965.

Satterthwaite, Adaline P. “Progress Report on Intra-Uterine Devices (November, 1962 to January, 1963).” *Proceedings of the Seventh International Conference on Planned Parenthood* (February 10-16, 1963): 416-421.

Satterthwaite, Adaline P. “The Role of Antepartum and Postpartum Education in Maternal Health.” *The Journal of the American Medical Women’s Association* 20, no. 8 (August 1965): 738-742.

Satterthwaite, Adaline P., Eduardo Arandes, and Maria E. Negron. “Experience with Intra-Uterine Devices in Puerto Rico.” In *Proceedings of Intra-Uterine Contraception: The Second International Conference*, edited by S.J. Segal, A.L. Southman, and K.D. Shafer, 76-81. Amsterdam: Excerpta Medica Foundation, 1965.

Satterthwaite, Adaline Pendleton and Clarence J. Gamble. “Conception Control with Norethynodrel.” *Journal of the American Medical Women’s Association* 17 (1962): 802-807.

Stycos, J. Mayone. *Family and Fertility in Puerto Rico*. New York: Columbia University Press, 1955.

Tyler, Edward T. “Eight Years’ Experience with Oral Contraception and an Analysis of Use of Low-dosage Norethisterone.” *British Medical Journal* 2 (October 1964): 843-847.

Winter, Irwin C. “Foreword.” In *Proceedings of a Symposium on 19-Nor Progestational Steroids*, foreword by Irwin C. Winter, 1. Chicago: Searle Research Laboratories, 1957.

Zalduondo, Celestina. “A Family Planning Program Using Volunteers as Health Educators.” *America Journal of Public Health* 54, no. 2 (February 1964): 301-307.

Zalduondo, Celestina. “Extensive Use of the Volunteer in a Family Planning Program.” Paper presented at the Third Regional Conference of the International Planned Parenthood Federation—Western Hemisphere Region, Barbados, West Indies. April 20, 1961.

DISSERTATIONS

Lugo Ortiz, María de Lourdes. “Sterilization, Birth Control, and Population Control: The News Coverage of *El Mundo*, *El Imparcial*, and *Claridad.*” PhD diss., University of Wisconsin-Madison, 1994.

ARTICLES

Bourbonnais, Nicole C. “Population Control, Family Planning, and Maternal Health Networks in the 1960s/1970s: Diary of an International Consultant.” *Bulletin of the History of Medicine* 93, no. 3 (Fall 2019): 335-364.

Charon, Rita. “Doctor-Patient/Reader-Writer: Learning to Find the Text.” *Soundings: An Interdisciplinary Journal* 72, no. 1 (April 1, 1989): 137–152.

Chatterjee, Nilanjana and Nancy E. Riley. “Planning an Indian Modernity: The Gendered Politics of Fertility Control.” *Signs* 26, no. 3 (Spring 2001): 811-845.

Cho, Sumi, Kimberlé Crenshaw, and Leslie McCall. “Toward a Field of Intersectionality Studies: Theory, Applications, and Praxis.” *Signs* 38, no. 4 (Summer 2013): 785-810

Collins, Patricia Hill. “Intersectionality’s Definitional Dilemmas.” *Annual Review of Sociology* 41 (March 2015): 1-20.

Fernández, Delia. “Becoming Latino: Mexican and Puerto Rican Community Formation in Grand Rapids, Michigan, 1926-1964.” *Michigan Historical Review* 39, no. 1 (Spring 2013): 71-100.

Fernández, Delia. “Rethinking the Urban and Rural Divide in Latino Labor, Recreation, and Activism in West Michigan, 1940s-1970s.” *Labor History* 57, no. 4 (Oct. 2016): 482-503.

Fisher, Jill A. “'Ready-to-Recruit' or 'Ready-to-Consent' Populations?: Informed Consent and the Limits of Subject Autonomy.” *Qualitative Inquiry* 13 no. 6 (September 2007): 875-894.

Gabriel, Joseph M. “Pharmaceutical Patenting and the Transformation of American Medical Ethics.” *The British Journal for History of Science* 49, no. 4 (December 2016): 577-600.

Hartmann, Heidi. “Capitalism, Patriarchy, and Job Segregation by Sex.” *Signs* 1, no. 3 (Spring 1976): 137-169.

Haslett, Diana C. “Hull House and the Birth Control Movement: An Untold Story.” *Affilia: Journal of Women and Social Work* 12, no. 3 (Fall 1997): 261-277.

Junod, Suzanne White and Lara Marks, "Women's Trials: The Approval of the First Oral Contraceptive Pill in the United States and Great Britain." *Journal of the History of Medicine and Allied Sciences* 57, no. 2 (April 2002): 117-160.

Lapp, Michael. "The Rise and Fall of Puerto Rico as Social Laboratory, 1945-1965." *Social Science History* 19, no. 2 (Summer 1995): 169-199.

Lippes, Jack. "The Making of the First Loop." *American Journal of Obstetrics and Gynecology* 219, no. 2 (August 2018), 203-206.

Löwry, Ilana. "'Sexual Chemistry' before the Pill: Science, Industry, and Chemical Contraceptives, 1920-1960." *The British Journal for the History of Science* 44, no. 2 (June 2011): 245-274.

MacPherson, Anne S. "Birth of the U.S. Colonial Minimum Wage: The Struggle over the Fair Labor Standards Act in Puerto Rico, 1938–1941." *Journal of American History* 104, no. 3 (December 2017): 656-680.

Meldrum, Marcia L. "'Simple Methods' and 'Determined Contraceptors': The Statistical Evaluation of Fertility Control, 1957-1968." *Bulletin of the History of Medicine* 70, no. 2 (Summer 1996): 266-295.

Morris, Norma and Brian Bàlmer. "Volunteer Human Subjects' Understandings of Their Participation in a Biomedical Research Experiment." *Social Science & Medicine* 62, no. 4 (February 2006): 998-1008.

Necochea López, Raúl. "Gambling on the Protestants: The Pathfinder Fund and Birth Control in Peru, 1958-1965" *Bulletin of the History of Medicine* 88, no. 2 (Summer 2014): 344-371

Nik-Khah, Edward. "Neoliberal Pharmaceutical Science and the Chicago School of Economics." *Social Studies of Science* 44, no. 4 (Augusr 2014): 489-517.

Oram, Matthew. "Efficacy and Enlightenment: LSD Psychotherapy and the Drug Amendments of 1962." *Journal of the History of Medicine and Allied Sciences* 69, no. 2 (April 2014): 221-250.

Oreskes, Naomi. "Objectivity or Heroism? On the Invisibility of Women in Science." *Osiris* 11, no. 1 (1996): 87-113.

Ríos, Palmira N. "Export-Oriented Industrialization and the Demand for Female Labor: Puerto Rican Women in the Manufacturing Sector, 1952-1980." *Gender and Society* 4, no. 3 (Sept. 1990): 321-337.

Soto Laveaga, Gabriela. "*Largo dislocare:* Connecting microhistories to remap and recent histories of scienc*e." History and Technology* 34, no. 1 (September 2018), 21-30.

Wolfe, Joel. "'Father of the Poor' or 'Mother of the Rich'? Getúlio Vargas, Industrial Workers, and Constructions of Class, Gender, and Populism in Sao Paulo, 1930–1954." *Radical History Review*, no. 58 (1994): 80–111.

BOOK CHAPTERS

Duany, Jorge. "¿Modernizar la Nación o Nacionalizar la Modernidad? Las Ciencias Sociales en la Universidad de Puerto Rico durante la Década de 1950." In *Frente a La Torre: Ensayos del Centenario de la Universidad de Puerto Rico, 1903-2003*, edited by Silvia Alvarez Curbelo and Carmen Rafucci, 176-207. San Juan, PR: La Editorial Universidad de Puerto Rico, 2005.

Fissell, Mary. "The Doctor-Patient Relationship." In *The Cambridge History of Medical Ethics*, edited by Robert Baker and Lawrence McCullough, 501-17. Cambridge, UK: Cambridge University Press, 2009.

Gallart, Mary Frances. "Political Empowerment of Puerto Rican Women, 1952-1956." In *Puerto Rican Women's History: New Perspectives*, edited by Felix Matos-Rodriguez and Linda Delgado, 227-252. Armonk, NY: M.E. Sharp, 1998.

Goodman, Jordan, Anthony McElligot, and Lara Marks. "Making Human Bodies Useful: Historicizing Medical Experimentation in the Twentieth Century." In *Useful Bodies: Humans in Service of Medical Science in the Twentieth Century*, edited by Jordan Goodman, Anthony McElligot, and Lara Marks, 1-23. Baltimore: The John Hopkins University Press, 2003.

Marchand, Julia Carmen. "Su Obra Pro Pienestar de la Familia." in *Celestina Zalduondo: Su Vida y Su Obra Profesional,* edited by Colegio de Trabajadores Sociales de Puerto Rico, 29-31. Río Piedras, Puerto Rico: Colegio de Trabajadores Sociales de Puerto Rico.

Marks, Lara. "A 'Cage of Ovulating Females': The History of the Early Oral Contraceptive Pill Clinical Trials, 1950-1959." In *Molecularizing Biology and Medicine: New Practices and Alliances, 1920s-1970s*, edited by Soraya de Chadarevian and Harmke Kamminga, 221-247. Amsterdam: Harwood Academic Publishes, 1998.

Oudshoorn, Nelly. "The Decline of the One-Size-Fits-All Paradigm, or, How Reproductive Scientists Try to Cope With Postmodernity." In *Between Monsters, Goddesses, and Cyborgs: Feminist Confrontations with Science, Medicine, and Cyberspace*, edited by Nina Lykke and Rosi Braidotti, 153-172. London: Zed Books, 1996.

Pérez-Herranz, Carmen A. "Our Two Full-Time Jobs: Women Garment Workers Balance Factory and Domestic Demands in Puerto Rico." In *Puerto Rican Women and Work: Bridges in Transnational Labor*, edited by Altagracia Ortiz, 139-160. Philadelphia: Temple University Press, 1996.

Soto Laveaga, Gabriela. "The Conquest of Molecules: Wild Yams and American Scientists in Mexican Jungles." In *Colonial Crucible: Empire in the Modern American State*, edited

by Alfred W. McCoy and Francisco A. Scarano, 307-316. Madison, WI: University of Wisconsin Press, 2009.

BOOKS

Acosta-Belén, Edna. *The Puerto Rican Woman: Perspectives on Culture, History, and Society*. Second Edition. New York: Praeger, 1986.

Anderson, Warwick. *The Collectors of Lost Souls: Turning Kuru Scientists into Whitemen.* Baltimore: The John Hopkins University Press, 2008.

Arbona, Guillermo and Annette B. Ramírez de Arellano. *Regionalization of Health Services: The Puerto Rican Experience*. Oxford, UK: Oxford University Press, 1978.

Arbona, Guillermo. *Memorias: Periplo Profesional de un Arquitecto de la Salud Pública en Puerto Rico*. San Juan, PR: La Editorial Universidad de Puerto Rico, 2007.

Ayala, César J. and Rafael Bernabe. *Puerto Rico in the American Century: A History Since 1898*. Chapel Hill: The University of North Carolina Press, 2007.

Baker, Jean H. *Margaret Sanger: A Life of Passion*. New York: Hill and Wang, 2011.

Berelson, Bernard and Sheldon J. Segal, editors. *Family Planning and Population Programs: A Review of World Developments*. Chicago: The University of Chicago Press, 1965.

Birn, Anne-Emanuelle and Raúl Necochea López, editors. *Peripheral Nerve: Health and Medicine in Cold War Latin America*. Durham, NC: Duke University Press, 2020.

Bourbonnais, Nicole C. *Birth Control in the Decolonizing Caribbean, 1930-1970*. New York: Cambridge University Press, 2016.

Briggs, Laura. *Reproducing Empire: Race, Sex, Science, and U.S. Imperialism in Puerto Rico.* Berkeley: University of California Press, 2002.

Chesler, Ellen. *Woman of Valor: Margaret Sanger and the Birth Control Movement in America*. New Afterword Edition. New York: Simon & Schuster Paperbacks, 2007.

Clark, Adele E. *Disciplining Reproduction: Modernity, American Life Sciences, and "the Problems of Sex*." Berkeley: University of California Press, 1998.

Cobble, Dorothy Sue. *The Other Women's Movement*: *Workplace Justice and Social Rights in Modern America.* Princeton, NJ: Princeton University Press, 2004.

Connelly, Matthew. *Fatal Misconception: The Struggle to Control World Population.* Cambridge, Mass.: The Belknap Press of Harvard University Press, 2009.

Córdova, Isabel M. *Pushing in Silence: Modernizing Puerto Rico and the Medicalization of Childbirth*. Austin, TX: University of Texas Press, 2017.

Curtis, Sarah A. *Civilizing Habits: Women Missionaries and the Revival of French Empire.* Oxford, UK: Oxford University Press, 2010.

Denis, Nelson A. *War Against All Puerto Ricans: Revolution and Terror in America's Colony.* New York: Nation Books, 2015.

Duany, Jorge. *The Puerto Rican Nation on the Move: Identities on the Island and in the United States.* Chapel Hill, The University of North Carolina Press, 2002.

Elena, Eduardo. *Dignifying Argentina: Peronism, Citizenship, and Mass Consumption.* Pittsburgh: University of Pittsburgh Press, 2011.

Escobedo, Elizabeth R. *From Coveralls to Zoot Suits: The Lives of Mexican American Women on the World War II Home Front.* Chapel Hill: The University of North Carolina Press, 2013.

Fernández, Johanna. *The Young Lords: A Radical History*. Chapel Hill: The University of North Carolina Press, 2020.

Fields, Armond. *Katharine Dexter McCormick: Pioneer for Women's Rights*. Westport, Conn.: Praeger, 2003.

Findlay, Eileen J. Suárez. *We Are Left Without A Father Here: Masculinity, Domesticity, and Migration in Postwar Puerto Rico.* Durham, NC: Duke University Press, 2014.

Godreau, Isar. *Scripts of Blackness: Race, Cultural Nationalism, and U.S. Colonialism in Puerto Rico*. Urbana, IL: University of Illinois Press, 2015.

Gonzalez, Juan. *Harvest of Empire: A History of Latinos in America*. Revised Edition. New York: Penguin Books, 2011.

Gordon, Linda. *Pitied But Not Entitled: Single Mothers and the History of Welfare*. Cambridge, MA: Harvard University Press, 1994.

Gordon, Linda. *The Moral Property of Women: A History of Birth Control Politics in America*. Illinois Paperback Edition. Urbana, IL: University of Illinois Press, 2007.

Hajo, Cathy Moran. *Birth Control on Main Street: Organizing Clinics in the United States, 1916-1939*. Urbana, IL: University of Illinois Press, 2010.

Harvey, Elizabeth. *Women and the Nazi East: Agents and Witnesses of Germanization*. New Haven, Conn.: Yale University Press, 2005.

Hegarty, Marilyn E. *Victory Girls, Khaki-Wackies, and Patriotutes: The Regulation of Female Sexuality during World War II*. New York: New York University Press, 2008.

Huisman, Frank and John Harley Warner, editors. *Locating Medical History: the Stories and their Meanings*. Baltimore: The John Hopkins University Press, 2004.

James, Daniel. *Doña María's Story: Life, History, Memory, and Political Identity*. Durham, NC: Duke University Press, 2000.

Johnson, Joan Marie. *Funding Feminism: Monied Women, Philanthropy, and the Women's Movement, 1870*-1967. Chapel Hill: The University of North Carolina Press, 2017.

Kampwirth, Karen, editor. *Gender and Populism in Latin America: Passionate Politics.* University Park, PA: Penn State University Press, 2010.

Kelly, William J. *A Cost-Effectiveness Study of Clinical Methods of Birth Control: With Special Reference to Puerto Rico*. New York: Praeger Publishers, 1971.

Kessler-Harris, Alice. *A Woman's Wage: Historical Meanings and Social Consequences*. Updated Edition. Lexington, KY: University Press of Kentucky, 2014.

Kessler-Harris, Alice. *In Pursuit of Equity: Women, Men, and the Quest for Economic Citizenship in 20th-Century America*. Oxford, UK: Oxford University Press, 2001.

Kleinman, Arthur. *The Illness Narratives: Suffering, Healing, And The Human Condition.* New York: Basic Books, 1989.

Koikari, Mire. *Pedagogy of Democracy: Feminism and the Cold War in the U.S. Occupation of Japan*. Philadelphia: Temple University Press, 2008.

Kristeva, Julia. *Powers of Horror: An Essay on Abjection*. Translated by Leon S. Roudiez. Reprint Edition. New York, NY: Columbia University Press, 1982.

Lederer, Susan E. *Subjected to Science: Human Experimentation in America Before the Second World War*. Baltimore: The John Hopkins University Press, 1995.

Lindee, M. Susan. *Suffering Made Real: American Science and the Survivors at Hiroshima*. Chicago: The University of Chicago Press, 1994.

López, Iris. *Matters of Choice: Puerto Rican Women's Struggle for Reproductive Freedom*. New Brunswick, NJ: Rutgers University Press, 2008.

Ludmerer, Kenneth M. *Let Me Heal: The Opportunity to Preserve Excellence in American Medicine.* Oxford, UK: Oxford University Press, 2015.

Ludmerer, Kenneth M. *Time to Heal: American Medical Education From the Turn of the Century to the Era of Managed Care*. Oxford, UK: Oxford University Press, 1999.

Maldonado, A.W. *Luis Muñoz Marín: Puerto Rico's Democratic Revolution*. San Juan, PR: La Editorial Universidad de Puerto Rico, 2006.

Maldonado, A.W. *Teodoro Moscoso and Puerto Rico's Operation Bootstrap*. Gainesville, FL: University Press of Florida, 1997.

Marks, Harry M. *The Progress of Experiment: Science and Therapeutic Reform in the United States, 1900-1990*. Cambridge, UK: Cambridge University Press, 1997.

Marks, Lara V. *Sexual Chemistry: A History of the Contraceptive Pill*. New Preface Edition. New Haven, CT: Yale University Press, 2010.

Marsh, Margaret and Wanda Ronner. *The Fertility Doctor: John Rock and the Reproductive Revolution*. Baltimore: The John Hopkins University Press, 2008.

McCann, Carole R. *Birth Control Politics in the United States, 1916-1945*. Ithaca, NY: Cornell University Press, 1994.

McClintock, Anne. *Imperial Leather: Race, Gender and Sexuality in the Colonial Contest*. New York: Routledge, 1995.

McEuen, Melissa A. *Making War, Making Women: Femininity and Duty on the American Home Front, 1941-1945.* Athens, GA: The University of Georgia Press, 2011.

McLaughlin, Loretta. *The Pill, John Rock, and the Church: The Biography of a Revolution.* Boston: Little, Brown, and Company, 1982.

More, Ellen S. *Restoring the Balance: Women Physicians and the Profession of Medicine, 1850-1995*. Cambridge, MA: Harvard University Press, 1999).

Nelson, Jennifer. *Women of Color and the Reproductive Rights Movement*. New York: New York University Press, 2003.

Norgren, Tiana. *Abortion Before Birth Control: The Politics of Reproduction in Postwar Japan*. Princeton, NJ: Princeton University Press, 2001.

Olcott, Jocelyn H. *Revolutionary Women in Postrevolutionary Mexico*. Durham, NC: Duke University Press, 2005.

Oudshoorn, Nelly. *Beyond the Natural Body: An Archaeology of Sex Hormones.* New York: Routledge, 1994.

Pantojas-García, Emilio. *Development Strategies as Ideology: Puerto Rico's Export-Led Industrialization Experience*. Boulder, CO: Lynne Rienner Publishers, Inc., 1990.

Presser, Harriet B. *Sterilization and Fertility Decline in Puerto Rico*. Greenwood Press Edition. Westport, Conn.: Greenwood Press Publishers, 1976.

Ramírez de Arellano, Annette B. and Conrad Seipp. *Colonialism, Catholicism, and Contraception: A History of Birth Control in Puerto Rico.* Chapel Hill: The University of North Carolina Press, 1983.

Reed, James. *From Public Vice to Public Virtue: The Birth Control Movement and American Society.* Princeton: Princeton University Press, 1984.

Reverby, Susan and David Rosner. *Health Care in America: Essays in Social History.* Philadelphia: Temple University Press, 1979.

Rock, John. *The Time Has Come: A Catholic Doctor's Proposal to End the Battle Over Birth Control*. New York: Alfred A. Knopf, Inc., 1963.

Rosemblatt, Karin Alejandra. *Gendered Compromises: Political Cultures and the State in Chile, 1920-1950*. Chapel Hill: The University of North Carolina Press, 2000.

Rothman, David J. *Strangers at the Bedside: A History of How Law and Bioethics Transformed Medical Decision Making*. New York: Basic Books, 1991.

Schoen, Johanna. *Choice & Coercion: Birth Control, Sterilization, and Abortion in Public Health and Welfare*. Chapel Hill: The University of North Carolina Press, 2005.

Scott, James C. *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed*. New Haven, CT: Yale University Press, 1998.

Serlin, David. *Replaceable You: Engineer the Body in Postwar America*. Chicago: University of Chicago Press, 2004.

Smith, John A. *Hospital Ryder Memorial: Relato de un Ministerio de Salud.* Humacao, Puerto Rico: Hospital Ryder, 1989.

Solinger, Rickie. *Pregnancy and Power: A Short History of Reproductive Politics in America.* New York: New York University Press, 2005.

Soto Laveaga, Gabriela. *Jungle Laboratories: Mexican Peasants, National Projects, and the Making of the Pill*. Durham: Duke University Press, 2009.

Speroff, Leon. *A Good Man Gregory Goodwin Pincus: The Man, His Story, The Birth Control Pill*. Portland, OR: Arnica Publishing, Inc., 2009.

Stoler, Ann Laura, Carole McGranahan, and Peter C. Perdue, editors. *Imperial Formations*. Santa Fe: School for Advanced Research Press, 2007.

Takeshita, Chikako. *The Global Biopolitics of the IUD: How Science Constructs Contraceptive Users and Women's Bodies*. Cambridge, Mass.: The MIT Press, 2012.

Tone, Andrea. *Devices and Desires: A History of Contraceptives in America*. New York: Hill and Wang, 2001.

Tyler May, Elaine. *America and the Pill: A History of Promise, Peril, and Liberation*. New York: Basic Books, 2010.

Tyler May, Elaine. *Homeward Bound: American Families in the Cold War*. 20th Anniversary Edition. New York: Basic Books, 2008.

Watkins, Elizabeth Siegel. *On the Pill: A Social History of Oral Contraceptives, 1950-1970*. Baltimore: The John Hopkins University Press, 1998.

Weisz, George. *Divide and Conquer: A Comparative History of Medical Specialization*. Oxford, UK: Oxford University Press, 2006.