



THESIS

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A CONTENT ANALYSIS OF MEDICAL NEWS IN FOUR METROPOLITAN DAILIES

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Diane Starr Petryk

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A CONTENT ANALYSIS OF MEDICAL NEWS IN FOUR METROPOLITAN DAILIES

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By

Diane Starr Petryk

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A THESIS

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

MASTER OF ARTS

School of Journalism

ABSTRACT

A CONTENT ANALYSIS OF MEDICAL NEWS IN FOUR METROPOLITAN DAILIES

By

Diane Starr Petryk

The purpose of this study was to examine the content of medical news in a sample of the largest circulation American metropolitan daily newspapers for 1967-68, 1971-72, and 1977-78. It was intended to check the validity of frequent criticisms made about medical news reporting. The criticism that medical news is presented as a series of dramatic breakthroughs exaggerating research results and advancements proved to be unfounded. Of 336 medical articles in the sample, only five described medical breakthroughs. Criticism that medical news is prepared by passive reporters unquestioningly accepting press releases and information handouts could not be disproved. Analysis of data indicated over 50 percent of medical news stories originated with little or mild reporter initiative. This is dedicated to my father, who loved science and truth, and my mother who worked with him to make my education possible.

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CHAPTER I

INTRODUCTION

No mariner ever entered upon a more uncharted sea than does the average human being born in the 20th Century. Our ancestors knew their way from birth to eternity. We are troubled about the day after tomorrow.

--Walter Lippmann

In 1960, the President's Science Advisory Committee laid a heavy burden on the country's mass communication system. It placed upon it the responsibility for adult education in science, which, it said, a democratic citizenry must understand for intelligent participation in national decision-making.

"Such decisions are being made now," the Committee noted. "They cannot be postponed for 20 years while we are improving our present educational system. . . ."¹

As 1980 nears, an attempt can be made to assess the mass media's effectiveness in carrying out its assigned role of science educator to the public. Science writers and critics of science reporting insist that the press has failed in this function. They say it has failed in allowing crises related to energy, the

¹John Troan, "Science Reporting--Today and Tomorrow," <u>Science</u> 131 (April 22, 1960): 1193.

environment and bio-medical research catch us unprepared politically, legally and humanistically.

Whether science writers could have prevented any of these crises is debatable, but there is no doubt that science writers fulfill a vital need.

Evidence demonstrates that science and medical writing in newspapers serves a powerful alerting function, making it possible for longer term "educational" processes to take hold.² Science writing has been shown to have an impact on attitudes and behavior.³

Since the public gets a major portion of its science information from the print media,⁴ the science writer and science news editor serve as powerful gatekeepers. How well they perform their duties determines to a significant extent the quantity and quality of science information transmitted to the public.

In 1965, Turner Catledge, executive editor of the <u>New York</u> <u>Times</u>, stated that, while political and economic reporting will always be important, "today the major assignment above all others is science."⁵

⁴Ubell, p. 294.

⁵Victor Cohn, "Are We Really Telling the People About Science?" <u>Science</u> 148 (May 7, 1965): 750.

²Earl Ubell, "Science in the Press: Newspapers vs. Magazines," <u>Journalism Quarterly</u> 40 (Summer 1963): 297.

³Charles F. Cannell and James C. MacDonald, "The Impact of Health News on Attitudes and Behavior," <u>Journalism Quarterly</u> 33 (Summer 1956): 315-323.

Other journalists have expressed the opinion that political and economic decision-making today is in itself primarily a response to the pressing and bewildering advances of science and technology and the social changes they work. If so, it is the science writers' job to put the knowledge of various scientific disciplines together plainly, coherently and effectively, so that the general public can understand what is happening in science and technology and respond to preserve our democratic ideals, our society, our families and our lives.

This thesis is an effort to scrutinize a portion of the science news output of the American press, with particular attention to the reporting and writing practices for which it has been most criticized. These include exaggerated claims for discoveries, sensationalizing, over-reliance on press releases and information handouts, superficial coverage and others.

Although science news is the broad area of concern, this study is limited to medical news for a number of reasons. First, it has been said that 80 percent of the stories that make up what are called science stories are actually about medical matters.⁶ Medical news relates to all humans alike and is likely to have broader appeal and greater emotional impact than any other type of science news.

⁶William R. Oates, "Social and Ethical Content in Science Coverage by Newsmagazines," <u>Journalism Quarterly</u> 50 (Winter 1973): 681.

The mass media view of science is predominantly one concerned with the ills and aches, the mending and fixings of man's sick body and mind, in the view of E. G. Sherburne Jr., director of Studies on the Public Understanding of Science for the American Association for the Advancement of Science. He states:

Medicine, I think, is popular for other reasons than the innate personal and human appeal. It is the practical science that has been with man the longest. The doctor, the practical artist of science, has lived among and been vitally associated with society for a longer period than any other of the practitioners or thinkers of science. Medicine is more completely incorporated into our thinking and general knowledge than any other kinds of scientific endeavor. And its pragmatic approach is easier to comprehend. Further, the doctor, by virtue of his professional role, is communicator to the "common" man.⁷

The reader of a news story telling about a new cure or medical discovery is likely to ask his doctor about it, or at least he will remember it. The same reader might ignore or easily forget an article on space exploration that has no obvious personal affect on him.

Finally, only medical articles were chosen for this study because they are more homogeneous, as a group, and therefore easier to define and select out.

It is hoped that the findings of this study will help point out areas of genuine concern in science writing and alleviate criticism in areas where it has been unjustified, together a step toward improvement of science news for the benefit of all humankind.

⁷E. G. Sherburne Jr., "Science on Television: A Challenge to Creativity," <u>Journalism Quarterly</u> 40 (Summer 1963): 304.

CHAPTER II

REVIEW OF THE LITERATURE

Science news began to concern us greatly about the same time classroom science began to concern educators--with the advent of Sputnik in 1957. Two surveys conducted by the National Association of Science Writers showed that year that many newspaper readers desired more science news, particularly on medical subjects, and they were willing to give up some other kind of news to make room for it.⁸

For whatever reason, in the early 1960s, publishers and editors began to give science news more space. At this time, according to Hillier Krieghbaum, author of <u>Science and the Mass</u> <u>Media</u> and chairman of the New York University Department of Journalism, science news reporting was the most rapidly expanding segment in the communications field.⁹

Of course, with expansion came criticism. As the rate of medical discovery increased, so did efforts to inform the general public. Physicians were the first to complain about what they felt

⁸Hillier Krieghbaum, "Bouquets and Boobytraps for Science Writers," <u>Nieman Reports</u> 13 (April 1960): 25.

⁹Hillier Krieghbaum, "Reporting Science Information through the Mass Media," <u>Journalism Quarterly</u> 40 (Summer 1963): 292.

was a tendency for reporters to rush into print with tales of medical "breakthroughs" before their legitimacy was confirmed.

In an article in <u>Medical Economics</u> in 1959, the doctors' objections were made clear. Physicians are often faced with patients who bring in newspaper clippings and ask: "Why don't you try this on me?" They feel this reflects negatively on their knowledge and judgment.¹⁰ They resent the lay newspaper reporter trespassing in their specialized area. This resentment is particularly keen when one considers the historic natures of the two professions. Reporters need to get news fast and first. Doctors have a long tradition of cultivated reticence over jumping to conclusions. They may be reluctant to talk to the press about an idea or discovery unless it is confirmed beyond a doubt or they may fear peer criticism if they give interviews. Thus it is commonplace to find that doctors and reporters are often at odds with each other over what should be presented to the public as medical news.

Reporters must encourage doctors and researchers to talk about their work, while at the same time guard against those who report their work over-enthusiastically. When this happens, doctors find more to criticize, generally under the heading of "raising false hopes."¹¹

As Kreighbaum noted in 1960, doctors and scientists feel they regularly read of important new "cures" for one disease or

¹⁰Lois R. Chevalier, "Do Science Writers Raise False Hopes?" <u>Medical Economics</u> 36 (April 1959): 69.

¹¹Ibid., p. 292.

another which often only amounts to the fact that high powered press releases are handed out by well-intentioned public relations representatives. Scientists are not only human, he wrote, some of them are actually publicity seekers.¹²

Also in the early 1960s, scientists, science writers and editors criticized the lack of space devoted to science news. So the science writer was in a double bind--accused of rushing into print too soon while being encouraged all the while to demand more of a share of the news hole.

Due to the space program, interest in science peaked and increases in the amount of coverage it received could be measured. But these increases brought to light new problems.

It was discovered, for instance, that instead of being a mediator between scientists and the public, "the mass media were introducing an apparently dissonant element." In a content analysis study of portrayals of mental illness by the mass media, conducted by the Mass Communications Research Center at the University of Wisconsin in 1963, the views of the public, the mental health experts and the mass media were compared. The experts and the public tended to agree in their conceptions of mental illness, whereas the mass media presented a different picture. The mass media featured the more bizzare, sordid and frivolous aspects of mental illness.¹³

¹²Krieghbaum, "Bouquets," p. 27.

¹³Percy H. Tannenbaum, "Communication of Science Information," <u>Science</u> 140 (May 10, 1963): 580.

In the same year another research effort showed that newspaper editors applied different criteria for judging the newsworthiness of science news than did scientists, science writers and the lay audience. This study showed that editors evaluated science news stories primarily on the basis of color and excitement, while groups of scientists, science writers and science news readers, as well as non-readers of science news, all emphasized accuracy and significance.¹⁴

In the two studies mentioned it can be seen that the gatekeepers seemed to be unaware of the public's desires in the field of science news.

Shortly after these studies were published, it was pointed out by science writers that requiring a news peg for every science story was in itself distorting news of science.) According to Howard Simons, winner of the American Association for the Advancement of Science's top writing award in 1964, his success would not have been possible if his paper, the <u>Washington Post</u>, had insisted on 'today' leads of news pegs for every story.¹⁵

The problem with requiring news pegs, events of immediacy with which to relate the facts one wishes to present, is that often the practice results in presentation of a fictitious picture.

¹⁴Kenneth G. Johnson, "Dimensions of Judgment of Science News Stories, <u>Journalism Quarterly</u> 40 (Summer 1963): 315.

¹⁵Caryl Rivers, "Good Reporters Make Best Science Writers," <u>Editor & Publisher</u> (January 23, 1965): 17.

As Simons stated:

I must assume that a report at a scientific meeting is a product of years of work. To write a story saying that 'X' was discovered today is a fiction. The today lead is something most of us do because we are still trapped in traditional ideas of newspapering. At a scientific meeting there may be hundreds of papers delivered, all of them important. There is no reason why we shouldn't pick up one of those papers three weeks later and do a story about it. But the traditional light bulb flashes on in our minds and says it's old if it's not hung up like a coat on a news peg.

The paper (the <u>Washington Post</u>) permits me to do the kinds of stories that excite me. If I want to do a story on the planet Jupiter I don't have to have a news peg to hang it on. It's my feeling that if we carry columns about chess and sports and comics strips, we ought to be able to write about science without a 'today' lead.¹⁶

At the same time attention was being focused on another form of distortion in science news reporting---due to what became known as the "breakthrough mentality."

Kreighbaum reported at a conference of reporters, scientists and physicians in 1964 that he had asked 10 Nobel Laureates: "What do you consider the major defects in present-day reporting of scientific and medical news in the mass media?" Replies indicated that among the top concerns was the feeling that "everything is referred to as a breakthrough" or a "major advance" or the "key to life."¹⁷ (Scientists acknowledged that this could be the fault of the scientist as well as the journalist and that reporters should be skeptical of what a scientist or doctor says of his own work.)

¹⁶Ibid.

¹⁷Rick Friedman, "Doctors and Reporters Treat Problems of Science in News," <u>Editor & Publisher</u> (March 20, 1965): 9.

Pierre C. Fraley, a former <u>Philadelphia Bulletin</u> science writer, agreed with criticism of the word "breakthrough." Its use, he explained at the same conference, grew from a "striving on the part of the reporter for both the editor's and reader's attention" and hopes for page one play.¹⁸

"Nobody," Fraley said, "can tell you what a really major breakthrough is. 'Breakthrough' is a military analogy, but science is not good versus evil nor the enemy versus the allies. It's all of mankind getting an insight into the world around us."¹⁹

Later the same year, Victor Cohn, former science writer for the <u>Minneapolis Tribune</u>, wrote in <u>Science</u>:

We over use a bagful of cliches like 'major breakthrough' and 'giant step forward.' I quote Turner Catledge . . . 'We have worn out our superlatives; we have spent our emotions; we have exhausted our imagination in the search for the exciting.' . . . Science is not just a series of breakthroughs, but a long, hard, and, today, expensive search.²⁰

We especially over-enthuse on medical "discoveries," Cohn wrote. Arthur J. Snider, former science writer for the <u>Chicago</u> <u>Daily News</u>, pointed out that he felt the record would show "90 percent" of the new drugs written about have gone down the drain as failures. Cohn wrote:

I think we all know this. We know that false hopes fill doctors' offices with sufferers who must be disappointed. We must report the truly important, but

¹⁸Ibid., pp. 9 and 46.
¹⁹Ibid., p. 46.
²⁰Cohn, p. 751.

we need to show more discrimination and moderation and to include qualifications early in the story. We need to know more about interpreting and sometimes questioning statistics.²¹

Eleven years later a "breakthrough mentality" on the part of reporters was still being criticized by scientists and science writers. And Daniel S. Greenberg, editor and publisher of <u>Science</u> <u>and Government Report</u>, added another complaint: that the science writer's attitude toward gathering science news is often one of passivity.

"He's waiting for some medical institution to summon him to announce some breakthrough," Greenberg said. "The fact is, too often there hasn't been a breakthrough at all."²²

Greenberg said the enterprise, initiative and skepticism typical of a good city hall reporter rarely can be found in reporters covering science. He said he doubted if editors would accept as much direct transmission of press releases from city hall reporters as they do breakthrough news announced by groups about to begin a fund drive to fight a disease.²³

Newspapers write too much of their science news in a translator role. They report science as though it's episodic when science news is out there all the time ready to be ferreted out and written. Every now and then something will surface. Psychic surgery for example or medical

²¹Ibid.

²²I. William Hill, "Reporters Urged to Stop Looking for Breakthroughs in Science," <u>Editor & Publisher</u> (March 27, 1976): 45.
²³Ibid. experiments on prisoners or when is someone dead. Newspaper reporters didn't have to wait for these subjects to surface. They could have been dug up at any time.²⁴

Greenberg, after checking back over newspaper-reported cancer cure breakthroughs over the past 20 years, and realizing they were not breakthroughs at all, urged newsmen to look back through their files to determine how many breakthroughs their newspapers had announced actually turned out to be genuine and significant. He called for as much attention to be given science as is given to the legislative process involving, say, an appropriations bill. He suggested that an uncooperative medical institution or hospital be given the same treatment as a non-cooperative city hall. His detailed account of how the press has been manipulated by misleading cancer statistics was published in 1975.²⁵

As bleak as the situation looked to Greenberg in 1976, indications were that science writing had improved. Eight years after Sputnik, in 1969, Krieghbaum noted many editors said they felt there had been considerable improvement in science reporting and coverage since that milestone of technological achievement. Even discounting space flight stories, the "quality of science news has surged upwards tremendously" one California editor wrote.²⁶ Minor complaints fell into the realm of too much use of science

²⁴Ibid.

²⁵Daniel S. Greenberg, "A Critical Look at Cancer Coverage," <u>Columbia Journalism Review</u> (January/February 1975): 40-44.

²⁶Hillier Krieghbaum, "At Sputnik Plus 8: More Science News," <u>Editor & Publisher</u> (October 30, 1965): 14. terminology particular to specific fields without explanation of them, articles too long or not enough science news the average reader can use. One editor wrote:

Space exploration accounts, Sealab, etc., are all very interesting as are detailed articles on laser development, heart-lung machines, and so forth. But there is very little directed at the readers' own activities in areas 27 where he has direct contact with scientific developments.

Then in 1969, Joye Patterson, then assistant professor in the University of Missouri School of Journalism, reported in <u>Journalism Quarterly</u> results of a survey of newspaper editors. Seventy-seven percent of those surveyed could report they were giving at least twice as much space to science as in the previous decade. But Patterson and colleagues wanted to find out who, if anyone, was reading these science articles and what they most wanted to read about.²⁸

Once again it was shown, as it was by Johnson and Tannenbaum, that editors were out of touch with the true wants of the public. One editor in the Patterson study, in selecting the material he thought his audience would want, rejected the material which was preferred by two-thirds of his participating subscribers.

According to Patterson, this finding gave some support to Tannenbaum's findings which suggested that it was the editor in his role as gatekeeper who was out of touch and that the scientist,

^{27&}lt;sub>Ibid</sub>.

²⁸Joye Patterson, Laurel Booth, and Russell Smith, "Who reads About Science?" <u>Journalism Quarterly</u> 46 (Autumn 1969): 599 and 602.

the science writer and the public tended to be more closely allied in their views. It also showed that the general public could take their science news straighter than some editors might suspect.²⁹

At the same time, G. Ray Funkhouser was trying to find out why the public's awareness of current science was so "dismayingly low, to say nothing of knowledge or understanding."³⁰

After a study, he stressed the necessity of using vocabulary specifically designed for the target audience. That is, translating scientific terms into simple vocabulary, short sentences, activity words, concrete words, everyday life parallels and examples.³¹

This advice, however, was challenged by other findings. Tannenbaum reported on a variety of studies in which specimens of science writing were examined for instances where a special scientific term had been "translated" into more conventional lay language. For example, "particle accelerator" translated into "atom smasher," "nucleus" into "heart of an atom" and so forth. The person who reads science news regularly found most of the original scientific terms at least as meaningful as the lay terms. Tannenbaum concluded that science writers, when simplifying science news, may be writing more for people who are not attending them than for their more

²⁹Ibid.

³⁰G. Ray Funkhouser, "Levels of Science Writing in Public Information Sources," <u>Journalism Quarterly</u> 46 (Winter 1969): 721-26.

³¹G. Ray Funkhouser and Nathan Maccoby, "Communicating Specialized Science Information to a Lay Audience," <u>Journal of</u> <u>Communication</u> 21 (March 1971): 69-70.

regular readers. Just as the sports section of the paper has its specialized terminology, Tannenbaum said he feels the science writer should be allowed to use scientific words without constant translation or defining.³²

Therefore, the question for editors is, should science writers work to cater to the individual who is not a reader to begin with, perhaps at the expense of alienating their more regular readers?³³

While the needs of the average lay reader were being discussed by communications researchers, University of North Carolina investigators were concerned about science professionals who read stories in the mass media. Their survey attempted to discover if medical stories in the mass media help keep doctors and medical researchers informed, as well as the general public. They attempted to find out if mass media alerted physicians to new developments in the vastly expanding field of medicine. They surveyed 229 members of the faculty of the University of Wisconsin Medical School. Sixty percent of the respondents answered that they sometimes gleaned information about research developments <u>within their own specialties</u> from the mass media.³⁴

³³Ibid.

³⁴Donald L. Shaw and Paul Van Nevel, "The Informative Value of Medical Science News," <u>Journalism Quarterly</u> 44 (Autumn 1967): 548.

³²Tannenbaum, p. 582.

The researchers surmised that doctors and medical researchers, pressed by the sheer number of scholarly journals they must read or skim, use science stories in the mass media as a kind of "index" to new developments. If this is so, they concluded, then "the medical science writer may be a more important 'gatekeeper' than he realizes."³⁵

Unfortunately, the optimism expressed by this study was soon dimmed by the results of the research of Timothy O'Keefe, also of the University of North Carolina at the time. He found the usefulness to physicians of medical information gleaned from the mass media to be extremely limited. When asked how often they received information about new developments within their own specialty from the mass media, only 30 percent of the doctors said at least once a month. Reasons for this varied among those surveyed. Twenty percent of the respondents complained of the sensational manner in which the stories were presented. Fourteen percent noted that the writers were simply ignorant of the subject matter and as a result failed to use critical judgment in writing their reports. Eleven percent cited incompleteness and superficiality of the reports as the main fault. Other reasons in order of frequency mentioned were: releases are premature and deal with unproven items; oversimplification; over-optimism on the part of the writer and

³⁵Ibid.

researcher; inaccuracy; exaggerated claims and lack of good follow-up.³⁶

To illustrate the variety of feeling among doctors, O'Keefe quoted these remarks:

A surgeon: "A doctor must keep up with the media because he must know what garbage the public is being fed."

An internist: "(Medical news) tends too much toward the sensational aspect."

A general practitioner: "I do not believe the average lay person should be too informed about experimental and unfounded facts and dread disease--he should have enough to seek help and no more."

A pediatrician: "The education of the patient is as important or more important than the medicines prescribed. The participation of the 'popular' media in this education makes our work that much easier."³⁷

The doctors pointed out that for the most part the media have been doing a poor job in keeping the public informed. Only 36 percent said they thought the public was reasonably well informed about current developments in their particular specialties; 54 percent said the public did not understand the developments very well and about 10 percent judged that the public knew almost nothing. O'Keefe concluded that from the doctors' comments it appears the

³⁶M. Timothy O'Keefe, "The Mass Media as Sources of Medical Information for Doctors," <u>Journalism Quarterly</u> 47 (Spring 1970): 95-96.

³⁷Ibid., pp. 97, 97, 98.

amount of success of the mass media in relaying useful medical information to doctors, and the general public as well, is minimal. The top suggestion for improvement made by doctors would be for the media to do more than act as mere relayers of information. They suggested they should add perspective and evaluate many of the reports.³⁸

In the wake of this heavy criticism, the general accuracy of science news came under scrutiny. A study of communication accuracy was conducted by Tichnor, et al., among 73 science news articles appearing in midwestern metropolitan daily newspapers in 1967 and early 1968. The articles were shown to survey respondents who were asked to read them and state what they said. Scientists quoted and reporters who wrote the articles were then interviewed. The proportion of audience statements generally accepted to the scientist quoted in the article was used as a measure of communication accuracy. Results showed that communication accuracy was higher for articles assigned by editors than for articles originating with public meetings, as hypothesized. However, reporters originating articles on their own initiative did not produce especially understandable articles.³⁹

Articles originating from other written reports, such as press releases and journal articles, were also given above average on communication accuracy. The hypothesis that more personal

³⁸Ibid., pp. 99-100. ³⁹Ibid.

contact would lead to more communication accuracy was only partially supported. Among scientist variables examined, the strongest correlates of communication accuracy were administrative role performance, perception of strict organizational policy for research reporting and perception of accuracy in newspaper reports.⁴⁰

In 1970, James W. Tankard and Michael Ryan attempted to probe into scientists reactions to stories about their work. Using the technique of mail accuracy survey, developed by Charnley, clippings of science articles found in a random sample of newspapers were mailed to the sources of the articles with a four-page questionnaire. The scientist-sources were asked to check which, if any, of 42 kinds of errors occurred in the stories quoting them, and indicate the number of times each error occurred.

The researchers found the mean number of errors reported by the scientist-sources was 6.22 per story, while 8.8 percent of the stories were reported to contain no errors.⁴¹ (Tankard and Ryan made no value judgment about this rate of errors.)

In another part of the questionnaire, the "Yes" response indicating that the scientist thought there was a significant error in the lead was checked by 42 of the 193 respondents, or 21.8 percent. The scientists' descriptions of errors in the leads ranged from minor complaints about wording and emphasis to the pointing

⁴⁰Ibid.

⁴¹James W. Tankard and Michael Ryan, "News Source Perceptions of Accuracy of Science Coverage," <u>Journalism Quarterly</u> 51 (Summer 1974): 219 and 221.

out of serious inaccuracies. Examples of the latter were: "hypothesis to be tested . . . given as proven fact" in an article on heart valve transplants and an inappropriate use of the word "breakthrough" in describing research on the treatment of a disease.⁴²

Types of errors that occurred in more than 30 percent of the sample were: Relevant information about study omitted (35.2 percent); Relevant information about results omitted (33.7 percent); Investigator misquoted (33.2 percent); Names of other investigators on research team omitted (31.6 percent); Qualifications of statements omitted (31.1 percent); and Misleading headline (30.6 percent). Uniqueness of research over-emphasized and Significance of contribution exaggerated were categories of errors occurring in 15 percent of the sampled stories, according to the perceptions of the scientist-sources.⁴³

Tankard and Ryan noted that these perceptions are subject to distortion as is any perception of an involved witness. And, the study did not provide for rebuttal by reporters, some of whom may have had good reasons for doing something that a scientist categorized as an error.

Nevertheless, Tankard and Ryan point out that the error rate of 6.22 per science story is higher than error rates found by studies of the accuracy of general news of .77 (Charnley), .86 (Brown), 1.52 (Berry), and 1.17 (Blankenburg). These general news

> ⁴²Ibid., p. 223. ⁴³Ibid., p. 221 ⁴⁴Ibid., p. 225.

accuracy studies also showed higher percentages of error free stories than the science news study, but their methodologies differed from Tankard and Ryan's in one respect. Tankard and Ryan gave the scientists a longer check list of possible error types to consider (42 as opposed to about 14 in the general news studies).⁴⁵

When, in 1976, D. Lynn Pulford published results of a science news accuracy study, data showed 29.4 percent of the science stories were perceived to contain no errors (compared to Tankard and Ryan's 8.8 percent). Instead of 42 possible error types listed on the questionnaire, only 11 were used in the Pulford study. While it did not show science news to be extremely inaccurate, the study did point out that areas of greatest concern to scientists were those of a subjective nature. Rather than finding fault with facts, the respondents most often criticized emphasis and omission.⁴⁶

Omission of relevant information was also the major area of criticism discovered in a study of communication accuracy in magazine science reporting conducted by Susan Cray Borman in 1978. The most frequently cited omissions and percentage of articles in which they occurred were: failure to mention research methods, 21%; incomplete information about important results, 21%; omission of the primary investigators' names, 25%; and lack of qualifying statements important for an accurate impression, 21%. These problems

⁴⁵Ibid., p. 334.

⁴⁶D. Lynn Pulford, "Follow-Up Study of Science News Accuracy," <u>Journalism Quarterly</u> 53 (Spring 1976): 120-121.

were often related to the length of the article, it was reported. There was a strong correlation between article length and the number of omission errors, although a few short articles deviated from this pattern and successfully combined brevity and accuracy.⁴⁷

The good reviews received by few short articles in this study demonstrated that accuracy and brevity could be combined. In each of these successful cases several key elements were observed: 1) The results were discussed in a scientific framework including a discussion of the research methods, continuity with past research, and the names of the primary investigators. 2) Speculation was clearly distinguished from points with experimental proof. 3) Scientific terminology was used in combination with descriptive lay translations.⁴⁸

Recent examples of mass media coverage of major medical news events have given researchers much to criticize. These include coverage of the proposed saccharin ban, the swine flu innoculation program and protests concerning the handling of asbestos dangers in the workplace.

Superficial coverage was one of the primary complaints. David M. Rubin, in studying the swine flu innoculation program coverage, concluded that the press, with notable exceptions, failed to probe into the background of immunization, swine flu vaccine or swine flu itself.

Rubin wrote:

It is fair to call the bulk of press coverage unimaginative, predictable, superficial, and, unfortunately, typical. It is the best we can expect of the press in such circumstances.

 ⁴⁷Susan Cray Borman, "Communication Accuracy in Magazine Science Reporting," <u>Journalism Quarterly</u> 55 (Summer 1978): 345-346.
 ⁴⁸Ibid.. p. 346.

But it was not misleading, sensational, or inaccurate-except in a couple of instances. . . . We found that the single most important variable in the quality of coverage was the background of the reporters. It was the excellent work done by science and medical writers which so distinguished . . . (their papers) in their coverage of the swine flu story.⁴⁹

It was the attempt by these reporters to ask the very basic questions, Rubin wrote, such as "What is swine flu?" as well as more involved questions--its legal ramifications, possible political motivations, potential side effects, and the development of the vaccine--that produced their extraordinary coverage. ⁵⁰

The saga of the proposed saccharin ban was much the same story, as reported by R. Jeffrey Smith. Only a few articles by established science writers carefully explained the scientific evidence supporting the ban. The central issue of the ban--the risk to humans of saccharin consumption--was "grievously understated" by news accounts that failed to explain that ridiculed tests and dosage levels followed accepted scientific practice.⁵¹ Many of the most flippant comments by saccharin manufacturers received the most press attention, Smith added.

For the most part, he wrote, media seemed unwilling to go much beyond diet industry propaganda. Only Boyce Rensberger in a <u>New York Times</u> article effectively challenged the assumption that

⁵¹R. Jeffrey Smith, "The Media's Sweet Tooth," <u>Columbia</u> <u>Journalism Review</u> (May/June 1977): 28.

⁴⁹David M. Rubin, "Remember Swine Flu?" <u>Columbia Journalism</u> <u>Review</u> (July/August 1977): 43.

⁵⁰Ibid., pp. 44 and 46.

saccharin was necessary for dieters, or indeed if it even helped them to lose weight. 5^{2}

The Associated Press publicized a bill introduced by Representative Andrew Jacobs of Indiana to legalize saccharin if it carried the warning: "The Canadians have determined that saccharin is dangerous to your rat's health." Statements such as these, Smith contended, shaped the general perception that the proposed ban was artibrary and without scientific basis.

The saccharin ban would be enacted under the Delaney clause of the federal Food, Drug and Cosmetic Act. The Delany clause prohibits the use in food of any ingredient shown to cause cancer in animals or man. Smith contended the real story created by the proposed saccharin ban was not the ban itself, but the climate of opinion it created for repeal of the Delaney clause.

"If the clause is repealed," Smith wrote, "the result would almost surely be higher levels of proven carcinogens in our food. This was the story the media and the public missed."⁵³

Concerning the coverage of asbestos hazards, the most ubiquitous of all carcinogens known to exist in the workplace,⁵⁴ Betty Medsger, former <u>Washington Post</u> reporter, concluded that the major dailies have given their audiences little information about this major killer. Writing in <u>Columbia Journalism Review</u>, she

⁵⁴Betty Medsger, "Asbestos, The California Story," <u>Columbia</u> <u>Journalism Review</u> (September/October 1977): 42.

⁵²Ibid., p. 29.

⁵³Ibid.

and journalist Peter Perl, conclude that the asbestos hazard has been generally underplayed, many times under pressure of employers using the substance.

While newspapers are generally reluctant to investigate or criticize a major employer, Perl wrote, surely they have a responsibility to inform the public they serve--including workers--about hazards of the workplace and their cost to society in lives and pain and money. Of those papers that eventually assumed the responsibility, he said, it "seemed to take them a long time to give to a story that involves people's health anything like the attention they routinely give stories about the financial well being of industry."⁵⁵

As these studies and discussions show, it is a difficult task we assign to the science news reporter. While we expect him to warn us of crises before they happen, prepare us for each new technological step and explain accurately the innovations of science and medicine, we constantly throw obstacles in his path. Generally, space is begrudged. But when something happens we want the news fast, yet we want it confirmed beyond a doubt. We want to hear about the exciting and promising yet we scold about "raising false hopes" or sensationalizing. Editors frequently require news pegs for science items, even though the 'today' lead often distorts the true picture. Scientist-sources are reluctant to talk, looking down on the reporters' level of knowledge or ability to get the story

⁵⁵Peter Perl, "Asbestos, The Connecticut Story," <u>Columbia</u> Journalism Review (September/October 1977): 50 and 54.
right. Or they report "breakthroughs" that are problematical. As Judith Randall of the Washington Star put it:

People who think that cheap headline grabbing is the sole prerogative of politicians and the jet set haven't been paying much attention to the world of bio-medical research. . . . For as long as modern medicine has existed, progress has depended on the orderly release of information through papers given at scientific meetings or published in reputable journals whose editors have assessed the worth of the submissions. . . . While the system is far from perfect it is in the public interest and newspapers and magazines have been glad to go along with it-even when it means forfeiting a "scoop" by delaying stories they may have known for some time. . . . Knowledgeable science writers now find themselves often forced to report prematurely against their better judgment because of pressures put on them by scientists competing for the limelight and--what is even scarcer these days--funding.⁵⁶

David Warren Burkett, author of <u>Writing Science News for the</u> <u>Mass Media</u>, thinks less of the professional journal system or "peer review" than does Randall. He writes:

Binding reporters to published or accepted journal articles implies that all significant research will be published. However, selection is an editorial process. "Peer review" exists with its twin "peer prejudice" and the familiar limitations of space and budget. While some scientific journals are desperate for material in certain fields, more respected publications have backlogs extending over a year or more. Money also decides what gets published. . . .57

Burkett notes that <u>Medical World News</u> and <u>Medical Tribune</u>, among others, are scuffling with several learned journals over the need for mass media news reporting of medical knowledge which might

⁵⁶Judith Randall, "Bio-Medical Headline Grabbing," <u>The</u> <u>Washington Star</u>, 12 February 1974, p. 15.

⁵⁷Warren Burkett, "There's More Going On In Science Than Some Would Tell," <u>The Quill</u> (May 1970): 16-17.

alert doctors to new ways of saving lives before full and formal accounts appear in the medical literature.

"Such prejudice is not impotent," he wrote. "It drove Dr. James Watson's chronicle of the discovery of DNA out of the <u>Harvard</u> Press."

John Lear, science editor of the <u>Saturday Review</u>, writes: "The spirit of untrammeled inquiry and skepticism required of journalists in other fields must become standard in science writing."⁵⁸

⁵⁸John Lear, "The Trouble With Science Writing," <u>Columbia</u> <u>Journalism Review</u> 9 (Summer 1970): 34.

CHAPTER III

THEORY AND METHOD

Theory and Hypotheses

Studies have supported the general theory that medical news serves a necessary function and the public wants and uses medical news. On the operational level, for this study, the theory is that medical news has been inadequqte in some way or ways.

As was shown in the literature review, the most frequently recurring concerns in the area of medical news include over use of the term "breakthrough" or its general inference and accompanying sensationalism and the charge of passivity on the part of science news reporters. It can be seen, however, that neither of these charges has been backed up by systematic research. Therefore, to study the charges scientifically, the hypotheses of this study are:

- 1. A large percentage of medical news concerns reports of medical breakthroughs where the breakthroughs are false or exaggerations.
- 2. Stories mentioning breakthroughs receive greater "news play" than do other medical news stories.
- More medical stories originate from researchers' 3. or institutions' press releases and the like rather than reporter initiative.

Assumptions

A.S. Let This study assumes (1) that we can adequately separate breakthrough and non-breakthrough medical news, and (2) that

newspapers included in the sample will be representative of their population. Naturally, the study will not facilitate direct inference about medical news in smaller circulation dailies, which may be more or less susceptible than large metropolitan papers to the pressures that exist for running breakthrough stories, sensationalized news and handouts rather than their own reporters' work.

Methodology

Population

The population consisted of American metropolitan daily newspapers with over 300,000 circulation. There are 21 such papers in the United States.⁵⁹ These are the <u>Boston Herald American</u>, the <u>Chicago Sun-Times</u>, the <u>Chicago Tribune</u>, the <u>Cleveland Plain Dealer</u>, the <u>Cleveland Press</u>, the <u>Detroit Free Press</u>, the <u>Detroit News</u>, the <u>Houston Chronicle</u>, the <u>Los Angeles Herald Examiner</u>, the <u>Los Angeles</u> <u>Times</u>, the <u>Miami Herald</u>, the <u>Milwaukee Journal</u>, <u>New York News</u>, the <u>New York Post</u>, the <u>New York Times</u>, the <u>Philadelphia Bulletin</u>, the <u>Philadelphia Inquirer</u>, the <u>San Francisco Examiner</u>, the <u>Wall Street</u> <u>Journal</u>, the <u>Washington Post</u>, and the <u>Washington Star</u>. In studying metropolitan newspaper coverage of social issues, Michael Ryan and Dorothea Owen selected a sample of newspapers from American metropolitan dailies having circulations exceeding 300,000.⁶⁰

⁵⁹Editor & Publisher International Yearbook, 1977.

⁶⁰Michael Ryan and Dorothea Owen, "A Content Analysis of Metropolitan Newspaper Coverage of Social Issues," <u>Journalism</u> <u>Quarterly</u> 53 (Winter 1976): 636.

From this population, four newspapers were selected to be sampled. This number of papers was used by Bruce J. Cole in a similar study.⁶¹

Sample

The normal stages involved in multi-stage samples are those of titles, dates and content. Titles or newspapers selected to be sampled are the <u>Washington Post</u>, the <u>Detroit Free Press</u>, the <u>Milwaukee Journal</u> and the <u>San Francisco Examiner</u>. They represent one west coast, one east coast and two mid-western papers and were chosen for their geographical spread. In a study of this type, geographical representation can be a criteria in selection of newspapers.⁶² There were <u>no preconceived</u> ideas about the types of medical coverage provided by the selected papers.

Two constructed weeks (14 days) were sampled for each year. According to Stempel, as quoted in Budd, it is known that a 12-issue sample is adequate for a universe of one year's worth of issues (312, which excludes Sunday issues).⁶³ This study includes Sunday issues, therefore it was felt to be necessary to increase the sample

⁶¹Bruce J. Cole, "Trends in Science and Conflict Coverage in Four Metropolitan Newspapers," <u>Journalism Quarterly</u> 52 (Autumn 1975): 466.

⁶²Bernard Berelson, <u>Content Analysis in Communication</u> <u>Research</u> (Glencoe, Illinois: The Free Press, University of Chicago, 1952), p. 176.

⁶³Richard W. Budd, Robert K. Thorp, and Lewis Donohew, <u>Content Analysis of Communication</u> (New York: The MacMillan Company, 1967), p. 20.

to 14, or two constructed weeks' issues. This is a large enough sample to provide valid results. As noted in Budd: "A small, carefully chosen sample of the relevant content will produce just as valid results as the analysis of a great deal more--and with the expenditure of much less time and effort.⁶⁴

The starting date for formulating the constructed weeks was selected by use of a random number table. In this case, June 12 became that date. At regular intervals, the other sample dates, in sequence, are: July 7, August 1, August 26, September 20, October 15, November 9, December 4, December 29, January 23, February 17, March 13 or 14, April 7 or 8 and May 2 or 3. In order to provide equal number of days of the week, such as the same number of Sundays sampled, the latter three dates had to be adjusted forward in the case of the leap year, 1968.

Fo facilitate comparison over time, it was decided that these dates should be sampled in each of three years over a 10 year spread. According to the rationale of Cole, who studied trends in science and conflict coverage, it is wise to look at changes over the years. His trends study, published in 1975, analyzed coverage of the same papers in 1951, 1961 and 1971.⁶⁵

For this study, years sampled were June 1967-May 1968, June 1971-May 1972 and June 1977-May 1978.

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^{() 64}Ibid. ⁶⁵Cole, p. 466. 31

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The third stage of the sampling involved selecting the articles to be studied. From microfilmed back issues, all medical news articles except regularly appearing medical columns written by doctors were selected out. Medical news is defined, for purposes of this selection, as all news stories which have substantial subject matter concerning results, interpretation or application of empirical research dealing with the treatment of disease, bodily conditions, relief of pain, prevention of illness, aging or death and all drugs and technology associated with the above. This is an operational definition similar to the definition of science news used by Cole in his study of science news and conflict.⁶⁶

Procedures

Hypothesis 1

A large percentage of medical news concerns reports of medical breakthroughs where the breakthroughs are false or exaggerations.

To test this hypothesis, all medical news sampled was divided into descriptive categories. Each story was put into the category that best described its content. The categories were not preconceived, but built according to the stories that appeared. News of supposed breakthroughs were put into Category 1.

Breakthrough stories are defined as those stories which include the implication, through use of the words "breakthrough," "cure," "giant step forward," and the like, that we have a new

⁶⁶Ibid., p. 467.

discovery or approach to a problem or situation and that it will benefit mankind. Judgment as to which stories fit into this category was made by a panel of three. It was then intended that stories thus categorized be checked for their veracity (whether false or exaggerations) by medical authorities. The other descriptive categories, as follows, allow for a view of the type of medical news being put out by metropolitan dailies like those sampled, and in what amount.

Descriptive categories used:

- 1. Breakthrough
- 2. Innovation
- 3. Research results (statistics, predictions, warnings from research)
- 4. Pending or ongoing investigations, efforts
- 5. Current crises
- 6. Explanation of accepted facts, procedures, routine advice
- 7. Unique, rare or especially interesting cases
- 8. Controversy, disputes
- 9. Medical personalities and their opinions (usually from speeches, interviews and press releases, including foreign views)
- 10. Costs, legal matters (not included unless containing actual medical information).

Hypothesis 2

Stories mentioning breakthroughs receive greater "news play" than do other medical news stories.

To test relative news play, each article was given an "attention score." This attention scoring is a device for measuring news play developed by Richard Budd.⁶⁷

According to this method, each news item was scored in the following manner:

<u>One point</u> was assigned to any article with a headline two columns or more in width, except that an article carrying a headline that occupied horizontally more than half the number of columns of the page was assigned <u>two points</u>.

<u>One point</u> was assigned to any story appearing above the fold or above the measured center of the page. To be considered above the fold, the first line of the body of the text of the story had to appear above the fold.

<u>One point</u> was assigned any article occupying three-fourths of a column or more (based on the column length of the newspaper concerned). For purposes of assigning the attention score, pictures were measured as part of the overall length of the story.

<u>One point</u> was assigned for any article appearing on page one, or a readily identifiable departmental front page.

Thus, any one item could receive an attention score ranging from zero to five points.

⁶⁷Richard W. Budd, "Attention Score: A Device for Measuring News 'Play,'" <u>Journalism Quarterly</u> 41 (Spring 1964): 259-260.

Hypothesis 3

More medical stories originate from researchers' and institutions' press releases and the like rather than from reporter initiative.

All stories sampled were checked for <u>type of source</u>. Where possible to ascertain from the story where the reporter got the information, it could be determined what percentage of stories appeared to be reporter initiated and what percentage appeared to be written from press conferences, releases or "handouts."

The final procedure undertaken was an attempt to ascertain the type of source that led to the writing of each story. Each article was read with its possible origin in mind. For instance, an article might cite a government report, institutional press release or other publication; quote testimony before a court or Congressional committee, a speech or a talk at a medical conference; mention an interview or a combination of these.

When such types of sources were cited in a story, the story was placed in that category providing the information in the article did not come from multiple sources. A separate multiple category was created, as was an undeterminable category for stories in which the writer gave no clue as to the type of source used. The type of sources revealed in sampled stories are discussed in the Results chapter that follows.

CHAPTER IV

RESULTS

Frequencies

In the sample of four newspapers, 336 medical articles were found (Table 1). Of the papers, the <u>San Francisco Examiner</u> had the most medical articles, 115. The <u>Washington Post</u> had 77; <u>Milwaukee</u> <u>Journal</u>, 75; <u>Detroit Free Press</u>, 69. Of the total, only five stories or less than two percent were classified as breakthrough stories, according to the operational definition of this thesis. The rest of the stories fell into the other nine categories in amounts shown in Table 2. Note that Category 3 (reports of research results), contains 30 percent of the total number of articles.

It was found that the medical articles were derived from the following array of circumstances (which is hereafter referred to as their "origin"): interviews; speeches; press releases or press conferences; other articlès in the popular press, magazines or books; articles in scientific or medical journals; reports at scientific meetings, seminars; government reports; testimony before Congressional committees or courts; or combinations of these (the multiple category). A final category was used for stories of undeterminable origin.

Press releases were used in seven percent of the stories (Table 3). The largest single origin group was government reports

Newspaper	Number	Percentage
Washington Post	77	22.9
Detroit Free Press	69	20.5
Milwaukee Journal	75	22.3
San Francisco Examiner	<u>115</u>	34.2
TOTAL	336	100.0

TABLE 1.--Number of Articles by Newspaper.

Category	Absolute Frequency	Relative Frequency (Percentage)
Breakthrough	5	1.5
Innovation	30	8.9
Research Results	102	30.4
Ongoing Investigations	17	5.1
Current Crises	20	6.0
Explanation of Accepted Facts	37	11.0
Unique/Rare Cases	20	6.0
Controversy/Disputes	27	8.0
Medical Personalities and Opinions	48	14.3
Costs/Legal Matters	_30	8.9
TOTAL	336	100.0

TABLE 2.--Frequency Table of the Categories of Stories.

Story Origin	Absolute Frequency	Relative Frequency (Percentage)
Interview	29	8.5
Speech	13	3.9
Press Release	24	7.1
Press/Magazine/Book	11	3.3
Science or Medical Journal	24	7.1
Report at Scientific Meeting	38	11.3
Government Report	42	12.5
TestimonyCongressional Committee or Court	19	5.7
Multiple	77	22.9
Undeterminabile	59	17.6
TOTAL	336	100.0

TABLE 3.--Frequency Table of the Origin of Stories.

at 12.5 percent. Twenty-three percent of the stories used more than one of the above sources.

When the sample was divided by years (1967-68, 1972-73 and 1977-78) the number of medical articles increased from 1967-68 to 1972-73 and again from 1972-73 to 1977-78 (Table 4). This pattern of continued increase in the number of medical articles published follows for each newspaper, except between the years 1967-68 and 1972-73 the Milwaukee Journal showed no increase (Table 5).

A significant relationship was found between the origin of story and the newspapers (χ^2 = 44.87, p < .05). Twelve percent of the <u>San Francisco Examiner</u> stories were derived from interviews, as compared to only 5.2 percent in the <u>Washington Post</u> (Table 6). Government reports were utilized by the <u>Washington Post</u> (17 percent), while the <u>San Francisco Examiner</u> and <u>Milwaukee Journal</u> utilized them nearly as much (15.7 percent and 12 percent respectively). The <u>Detroit Free Press</u> derived only 2.9 percent of its medical stories from government reports.

The <u>Detroit Free Press</u> also used more than twice as many press releases as did each of the other papers.

A significant relationship was found between the origin and year (χ^2 = 37.75, p < .05). Use of press releases declined percentagewise over the 10 year period (Table 7). In 1967-68, 8.4 percent of the sampled medical stories were derived from press releases. In 1972-73, 7.1 percent were so derived. And, in 1977-78, the percentage was 6.4.

Year	Absolute Frequency	Percent of Increase from 1967-1968
1967-1968	83	
1972-1973	113	36%
1977-1978	140	69%

TABLE 4.--Frequency Table of Year of the Stories.

Newspapers	1967- 1968	1972- 1973	1977- 1978	Total
Washington Post	19	27	31	77
Detroit Free Press	10	25	34	69
Milwaukee Journal	22	22	31	75
San Francisco Examiner	<u>32</u>	_39	44	<u>115</u>
TOTAL	83	113	140	336
	<u></u>			

TABLE 5.--Cross Tabulation of Newspapers by Year of the Stories.

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Origin	Washington Post	Detroit Free Press	Milwaukee Journal	San Francisco Examiner	Total
Interview	4	5	6	14	29
	(5.2)	(7.2)	(8.0)	(12.2)	(8.6)
Speech	4 (5.2)	1 (1.4)	(8.0)	, 2 (1.7)	13 (3.9)
Press Release	5	9	5	5	24
	(6.5)	(13.0)	(6.7)	(4.3)	(7.1)
Popular Press, Magazine or Book	6 (7.8)	00)	1 (1.3)	4 (3.5)	11 (3.3)
Scientific or Medical Journal	2	6	8	8	24
	(2.6)	(8.7)	(10.7)	(7.0)	(7.1)
Report at a Scientific Meeting	10	8	10	10	38
	(13.0)	(11.6)	(13.3)	(8.7)	(11.3)
Government Report	13	2	9	18	42
	(16.9)	(2.9)	(12.0)	(15.7)	(12.5)
Testimony - Congressional Committee	7	5	3	4	19
or Court	(9.1)	(7.2)	(4.0)	(3.5)	(5.7)
Multiple	20	19	14	24	77
	(26.0)	(27.5)	(18.7)	(20.9)	(22.9)
Undeterminable	6	14	13	. 26	59
	(7.8)	(20.3)	(17.3)	(22.6)	(17.6)
TOTAL	<u> </u>	69	75	115	336 (100.0)

TABLE 6.--Cross Tabulation of Origins of Stories by Newspapers.

Origin	1967- 1968	1972- 1973	1977- 1978	Total
Interview	12	6	11	29
	(14.5)	(5.3)	(7.9)	(8.6)
Speech	7	3	3	13
	(8.4)	(2.7)	(2.1)	(3.9)
Press Release	7	8	9	24
	(8.4)	(7.1)	(6.4)	(7.1)
Popular Press,	2	6	3	11
Magazine or Book	(2.4)	(5.3)	(2.1)	(3.3)
Scientific or	9	4	11	24
Medical Journal	(10.8)	(3.5)	(7.9)	(7.1)
Report at a Scientific	6	19	13	38
Meeting	(7.2)	(16.8)	(9.3)	(11.3)
Government Report	9	15	18	42
	(10.8)	(13.3)	(12.9)	(12.5)
Testimony Before Congressional Committee or Court	5 (6.0)	9 (8.0)	5 (3.6)	19 (5.7)
Multiple	7	29	41	77
	(8.4)	(25.7)	(29.3)	(22.9)
Undeterminable	19	14	26	59
	(22.9)	(12.4)	(18.6)	(17.6)
TOTAL	83	113	140	336
	(24.7)	(33.6)	(41.7)	(100.0)

TABLE 7.--Cross Tabulation of Origins of Stories by Years.

Use of multiple sources, on the other hand, increased from 8.4 percent in 1967-68 to 25.7 percent in 1972-73 and to 29.3 percent in 1977-78. Totally, multiple source stories made up 22.9 percent of the sample, while one-source stories made up 77.1 percent of the sample.

Few other trends in origins over time could be seen, although use of interviews dropped from 1967-68 to 1972-73, and only picked up slightly in 1977-78.

Looking at the categories (subject matter) by year showed no significant relationship.

The relationship between categories and newspapers showed significance (χ^2 = 46.28, p < .05). In the cross tabulation it can be seen that the <u>Milwaukee Journal</u> used unique or rare medical cases to make up 13 percent of their medical articles, while the <u>Detroit Free Press</u> used 7.2 percent; the <u>Washington Post</u>, 5.2 percent; and the <u>San Francisco Examiner</u> only .9 percent (Table 8).

The <u>Washington Post</u>, the <u>Detroit Free Press</u> and the <u>San</u> <u>Francisco Examiner</u> used research results as nearly 30 percent of their medical coverage, while these made up 36 percent of the <u>Milwaukee Journal</u> reports. The <u>Washington Post</u> showed greater use of medical stories concerning costs and legal matters than the other three, the <u>Milwaukee Journal</u> showing least use of these types of stories.

Explanation of accepted facts and procedures, Category 6, was used in 21.7 percent of the articles in the Detroit Free Press

Category	Washington Post	Detroit Free Press	Milwaukee Journal	San Francisco Examiner	Total
Breakthrough	1	2	1	1	5
	(1.3)	(2.9)	(1.3)	(.9)	(1.5)
Innovation	5	2	5	18	30
	(6.5)	(2.9)	(6.7)	(15.7)	(8.9)
Research Results	22	20	27	33	102
	(28.6)	(29.0)	(36.0)	(28.7)	(30.4)
Ongoing Investigations	2	5	3	7	17
	(2.6)	(7.2)	(4.0)	(6.1)	(5.1)
Current Crises	5	3	5	7	20
	(6.5)	(4.3)	(6.7)	(6.1)	(6.0)
Explanation of Accepted Facts,	6	15	5	11	37
Procedures	(7.8)	(21.7)	(6.7)	(9.6)	(11.0)
Unique or Rare Cases	4	5	10	۱	20
	(5.2)	(7.2)	(13.3)	(9.)	(6.0)
Controversy/Disputes	7	3	4	13	27
	(9.1)	(4.3)	(5.3)	(11.3)	(8.0)
Medical Personalities and	13	8	12	15	48
Their Opinions	(16.9)	(11.6)	(16.0)	(13.0)	(14.3)
Costs and Legal Matters	12	6	3	9	30
	(15.6)	(8.7)	(4.0)	(7.8)	(8.9)
TOTAL	77	69	75	115	336
	(22.9)	(20.5)	(22.3)	(34.2)	(100.0)

TABLE 8.--Cross Tabulation of Categories of Stories by Newspapers.

but only 9.6 percent in the <u>San Francisco Examiner</u>, 7.8 percent in the <u>Washington Post</u> and 6.7 percent in the <u>Milwaukee Journal</u>.

Although there were too few breakthrough stories to comment on statistically, stories of innovations (Category 2) were used most percentagewise by the <u>San Francisco Examiner</u> (15.7 percent). The <u>Washington Post</u> and <u>Milwaukee Journal</u> used these types of stories in slightly over 6 percent of their medical stories, while the <u>Detroit Free Press</u> printed such stories only 2.9 percent of the time.

Origin and Category were significantly related (χ^2 = 233.44, p < .05). Looking at categories, it can be seen that for Category 3, research results, which includes 30 percent of the entire sample, articles were derived from interviews (2 percent); speeches (1 percent); press releases and press conferences (9.8 percent); the popular press, magazines or books (2.9 percent); science or medical journals (13.7 percent); reports at scientific meetings (25.5 percent); government reports (18.6 percent); testimony before Congressional committees or courts (2.9 percent); multiple origins or sources (16.7 percent) (Table 10). The type of medical article that appeared in the sample most often, that concerning research results where the information was obtained at scientific or medical meetings, made up 7.7 percent of the total sample (Table 11).

Two of the breakthrough stories, of which there were only five, were found to have originated from press releases (Table 9). Two others came from other mass media and a report at a scientific meeting. The fifth was of undeterminable origin.

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	wəivrətnI	Speech	Press Release	Popular Press, Magazine or Book	Scientific or Medical Journal	Report at a Scientific Meeting	τοφονθημους μαροί	ynomitsəT [snoissəngnoð truoð ro səttimmoð	∍[qij[uM	∍ſd₅nimr∍t∍bnU	JATOT
Breakthrough	0	0	2	-	0	-	0	0	0	-	5
Innovation	6	0	2	-	0	2	-	0	~	14	30
Research Results	2	-	10	m	14	26	19	n	7	17	102
Ongoing Investigations	0	-	-	0	0	0	2	ო	4	9	11
Current Crises	-	0	-	0	0	0	7	-	7	ĸ	20
Explanation of Accepted Facts, Procedures	5	2	2	2	m	4	-	0	14	4	37
Unique, Rare Cases	4	0	-	0	0	0	0	0	6	9	20
Controversy/Disputes	0	0	-	-	m	0	ო	2	14	ო	27
Medical Personalities, and Their Opinions	8	٢	5	2	4	S	2	5	6	4	48
Costs, Legal Matters	0	2	2	-	0	0	7	5	12	~	30
TOTAL	29	13	24	=	24	38	42	19 19		59	336

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	wəivrətnI	Speech	Press Release	Popular Press, Magazine or Book	so sifitneis? Ienruol IesibeM	Report at a Scientitic Meeting	Government Report	Teroissargend CongressargnoJ Touc Court	∍[qit[uM	∍ſdsnimn∋t∋bnU
Breakthrough	C	0	40.0	20.0	C	20.0	C	C	C	20.0
					•		•		•	
Innovation	30.0	0	6.7	3.3	0	6.7	3.3	0	3.3	46.7
Research Results	2.0	1.0	9.8	2.9	13.7	25.5	18.6	2.9	6.9	16.7
Ongoing Investigations	0	5.9	5.9	0	0	0	11.8	17.6	23.5	35.3
Current Crises	5.0	0	5.0	0	0	0	35.0	5.0	35.0	15.0
Explanation of Accepted Facts, Procedures	13.5	5.4	5.4	5.4	8.1	10.8	2.7	0	37.8	10.8
Unique, Rare Cases	20.0	0	5.0	0	0	0	0	0	45.0	30.0
Controversy/Disputes	0	0	3.7	3.7	11.1	0	1.11	7.4	51.9	1.11
Medical Personalities, and Their Opinions	16.7	14.6	4.2	4.2	8.3	10.4	4.2	10.4	18.8	8.3
Costs, Legal Matters	0	6.7	6.7	3.3	0	0	23.3	16.7	40.0	3.3

TABLE 10.--Cross Tabulation of Categories of Stories by Origins (row percent).

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	wəivnəjnI	Speech	Press Release	Popular Press, Magazine or Book	Scientific or Sedical Journal	Report at a Scientific Meeting	Government Report	Tesnony Sanoissargnoj Truoj or Court	∍[qijluM	9[dsnimr9t9bnU	[stoT
Breakthrough	0	0	.6	с.	0	.3	0	0	0	.3	1.5
Innovation	2.7	0	.6	<i>с</i> .	0	.6	с .	0	.	4.2	8.9
Research Results	.6	е.	3.0	6.	4.2	7.7	5.7	6.	2.1	5.1	30.4
Ongoing Investigations	0	с .	с.	0	0	0	.6	6.	1.2	1.8	5.1
Current Crises	е.	0	е.	0	0	0	2.1		2.1	6.	6.0
Explanation of Accepted Facts, Procedures	1.5	.6	.6	.6	6.	1.2	с.	0	4.2	1.2	11.0
Unique, Rare Cases	1.2	0	е.	0	0	0	0	0	2.7	1.8	6.0
Controversy/Disputes	0	0	е.	с.	6.	0	.9	.6	4.2	6.	8.0
Medical Personalities, and Their Opinions	2.4	2.1	.6	.6	1.2	1.5	.6	1.5	2.7	1.2	14.3
Costs, Legal Matters	0	.6	9.	с .	0	0	2.1	1.5	3.6	с.	8.9
TOTAL	8.6	3.9	7.1	3.3	7.1	11.3	12.5	5.7	22.9	17.6	100.0

TABLE 11.--Cross Tabulation of Categories of Stories by Origins (total percent).

When a controversy was the subject, reporters gleaned their information from multiple sources in 51.9 percent of the cases (Table 10)--a higher percentage than in any other category. A high percentage (11.1) of controversy stories were of undeterminable origin or came from government reports and reports in scientific or medical journals. Congressional committee or court testimony accounted for 7.1 percent of the controversy articles.

For crises information, reporters relied on government reports and multiple sources most heavily.

Looking at origins (Table 12), it can be seen that 41.7 percent, the highest percentage, of press releases were used in reporting research results. Press releases were used in every category, while no other form of origin was found in every category.

Interviews were used in 6 out of the 10 categories. The highest percentage of interviews, 31.0, were used in stories of innovations. About 28 percent of the interviews were found with medical personalities and their opinions; 12.7 percent found with explanation of accepted facts and procedures stories and 13.8 for unique or rare case histories.

Testimony before Congressional committees or courts was found to be the origin most often in stories of costs and legal matters and medical personalities and their opinions (26.3 percent in each case).

(column percent).
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	Breakthrough	Innovation	Research Results	Ongoing Investigations	Current Crises	Explanation of Accepted Facts, Procedures	Unique, Rare Cases	Controversy/Disputes	Medical Personalities, and Their Opinions	Costs, Legal Matters
wəivrətnI	0	31.0	6.9	0	3.4	17.2	13.8	0	27.6	0
Speech	0	0	7.7	7.7	0	15.4	0	0	53.8	15.4
Press Release	8.3	8.3	41.7	4.2	4.2	8.3	4.2	4.2	8.3	8.3
Popular Press, Magazine or Book	9.1	9.1	27.3	0	0	18.2	0	9.1	18.2	9.1
scientific or Seden Journal	0	0	58.3	0	0	12.5	0	12.5	16.7	0
Report at a Report at a	2.6	5.3	68.4	0	0	10.5	0	0	13.2	0
Government Report	0	2.4	45.2	4.8	16.7	2.4	0	۲.۱	4.8	16.7
Testimony Congressional Comrttee or Court	0	0	15.8	15.8	5.3	0	0	10.5	26.3	26.3
∍[qij[nM	0	1.3	9.1	5.2	9.1	18.2	11.7	18.2	11.7	15.6
9 ſdsnimr9j9bnU	1.7	23.7	28.8	10.2	5.]	6.8	10.2	5.1	6.8	1.7

Attention Scores

An attention score from 0 to 5 was given each article by a method discussed in Chapter III. An analysis of variance showed that attention scores by year of the stories, by newspaper, by newspaper and year and by category of story and year were not significant.

Analysis of variance of attention scores between origins was significant (Table 13).

A post hoc statistical test, the Lease Significant Difference Test⁶⁸ was used to make pairwise comparisons among means. This test found significant attention score differences between the multiple group and all other origins except interview and speech (Table 14). Significant differences were found between the interview group and those of press releases, government reports, undeterminable and scientific or medical journals.

Analysis of variance of attention scores between categories of stories was significant (Table 15). The post hoc statistical test found significant differences in attention scores between Category 6, explanation of accepted facts and procedures, and all the other categories except Category 7, unique/rare cases, and Category 1, breakthroughs (Table 16). Significant differences were also found between Category 7 and all the other categories except for Category 1 and Category 6.

⁶⁸Roger E. Kirk, <u>Experimental Design: Procedures for the</u> <u>Behavioral Sciences</u> (Belmont, California: Brooks/Cole Publishing Company, 1968), p. 87.

TABLE 13	-Analysis of Variance of Attent	tion Scores Betwee	n Origins.		
	Source	Degrees of Freedom	Sum of Squares	Mean Squares	Ŀ
	Between Groups	6	61.02	6.78	5.29*
1161.10	Within Groups	326	417.48	1.28	
	TOTAL	335	478.50		
*p < .05					

- 3.13 - 2.76	- 2.45	- 2.20	- 2.73		- 2.42	- 2.73	- 3.40	- 2.33
Interview Speech	Press Relations Ponular Press	Scientific Journal	Report at Scientific	Meeting	Government Report	Testimony	Multiple	Undeterminable
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List of Means of Attention Scores by Origin:								

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TABLE 14Differences Be	etween Pai	red Groups	of 0	rigins F	ƙegardir	ig Atter	ition Sc	ores.		
	∍[qit[uM	wəivrətnI	Speech	Report at Science or Medical Meeting	Vnomijs∋T	Popular Press, Magazine or Book	Press Release	Jroqsh Jnamnravoð	∍Γdsnimn∋t∋bnU	scientitic or fenruot fesibeM
Multiple	:	.26	.63	0.67*	0.67*	0.86*	0.94*	*79.0	1.06*	1.19*
Interview		;	.37	0.40	0.40	0.59	0.68*	0.71*	0.80*	0.93*
Speech			;	0.03	0.03	0.22	0.31	0.34	0.43	0.56
Report at Science or Medical Meeting				;	0.00	0.19	0.28	0.31	0.40	0.53
Testimony					ŀ	0.19	0.28	0.31	0.40	0.53
Popular Press, Magazine or Book						1	0.09	0.12	0.21	0.34
Press Release							ł	0.03	0.12	0.25
Government Report								ł	0.09	0.22
Undeterminable Scientific 25									1	0.13
Medical Journal										ł

TABLE 15A	nalysis of Variance of Attention	Scores	Between Categories.		
	D	legrees Freedo	of Sum of om Squares	Mean Squares	ш
	Between Groups	6	30.75	3.42	2.49*
caregory	Within Groups	326	447.74	1.37	
	TOTAL	335	478.49		
*p < .05					
List of Means	: of Attention Scores by Category	~ 	Breakthrough Innovation	- 3.00	
			Research Results	- 2.65	
		4 .C	Ungoing Investigations Current Crices	- 2.52	
		9	Explanation of	- 3.40	
			Accepted Facts	9 	
		7.	Unique/Rare Cases	- 3.40	
		œ	Controversy/Disputes	- 2.59	
		.	Medical Personalities	- 2.52	
		10.	and ineir upinions Costs/Legal Matters	- 2.60	

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cion of Accepted , Procedures	:	0.05	0.41	0.71*	0.75*	0.81*	0.81*	0.8]*	0.88*	0.88*
Rare Cases		1	0.40	0.70*	0.74*	0.80*	0.80*	0.80*	0.87*	0.88*
roughs			:	0.30	0.34	0.40	0.40	0.41	0.47	0.48
ions				8 1	0.04	0.10	0.10	0.11	0.17	0.18
h Results					ł	0.06	0.06	0.06	0.13	0.14
Crises						1	0.00	0.01	0.07	0.08
egal Matters							1	0.01	0.07	0.08
ersy/Disputes								!	0.06	0.07
Investigations									1	0.01
Personalities neir Opinions										8

TABLE 16.--Differences Between Paired Categories Regarding Attention Scores.

CHAPTER V

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

This study has shown that medical news in metropolitan dailies is not just a series of exaggerated reports of breakthroughs, as was hypothesized. Contrary to the accusations of scientists and journalism critics, breakthrough medical news is not a major part of medical reporting, at least not in the metropolitan papers with the largest circulations. Breakthroughs were found in only 1.5 percent of medical news in the sample. It would appear that critics are overreacting to the occasional misleading reports.

It is possible that these few reports have an impact. It is also possible that reports of breakthroughs found elsewhere (in other media, such as television, or in other types of newspapers, such as the <u>National Enquirer</u>) mistakenly reflect on the performance of the American metropolitan daily press. One story of a new cure or treatment for a disease in a paper such as the <u>National Enquirer</u>, which makes a point of including one in every issue, can set phones ringing at doctors' offices and medical societies across the country. Word of mouth spreads the news further and the effect of one article can overshadow many other, more routine, medical stories.

In a 1979 study that examined the extent to which scientists and science journalists agree about major issues of science coverage, Michael Ryan found both groups strongly agreed with this statement: "A reporter should not use a word such as "breakthrough" or "cure" unless the scientist believes the term is appropriate when applied to his or her work."⁶⁹

It would seem that the concern that reporters might erroneously state or imply that a particular medical research result is a "breakthrough" is still with us, whether or not there is reason for such concern.

It is difficult to make any significant statement, due to the small number of breakthrough stories, on whether stories of breakthroughs receive greater news play than do other types of medical news. From the attention scores of the five breakthrough stories, however (see Table 15), there is reason to believe this is so.

The mean attention score for the breakthrough stories was 3. The mean average for all categories was 2.798. Categories with higher attention scores were Unique and Rare Cases and Explanation of Accepted Facts and Procedures. A higher attention score for stories of the unique and rare is understandable. A higher attention score for routine explanation of accepted facts is

⁶⁹Michael Ryan, "Attitudes of Scientists and Journalists Toward Media Coverage of Science News," <u>Journalism Quarterly</u> 56 (Spring 1979): 22.

probably due to the fact that these stories were usually on the first page of women's sections. Stories on the first page of an identifiable specialized section received an attention score point for that placement. This would account for the high attention score received by Category 6. It also shows that attention is being directed to the routine and the accepted categories, as well as the unique and rare.

While Ryan found that science writers felt that, as a group they rarely sensationalize the news, he discovered that scientists believe the opposite.⁷⁰

There is also the possibility, explored by Max Wales, Galen Rarick and Hal Davis, that the exaggeration perceived with any particular story is exaggeration on the part of the reader, not the writer. These researchers suggested that it might be the decoder, not the encoder, that sometimes distorts the message being transmitted.⁷¹

The hypothesis that more medical stories originate from researcher's or institution's press releases than from reporter initiative seems to have been supported. Although we can never be precisely certain when a reporter used initiative, when a story mentions a press release or press conference as its sole source, we have a pretty good idea that it was presented to the reporter

⁷⁰Ibid., p. 26.

⁷¹Max Wales, Galen Rarick, and Hal Davis, "Message Exaggeration by the Receiver," <u>Journalism Quarterly</u> 40 (Summer 1963): 339.

for publication with little news gathering effort on the part of the reporter.

When a reporter sees an interesting item in another paper, medical journal or government report, initiative may be used in researching an additional article on the subject. But when the paper, journal or report is the only source quoted in the reporter's new story, it is assumed that initiative was minimal.

Attending scientific meetings, speeches and committee or court sessions where testimony is given requires some initiative, but the reporter usually reports what is said there without further investigation.

Stories with interviews and multiple sources give the greatest evidence of reporter initiative.

Rubin noted in his study of the swine flu coverage that there was "a direct correlation between the quality of coverage in a news medium and the number of sources consulted (i.e., cited in the coverage). . . ."⁷²

It can be concluded that stories originating with press releases, other magazines or newspapers, journals or government reports indicate little reporter initiative. And stories of speeches, scientific meetings or testimony show mild reporter initiative. Stories from interviews and/or multiple sources show high reporter initiative.

⁷²Rubin, p. 46.
Looking at origin findings then (Table 11) it can be seen that little reporter initiative took place in 30 percent of the sampled stories, mild initiative in 20.9 percent, and top initiative shown in 31.5 percent. Thus we have 50.9 percent of the stories originating with little or mild reporter initiative, against 31.5 percent with high initiative.

Of course, 17.6 percent of the stories gave no evidence of initiative one way or the other. It is interesting to note, however, that when viewed over time, use of press releases, press conferences and speeches dropped steadily over the ten year period from 1967-68 to 1977-78 (Table 7). Use of multiple sources, on the other hand, increased steadily over the same ten year period. This could be taken as an improvement in the quality of medical news over the past decade or so. Use of the popular press, scientific meetings, government reports and testimony as story origins increased in 1972-73 but dropped again in 1977-78. Use of single interviews, scientific or medical journals and stories with undeterminable sources dropped in 1972-73, but picked up again in 1977-78. Further study would be needed to determine if these are trends.

Further Study

This thesis indicates several areas for possible further research.

Because only three of the breakthrough stories found in this sample were in years previous to the present and could be followed up as to their accuracy, the planned follow-up was

impossible (see Hypothesis 1). An area for further study would be a follow-up of a larger sample of breakthrough stories, perhaps from every year of the past decade or so, to determine their rate of accuracy. Did the promises or predictions come true? Did the treatments, drugs or procedures have lasting value? If a larger proportion of these breakthrough stories turn out to be only so much hot air and false promises, then it can be recommended that the newspaper profession utilize more caution, more skepticism and more disclaimers in reporting on science. Recent surveys indicate reader interest in science is still strong and growing, while editors continue to underestimate that interest.⁷³

A further account of the news play given a sample of breakthrough stories, via the attention score system used here, would give an indication of the relative attention breakthrough news receives, if compared to attention scores for a sample of general news.

Further study is also indicated to more precisely determine the nature of reporter initiative in medical reporting. Perhaps reporters could be surveyed on their motivations in doing a series of sampled stories or on the relative percent of their time spent with each type of story source.

⁷³Clyde Z. Nunn, "Readership and Coverage of Science and Technology in Newspapers," <u>Journalism Quarterly</u> 56 (Spring 1979): 27-28.

APPENDICES

APPENDIX A

SAMPLE CODING SHEET

APPENDIX A SAMPLE CODING SHEET

	TYPE OF Source					
ISSUE DATE	ATTENTION SCORE POINTS	TOTAL				
		Page 1				
		3/4 Col.				
		Fold				
		Head				
	DUGH					
	OUGH VT I ON	ż				
	REAKTHROUGH	N-B ?				
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APPENDIX B

DIRECTION TO PANEL OF JUDGES

APPENDIX B

DIRECTION TO PANEL OF JUDGES

Please judge whether or not the attached stories can be classified as "breakthrough" stories, keeping in mind the following definition:

> Breakthrough stories are those stories which include the implication, through use of the word "breakthrough," "cure," "giant step forward" and the like that we have a new discovery or approach to a problem or situation in medicine and that it will benefit mankind.

(A panel of three, including one graduate student, one public relations representative of a state medical society and one lay reader, were given these instructions along with a packet of 10 stories. The stories included the most probable breakthrough stories from the sample of 336 and some stories that did not appear to fit the breakthrough definition.)

APPENDIX C

DESCRIPTION OF BREAKTHROUGH STORIES FOUND IN SAMPLE

APPENDIX C

DESCRIPTION OF BREAKTHROUGH STORIES

FOUND IN SAMPLE

The following gives the headline, newspaper, date and brief description of the stories classified as breakthroughs by the judges.

"Breakthrough Near On Stretching Life," <u>San Francisco Examiner</u>, 7 April 1968.

This story states that the ability to prolong life by tinkering with our inborn biological clocks is no longer science fiction but a real and not too distant possibility.

"Tickle Now Replaces Pain in Soviet Dentists' Chair," <u>The Washington</u> <u>Post</u>, 15 October, 1972.

This story states that a "scientific breakthrough" has been made by the Russians that completely eliminates pain during drilling of teeth without the use of chemical anesthesia.

"Leukemia Fight Gains a Weapon," <u>The Detroit Free Press</u>, 23 January 1973.

This story announces the development of a new process for extending the lives of leukemia patients. The process, which

extracts white blood cells from donors, is said to be able to keep some patients alive until a cure for the disease is developed.

"Substance Found in Blood of Schizophrenic Patients," <u>The Washington</u> <u>Post</u>, 9 November 1977.

Two scientists report that they have found a substance in the blood of schizophrenic patients that may explain their state of mind. A treatment to remove it effecting a cure has proven "so promising" that 12 treatment units are scheduled to open.

"Hormone Creation is a Breakthrough," <u>The Milwaukee Journal</u>, 4 December 1977.

This story tells how a team of scientists made an artificial gene for a hormone and spliced it into the genetic machinery of a bacterium. The experiment is termed "an electrifying success," a "scientific triumph of the first order," and a "breakthrough." **BIBLIOGRAPHY**

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