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A COMPARISON OF RAPE EVIDENCE COLLECTED BY HOSPITALS WITH THAT COLLECTED BY SEXUAL ASSAULT NURSE EXAMINERS IN MACOMB COUNTY, MICHIGAN

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RACHEL KATHARINE SCOTT

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A COMPARISON OF RAPE EVIDENCE COLLECTED BY HOSPITALS WITH THAT COLLECTED BY SEXUAL ASSAULT NURSE EXAMINERS IN MACOMB COUNTY, MICHIGAN

By

Rachel Katharine Scott

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ABSTRACT

A COMPARISON OF RAPE EVIDENCE COLLECTED BY HOSPITALS WITH THAT COLLECTED BY SEXUAL ASSAULT NURSE EXAMINERS IN MACOMB COUNTY, MICHIGAN

By

Rachel Katharine Scott

Rape is a crime in the United States. Victims of rape are not limited by age, sex, ethnic group, or social status. When a rape occurs, the first and most vital responsibility of those involved in an investigation is to immediately focus on the victim's urgent medical needs. In the past, a victim had no choice for care other than a hospital. There, he or she may wait several hours before being examined. A solution to this problem is currently being tested by the Macomb County Sexual Assault Nurse Examiner (SANE) Clinic. Victims brought to this clinic are given first priority by forensic nurses who examine them.

Regardless of where a victim is taken, a rape kit is required to collect evidence pertaining to the assault. A rape kit consists of a medical report, vaginal, anal, and oral swabs and slides, head and pubic hair samples, a blood sample, and the victim's undergarments. This study compared the quality and completeness of the evidence in rape kits by hospitals with the SANE Clinic in Macomb County, Michigan. Results of this exploratory study would suggest that the SANE kits were more complete than the hospital kits.

Dedicated to my parents, Stewart and Katharine Scott. Thank you for all of your love and support throughout the years.

Dedicated to Timothy Witek, my partner in life.

Dedicated to all victims of rape. This research is for you.

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LIMITATIONS OF STUDY

The study conducted in this thesis was an exploratory study based on qualitative research. It is not a quantitative statistical study. Descriptive statistics (percentages) were used in forming the conclusions rather than inferential statistical calculations. This study lays a foundation for further subsequent, quantitative research to be conducted on the topic.

The data used in this study was collected over different time periods. The hospital data was primarily collected from August 1998-August 1999. The SANE clinic data was collected from August 1999-August 2000. Most victims were cared for at the SANE clinic once its facility was open to examining these victims. The hospital treatment declined after August 1999. This provided an insufficient amount of data for comparative analysis.

INTRODUCTION

Rape is any sexual act that is attempted and completed by force, threat of force, or coercion against another person's will (1). Rape occurs whenever a victim does not give his or her consent in participating in a sexual act. Statutory rape, for example, involves a "minor" who legally is not able to consent to participation in a sexual act with an "adult". Rape can happen to a male, female, the young, elderly, handicapped, or even the deceased. It can happen to anyone of any culture or social group. Rape is an age-old crime that continues to steal the sense of well-being, security, and wholesomeness from its victims today. Often the only witnesses to the vicious crime of rape are the victim and perpetrator. Thus, it is the victim's word against that of his or her attacker. However, it has been shown that prosecution of rape cases are more successful when concrete evidence is presented. To this end, it is important for medical personnel involved to perform a thorough examination of all rape victims. In fact, the outcome of the case is largely dependent upon the evidence gathered and preserved.

This study compared the rape kits collected by hospitals in Macomb County, Michigan with the rape kits collected by the Macomb County Sexual Assault Nurse

Examiners (SANE) Turning Point Program. Results of this exploratory study would suggest that the SANE clinic had a higher level of completion in their collection of the rape kits than the hospitals did.

LITERATURE SEARCH/BACKGROUND INFORMATION

RAPE STATISTICS

According to *The National Women's Study* (2), 683,000 forcible rapes occur every year, which in turn breaks down to 56,916 per month; 1,871 per day; 78 per hour; and 1.3 per minute. One out of every three women, and one out of every six men will be sexually assaulted at some point in his or her lifetime (2). Of these rapes, about 50 percent of the assaults involve acquaintances (3), or someone that the victim previously knew. Rape is not an impulsive act. Seventy-five percent of all sexual assaults are planned in advance (3). The attacker has usually thought out and plotted his or her crime well in advance of implementing it. Sixty-one percent of rapes occur before the victims are 18 years old, and 29 percent of these forcible rapes occur when the victims are younger than 11 years old (2). Accordingly, it is the younger members of society who are most at risk. Only about 16 percent of all rapes are ever reported to the police (2). This figure seems to be on the rise according

to the U.S. Federal Bureau of Investigation. This may be due to an increase in actual rapes or it may be due to the notion that more men and women are willing to report a rape.

CURRENT MICHIGAN RAPE LAWS

Note: This thesis involved data gathered in Macomb County, Michigan. A brief summary of Michigan criminal sexual conduct (rape) laws as will be given in this section.

The State of Michigan currently has a four degree system that handles the severity associated with various aspects of rape or criminal sexual conduct (CSC). The following is taken from the CSC laws in Michigan's Penal Code (4) Chapter LXXXVI on CSC, section 750-520a-e. First, in understanding the laws, the difference between sexual penetration and sexual contact need to be understood. Sexual penetration involves sexual intercourse, anal intercourse, fellatio, cunnilingus, and intrusion of any other body part or object in genital or anal openings of the body, but emission of semen in not required. Sexual contact includes intentional touching of the victim's genital area, inner thigh, buttock, breast, or the clothing covering these areas. Furthermore, an actor (a.k.a. suspect) is defined as the person accused of committing CSC.

CSC in the first degree requires penetration and any of

the following: victim is under 13; victim is 13, 14, or 15 and one or more of the following: blood related, in the same house, actor is an authority; actor is in the process of committing another felony; multiple actors and one of more of the following: victim is incapacitated, force or coercion is used; weapon is involved: personal injury and force or coercion to penetrate; overcomes victim by force or coercion; threatens to use force or coercion; future threats; actor engages in the medical treatment of victim; overcomes victim by surprise. Any of the above constitutes a felony and the actor can be punished by imprisonment in the state prison for life or any term of years.

CSC in the second degree requires sexual contact and any of the circumstances required for first degree CSC. It is also a felony, but the maximum term is 15 years. An actor can be charged with first and second degree CSC, if he, for example, penetrates a victim and touches her breasts.

CSC in the third degree requires penetration and any of the following: victim is 13, 14, or 15, force or coercion is used, or the victim is incapacitated. This is the charge most often used in statutory rape cases where one participant is over 15 years old and the other participant is 13-15 years old. It is also a felony, with a maximum term of 15 years.

CSC in the fourth degree requires sexual contact and any of the following: force or coercion, victim is incapacitated, or the actor works in the Department of Corrections and the victim is an inmate. This charge is a misdemeanor and has a maximum sentence of two years. In addition, section 750.520l of the Penal Code provides that a person may be convicted and charged with the CSC of a spouse.

Michigan has set up a system that provides the laws needed to convict a sexual attacker. It is when these laws are broken, or are alleged to have been broken, that a rape investigation begins. A victim comes forward, a charge is filed, and evidence is collected. Medical personnel enter the scene at this point to collect and preserve evidence.

FACILITIES OFFERING SERVICES TO THE RAPE VICTIM

There are many sources of evidence involved in a rape investigation: the crime scene, the victim (interviews and physical evidence taken at the hospital or other center for medical care), the suspect or suspects, and witnesses. The first and most vital responsibility of those involved is to focus on the victim's immediate needs. Medical treatment is usually the victim's most urgent requirement. In the past, a victim's only option for care was a hospital. There, he or she may wait for several hours before being examined.

The primary responsibility of the hospital emergency room staff is to attend to the people with the most severe injuries first. The length of the victim's wait may depend primarily on how many other people with more life-threatening physical injuries are present. A gunshot wound, heart attack, or car accident are going to take priority over the collection of evidence from a rape victim. It is necessary that an emergency room "prioritize" patients and treat those with the most serious physical injuries first. It is for this reason that Forensic nurses should be included on the staff of the hospital emergency rooms. A forensic nurse is trained to focus on the collection of evidence from a victim, and this would allow the other members of the ER staff to concentrate their energies on treating the needs of those with serious medical conditions. Faye Battiste-Otto, founder of American Forensic Nurses, states that "general nurses are taught to cleanse a wound...washing away valuable evidence" (5). The teachings of hospital medical personnel may jeopardize the collection of evidence in a rape case because the staff has not been trained in the importance of evidence collection, especially during a physical examination in sexual assault cases.

To better meet the needs of a rape victim, some communities are experimenting with an emergency room on-staff Sexual Assault Nurse Examiner or a community Sexual

Assault Nurse Examiner's clinic. Victims brought to the clinics have no wait and are given first priority by specially trained forensic nurses who perform the examination, since rape victims are the clinics only focus. Today, there are over 80 SANE programs in existence in 26 states (6). The first SANE clinic was established in Memphis, Tennessee in 1976. In Michigan, the Macomb County SANE Turning Point Program opened its doors to victims in August, 1999. Nurses who serve as SANE examiners undergo a rigorous training protocol before they are hired. Class work, observation in a clinical setting, and assisting other medical personnel in the examinations of sexual assault victims are required before a nurse is certified as a SANE examiner. The Macomb County Nurse Examiners Clinic is open daily 8 a.m - 4 p.m., and staff nurses carry pagers 24 hours a day, 7 days a week. Rape victims are given first priority and usually do not have to endure a wait. The clinic is located in office space donated to the program by Mount Clemens General Hospital. The climate of the clinic is designed around serving the needs of a victim of sexual assault. Separate rooms are available for interviewing and examining the victim. There are waiting areas for law enforcement officers and family and friends of the victim. There is a private bathroom so the victim can shower after the physical examination is complete. The clinic is also

thoroughly equipped with state-of-the-art medical equipment that hospitals do not generally have. For instance, an alternate light source is scanned over the victim's body to identify trace evidence and possible semen stains which may not otherwise be observed. Nurses of the SANE clinic often apply toluidine- blue dye to the vaginal area, to show areas of genital trauma not visible to the naked eye (7). The Macomb County SANE Clinic nurses employ the use of a colposcope in vaginal examinations. The colposcope acts as a magnifying glass of sorts, and assists the nurses in identifying genital trauma and photo/video documentation of that trauma (8). The Fort Wayne Sexual Assault Treatment Center did a study on the findings before and after using colposcope technology in vaginal examinations. In cases where there were no trauma findings before the colposcope was used, 48 percent had significant trauma findings after the colposcope was employed (9). In one out of two cases where the nurses did not initially find anything of evidentiary value, colposcopy revealed trauma to the vaginal area and other trace evidence. As a result, evidence that may help convict a suspect may not be visible or collected without the aid of the colposcope.

PHYSICAL EXAMINATION OF AND EVIDENCE FROM THE VICTIM

Regardless of where the victim is taken, a physical examination is required to collect evidence of the sexual assault. The physical evidence most frequently encountered in rape cases is biological material transferred during sexual activity such as hair, semen, and blood, as well as external evidence of trauma. Upon arrival at the examining room, the victim should stand over a sheet of clean paper and disrobe. The paper will collect any evidence, such as hair and fibers, that may fall off the clothing and might otherwise be lost. The clothing items should be bagged in paper (to allow for air exchange) and labeled separately with the contents, victim's name, and collector. The undergarments should be set aside and packaged as evidence in the rape kit. The bags should then be sealed properly with evidence tape to preserve the chain of custody. The clothes can serve as an important source for the suspect's hairs, fibers, semen, and other items that may have been transferred during the attack.

The victim should be physically examined. The examiner should take careful notes, documenting bruises, scratches, lacerations, and the emotional state of the patient. Bite marks are found many times in sexual assaults and can be matched back to the individual who is responsible for them.

Photographs should be taken to document any external injuries which the victim received. This evidence is helpful in proving lack of consent in court. The victim's body should then be examined for blood or semen. An alternate light source which detects semen should be scanned over the victim's body, concentrating on the lips, thighs, perianal area, buttocks, and head hair. Any stains should carefully be removed by rolling a saline-dampened swab over the area. In cases of fellatio where the victim expectorated, scalp hair has been a good source of semen. In such a case, the hair should be cut off and eluted in saline. In some instances of sexual assault, the only laboratory proof of semen has been found on the victim's hair or skin (10). It is essential to check the hair for dried foreign matter. A forensic rape kit or prepared evidence collection kit should be employed in the remainder of the exam. A rape kit contains a medical history report, various swabs, slides, envelopes for hairs, and a purple-topped blood tube. First, the victim's oral cavity should be inspected for signs of trauma which include bruises around the mouth, torn frenulum of the lower lip, and torn frenulum beneath the tongue (4). Two oral swabs (air dry before packaging) and two oral slides should also be prepared. The victim's head hair should be combed and the combings placed in a labeled envelope. Then, 25-30 head

hairs, pulled at the root using a gloved hand, should be collected and placed in another carefully labeled envelope. The gathering of the pubic hairs and the vaginal swabs requires a pelvic exam. The examiner should comb the pubic hairs and place the combings in a labeled envelope, and 25-30 pulled pubic hairs should be saved in another envelope. As the vaginal swabs are collected, the examiner should look for any signs of tearing, lacerations, or other trauma to the vagina, employing toluidine blue dye to the area. A colposcope may be employed at this point in the exam. The posterior fornix should be wiped twice with a cotton-tipped swab and smeared on a glass slide. Additionally, any pooled secretions should be examined by the medical personnel for the presence of motile sperm. The vaginal orifice should be swabbed, one shallow swab and one deep, and a slide prepared. The SANE nurses, as a result of their specialized training, also may collect two swabs of the cervix. Whereas the vaginal swabs may have sperm present due to the drainage of semen on the area, it is unlikely that sperm will drain into the vagina and onto the cervix. If sperm are found on the cervical swabs, it helps establish that penetration of the victim occurred. (If the victim is male, their genitalia should also be examined for signs of trauma, including bites and lacerations. Swabbing of the penis should be included in place of the vaginal swabs, and smears

should be made). In summary, at least four vaginal swabs and two vaginal smears are collected. All swabs should air dry before placing them in the proper envelopes.

Next, the rectal area should also be closely examined, even if the patient denies anal intercourse. The perianal area should be checked for traces of lubricant. Two swabs of the anal opening and two swabs of the rectum (dry before packaging), and two slides should be prepared. The last step in completing the rape kit involves the drawing of the victim's blood. The kits come with a purple topped tube that contains an anti-coagulant or anti-clotting factor. It is essential that the blood is drawn in this tube. At minimum a rape kit should contain the following: a medical report, four vaginal or penile swabs, two vaginal or penile smears, two anal swabs, two anal smears, two oral swabs, two oral smears, head hair combings, 25-30 pulled head hairs, pubic hair combings, 25-30 pulled pubic hairs, an undergarment sample, and a blood sample in a purple-topped tube. It is of utmost importance that all evidence collected is properly labeled with the collector's initials and the victim's name, and that the kit is sealed properly with evidence tape once all of the evidence is gathered, to preserve the chain of custody. When the kit is complete, it is turned over to the police agency and taken to the lab for analysis.

FORENSIC EXAMINATION OF THE SEXUAL ASSAULT EVIDENCE AT THE LAB: IMPORTANCE OF THOROUGH EVIDENCE COLLECTION

Upon arrival at a forensic laboratory, the rape evidence is assigned to a forensic scientist specially trained to analyze the evidence of a rape investigation. The primary information noted on the lab report is how the evidence was received--sealed verses secured. Secured evidence is merely stapled or folded over whereas sealed is taped or glued. Sealed evidence is stronger as far as its inability to be tampered with. The scientist opens up the rape kit and notes its contents on a lab work sheet. Not all kits arrive at the laboratory complete. More often than not, they are missing evidence. For example, a kit may come into the lab with only two vaginal swabs and no oral swabs. This already hinders the investigation, as it gives the scientist less to work with. In other words, there are fewer pieces of evidence to link the suspect to the rape.

The swabs are taken out of their envelopes and examined for blood and sperm. If DNA evidence is found, in most circumstances there is no need to rely on potential trace evidence such as hair (11). Careful attention should be taken by the medical personnel to collect the proper number of swabs. If blood is noted, the phenolphthalein color test is applied. A small clipping of the swab is made. One drop of the phenolphthalein reagent is applied followed by a

drop of hydrogen peroxide. If the swab turns bright pink, it is highly indicative of blood. The swabs are also tested for semen content. Acid phosphatase is an enzyme that is secreted by the prostate gland into the seminal fluid. Usually, the best sample of seminal fluid comes from the swabs. A small clipping of each swab is made and placed on a paper towel. (Make sure the scissors are properly cleaned in between each clipping of a new object with bleach water to prevent cross contamination). Acid phosphatase is used to detect the possible presence of seminal fluid. One drop of sodium alphanaphythylphosphate is added to the swabs, and after a period of 30 seconds, a drop of Fast Blue Dye B is also added. An immediate purple color is positive for the indication of semen. The read must be taken immediately because some contraceptive creams and vaginal secretions may also turn purple upon prolonged standing. An even more reliable test for semen is an immunological assay using anti-P30. The enzyme P30 has not been noted in any other body fluids besides semen. A positive result for P30 is a strong confirmatory result for semen without the presence of sperm. This is noteworthy in the cases involving men who may have had a vasectomy. Any swabs that test positive for either blood or semen are saved in crial vials in the freezer to preserve them for DNA testing at a later date. Sperm can be microscopically identified with accuracy by

morphological characteristics. In fact, it is the microscopic identification of sperm that is the best indication that sexual activity has taken place. The *Annals of Emergency Medicine* (12) reports that while emergency departments identify sperm in only 13 percent of the cases that they examine, the crime lab analysis finds evidence of semen in over half. This fact again stresses the importance of medical personnel collecting the proper number of swabs and slides even if they do not observe any significant evidence themselves.

The slides are stained with nuclear fast red for 5 minutes and then rinsed with distilled water. Picroindigocarmine (green) dye is then applied for 15 seconds and rinsed off with ethanol. A drop of emersion oil is now added to the slides which are then viewed under the microscope. The heads of the sperm will appear purplish and the tails greenish. Identification of a least one intact sperm or three heads is generally required for a positive call. The slides are also graded from 1+ (low) to 4+ (high) based on the amount of sperm seen. At this point, the scientist opens the combed head hair and then the pulled head hair envelopes, looking for any hairs in the combings that do not match the pulled hairs. This is also done for the pulled and combed pubic hairs. Any hairs that appear to

be foreign to the samples are mounted on slides. The analyst then places a request on his report for pulled head hairs (25-30) and pulled pubic hairs (25-30) from the suspect in order to positively identify or rule out that the foreign hairs mixed in with the victim's are that of the suspects or someone else's. There is a large amount of variation in the hairs of a person's head and pubic area. A large sample of hairs need to be collected by medical personnel in order to give the scientist a large enough sample to work with. Kits with less than 25-30 pulled hairs are of little evidentiary value to the case.

The next step in the rape kit is to prepare a whole blood card of the victim for DNA typing. The victim's blood sample is placed on a DNA card which is then frozen until further testing is required. The victim's undergarments, if included, are examined by the forensic analyst. The undergarments are carefully examined and tested for blood and semen. Any positive areas are cut out and saved. The victim's panties are often a positive source for semen because the seminal fluid will often drain into them. For this reason, medical personnel should make a point to convince the victim of the importance of allowing their undergarments to be taken as evidence. To help expedite this process, the SANE clinics have a complimentary bag of clothes for the victim once the exam is complete. The

victim is then more likely to hand over the clothes worn during the attack.

Once all of the evidence has been examined, the analyst should properly seal the evidence packages to preserve the chain of custody, and write a laboratory report. The report should include the results of the examination and any requests for further material such as a suspect's hair and blood to compare with semen and blood stains obtained from the evidence. If the medical personnel have done a thorough job in conducting the physical examination, the forensic scientist will have more evidence to analyze in linking the suspect to the crime.

SEXUAL ASSAULT EVIDENCE AT COURT

If the rape goes to trial, the medical personnel who collected the evidence are often called upon to serve as witnesses in court. SANE nurses are specially trained in the area of courtroom testimony and consider testifying a part of their job. Whereas, it is often crucial that hospital staff members are not removed from their job of "saving lives" in the emergency room. It is important that more conclusive evidence, other than oral testimony, be presented in rape cases in order to protect the rights of both parties involved. The findings of the medical team are important in determining the guilt or innocence of the

accused. The claim of consent as a defense does not stand up against documented physical injuries of the reported victim. That, in addition to ripped clothing, blood stains, presence of intact sperm, and other forensic evidence gives the prosecution a solid foundation on which to base its case. A well documented chain of custody which provides a low risk of evidence tampering, and sound scientific testing procedures lead to a greater conviction rate of the guilty and a decrease in false reports of rape. According to FBI crime statistics (13), less than 2 percent of reported rape cases are found to be false, and better evidence collection helps to validate this fact. In Dallas, Texas, a program of comprehensive rape care, where all victims are treated, has resulted in better evidence gathering and higher rates of prosecution. In 1 year there were 127 indictments for rape and 110 guilty pleas. Of the 17 that went to trial, 14 ended in convictions (14). The Wisconsin SANE program reported that during a 3 ½ year period, there was a 100 percent conviction rate in cases where a SANE nurse testified at trial (15), and to date all cases, prosecuted with Oklahoma SANE nurses providing testimony, have resulted in convictions (16). (There was no available data presented in the previous referenced articles which listed the success rates of hospital staff members when testifying.) According to Dr. Stone, chief of the physical evidence analysis

section of the Forensic Sciences Institute, "The suspect is usually going to plead guilty when you have really good physical evidence." (14). That is the job of the medical personnel--to collect the evidence, in order that a forensic scientist may analyze it to the best of his or her ability, and let the evidence speak for itself in a court of law. The evidence becomes the best witness to the crime.

METHODS AND MATERIALS

RATIONALE FOR STUDY

During the summer of 1999, I participated in a volunteership with the Michigan State Police Forensic Laboratory in Sterling Heights, Michigan. The primary area in which I worked was the serology unit, or the unit responsible for analyzing body fluids. The processing of the submitted rape kits to determine their evidentiary value is one responsibility of the serology unit. I became aware to the fact that a large majority of the rape kits collected by hospitals fell below the standards of completion. Thus, when I became aware of the intended job of the SANE nurses in focusing on evidence collection, I became curious and wondered if specialized training in evidence collection would in fact lead to a higher level of rape kit completion. I decided to conduct an exploratory study for my thesis in

order to research this topic.

TOPIC OF THESIS RESEARCH

With the establishment of the SANE clinic in Macomb County, Michigan, the question arises as to which facilities--the hospitals of Macomb County or the Macomb County SANE Clinic better handles the execution of evidence in a rape kit and other items of importance pertaining to the assault. This study compares the evidence submitted by the SANE clinic's specially-trained nurses, with those collected by the staff members of area hospitals. This enabled me to explore which facility appeared to be superior in the completion of a rape kit.

DATA COLLECTION AND ANALYSIS

The rape kit evidence brought to the Sterling Heights Crime Lab by various police agencies in Macomb County, and gathered by the SANE clinic and area hospitals, was analyzed in this study. The study covers a 2 year period; August, 1998 through August, 2000. Evidence turned over to the lab from August, 1998 to August, 1999, came from area hospitals. Kits brought in from the end of August, 1999 through August, 2000, were primarily SANE cases, with a few hospital cases mixed in. This is because the Macomb County SANE clinic only opened its doors to victims in August, 1999. Since

that time, a large majority of rape victims have been treated at the SANE clinic instead of the Macomb County hospitals. All of the sexual assault cases from the time frame studied were referenced using the computer data base at the Michigan State Police Sterling Heights Forensic Laboratory. The laboratory report numbers were recorded and each case was pulled from a file that stores the reports numerically. The rape case "inventory sheets" were Xeroxed from each rape case that came into the lab. These "inventory sheets" list the evidence received in each case and are filled out for all kits that come into the building. (See the following page for an example of a rape kit inventory sheet.) After the sheets were pulled and copied, they were identified as hospital cases or from the SANE clinic. There were 97 hospital cases and 56 SANE cases. In order to obtain equal statistical values, based on an equal and unbiased number of rape kit cases, 50 of each type were chosen. The remaining inventory sheets were then discarded. The cases chosen were assigned an "H" or an "S" with "H" representing the hospital-collected cases and "S" the SANE-collected cases. A list of the original case numbers and the assigned "H" or "S" numbers was made in order to document the cases' original source. At this point, the lab number, victim's name, property tag numbers, and any other identifying information were removed from each sheet.

Laboratory#_____ Record#_____ Date:_/_/_ Analyst:____

EVIDENCE RECEIVED

One sealed Evidence Collection Kit labeled "_____" containing the following:

1-Medical Report

1-sealed envelope labeled "Vaginal Swabs" containing ( ) swab(s).

1-sealed envelope labeled "DNA Vaginal Swabs" containing ( ) swab(s).

1-sealed envelope labeled "Rectal Swabs" containing ( ) swab(s).

1-sealed envelope labeled "Oral Swabs" containing ( ) swab(s).

1-sealed slide holder labeled "Vaginal Smears" containing ( ) smear(s).

1-sealed slide holder labeled "Rectal Smears" containing ( ) smear(s).

1-sealed slide holder labeled "Oral Smears" containing ( ) smear(s).

1-sealed envelope labeled "Pulled Head Hair" containing hairs.

1-sealed envelope labeled "Head Hair Combings" containing hairs.

1-sealed envelope labeled "Pulled Pubic Hair" containing hairs.

1-sealed envelope labeled "Pubic Hair Combings" containing hairs.

1-sealed envelope labeled "Blood Sample" containing ( ) tube(s) of blood.

1-sealed white paper bag labeled "Undergarments" containing_____.

A spreadsheet was generated for both the hospital and SANE kits (see Tables 1 and 2) to organize the number of each piece of evidence inventoried in each rape kit.

The following key applies to Tables 1-4 and Figures 1 and 2.

A=medical report

B=vaginal/cervical/DNA vaginal swabs

C=rectal swabs

D=oral swabs

E=vaginal smears

F=rectal smears

G=oral smears

H=pulled head hair

I=head hair combings

J=pulled pubic hair

K=pubic hair combings

L=blood sample

M=undergarments

N=additional evidence

NA=none available

Table 1: Hospital Collected Rape Kit Content Data, Macomb County, MI, August, 1998 through August, 2000

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
H1	0	4	0	0	2	0	0	1	1	1	1	1	0	0
H2	1	4	0	2	2	0	2	1	1	1	1	1	0	0
H3	0	4	1	4	2	2	2	1	1	1	1	1	0	0
H4	1	4	2	2	2	2	2	1	1	1	1	1	0	0
H5	0	4	2	0	2	2	2	1	1	0	1	1	0	0
H6	1	4	2	1	2	2	0	1	1	1	1	1	0	0
H7	1	4	0	2	2	0	2	1	1	1	1	1	0	0
H8	1	2	1	2	2	2	2	1	1	0	1	1	0	0
H9	1	4	0	2	2	0	2	1	1	1	1	1	0	0
H10	1	4	0	2	2	0	2	1	1	1	1	1	1	0
H11	1	2	2	2	2	2	2	1	1	1	1	1	0	0
H12	1	2	2	2	2	2	2	1	1	1	1	1	2	0
H13	1	2	1	1	2	2	2	1	1	1	1	1	0	0
H14	0	4	1	2	2	1	2	1	1	1	1	1	0	1
H15	1	4	0	2	2	0	2	1	1	1	1	1	0	0
H16	1	4	0	2	2	0	2	1	1	1	1	1	2	0
H17	1	0	0	0	2	2	2	1	0	1	0	1	0	0
H18	1	4	0	2	2	0	2	1	1	1	1	1	0	0
H19	1	0	0	2	0	0	2	0	0	0	0	0	0	0
H20	1	4	0	0	2	0	0	1	1	1	1	1	0	0
H21	1	1	1	1	2	2	2	0	0	0	0	0	0	1
H22	0	4	0	1	2	0	0	1	1	1	1	0	0	0
H23	1	2	2	2	2	2	2	1	1	1	1	1	0	0
H24	0	4	2	2	2	2	2	1	1	1	1	1	0	1
H25	1	2	0	2	2	0	2	1	1	1	1	1	0	0
H26	1	2	2	0	2	2	0	1	1	1	1	0	0	2
H27	1	4	2	0	2	2	0	1	1	1	0	1	0	0

Table 1 (cont'd).														
H28	1	4	2	0	2	2	0	1	1	1	1	1	0	0
H29	0	2	0	2	2	0	2	1	1	1	1	1	1	1
H30	0	0	2	2	0	2	2	1	1	1	1	0	0	1
H31	0	3	2	2	2	2	2	1	1	1	1	1	0	0
H32	1	1	0	0	2	0	0	0	0	0	0	0	1	0
H33	1	3	2	2	2	2	2	1	1	1	1	1	0	0
H34	1	4	1	2	2	2	2	1	1	1	1	1	0	0
H35	1	4	2	2	2	2	2	1	1	1	1	1	0	0
H36	1	4	1	2	2	2	2	1	1	1	1	1	0	0
H37	1	4	2	2	2	2	2	1	0	1	0	1	0	0
H38	1	4	0	2	2	0	2	1	1	1	1	1	0	0
H39	1	2	0	2	2	2	2	1	1	1	1	1	0	0
H40	1	4	2	2	2	2	2	1	1	1	0	1	0	0
H41	1	2	0	0	0	0	0	0	0	0	0	1	0	0
H42	1	2	0	2	2	0	2	1	1	1	1	1	0	0
H43	1	2	2	2	2	2	2	1	1	1	1	1	0	1
H44	1	4	2	2	2	2	2	1	1	1	1	1	0	0
H45	1	4	2	2	2	2	2	1	1	1	1	1	0	0
H46	1	4	0	2	2	0	2	1	1	1	1	1	1	0
H47	0	4	0	2	2	0	2	1	0	1	0	1	0	0
H48	1	0	2	2	0	2	2	1	1	1	1	2	1	0
H49	1	4	2	2	2	2	2	1	1	1	1	1	0	0
H50	1	4	2	2	2	2	2	1	1	1	1	1	0	0

Table 2: SANE Collected Rape Kit Content Data, Macomb County, MI, August, 1999 through August 2000

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
S1	1	5	2	4	2	2	2	1	1	1	1	3	0	2
S2	1	4	2	4	2	2	2	1	1	1	1	0	0	1
S3	1	2	2	2	2	2	2	1	1	1	1	1	0	2
S4	1	4	2	0	4	2	0	1	1	0	0	1	0	3
S5	0	6	4	0	2	2	0	1	1	1	1	1	0	5
S6	1	6	4	2	2	2	2	1	1	0	0	1	1	2
S7	0	6	4	4	2	2	2	1	1	0	1	2	0	5
S8	1	4	2	2	2	2	2	1	1	1	1	1	1	1
S9	0	6	4	4	2	1	2	1	1	1	1	1	0	4
S10	0	4	2	4	2	1	1	1	1	1	1	1	1	1
S11	0	6	4	4	2	2	2	1	1	1	1	1	0	2
S12	0	4	4	4	4	2	2	1	1	1	1	0	0	1
S13	1	6	4	4	2	2	2	1	1	0	0	2	1	2
S14	1	6	4	4	2	2	2	1	1	1	1	1	0	0
S15	1	4	0	2	2	0	2	1	1	0	0	1	0	0
S16	1	5	0	0	2	0	0	0	0	0	0	1	0	1
S17	1	0	0	4	0	0	2	0	0	0	0	1	0	2
S18	1	6	4	4	2	2	1	1	1	1	1	1	1	2
S19	1	6	4	4	2	2	2	1	1	0	0	1	0	2
S20	1	3	1	2	2	2	2	1	1	1	1	1	1	1
S21	1	0	0	4	0	0	2	1	1	0	0	0	0	2
S22	1	4	3	2	2	2	2	1	1	1	1	1	0	1
S23	1	4	4	4	2	2	2	1	1	1	1	1	0	2
S24	1	8	2	4	2	2	2	1	1	1	1	1	1	3
S25	1	10	2	4	4	2	2	1	0	1	1	1	0	1
S26	1	8	3	0	2	2	2	1	1	1	1	1	0	5

Table 2 (cont'd).														
S27	1	0	4	4	0	2	2	1	1	1	1	1	1	4
S28	1	8	4	0	2	2	0	1	1	1	1	1	0	3
S29	1	6	2	2	2	2	2	1	1	1	1	1	0	1
S30	1	8	2	4	2	2	2	1	1	1	1	1	0	4
S31	1	6	0	0	2	0	0	1	1	0	0	1	0	1
S32	1	6	4	4	2	2	2	1	1	0	0	1	1	1
S33	1	6	4	0	2	2	0	1	1	1	1	1	0	1
S34	1	6	4	4	2	2	2	1	1	0	0	1	0	1
S35	1	6	2	4	2	2	2	1	1	1	1	1	0	2
S36	1	1	1	0	0	0	0	0	0	0	0	1	1	1
S37	1	6	2	4	2	2	2	1	1	1	1	1	0	1
S38	1	6	3	4	2	2	2	1	1	1	1	1	0	7
S39	1	8	4	4	2	2	2	1	1	1	1	1	0	1
S40	1	4	2	0	2	2	0	1	1	1	1	1	0	3
S41	1	2	0	2	2	0	2	1	1	1	1	1	0	1
S42	1	8	4	4	2	2	0	1	1	NA	NA	2	0	0
S43	1	8	4	4	2	2	2	1	1	1	1	1	1	2
S44	1	6	4	4	2	1	2	1	1	1	1	1	1	1
S45	1	6	4	4	2	2	2	1	1	1	1	1	0	1
S46	1	6	4	0	2	2	0	1	1	1	1	1	0	4
S47	1	6	4	4	2	2	2	1	1	2	1	5	1	1
S48	1	6	2	4	2	2	2	1	1	1	1	1	1	1
S49	1	6	4	4	2	2	2	1	1	1	1	1	0	2
S50	1	6	4	4	2	2	2	1	1	1	1	1	0	1

Based on these tables, numerous statistical values were calculated in order to compare the evidence collected by the Macomb County hospitals and the Macomb County SANE Clinic during their examinations of the rape victims. Three

factors were analyzed for the 100 sample kits: (1) *number of items per kit,* (2) *minimum criteria,* and (3) *kit completeness.*

RESULTS

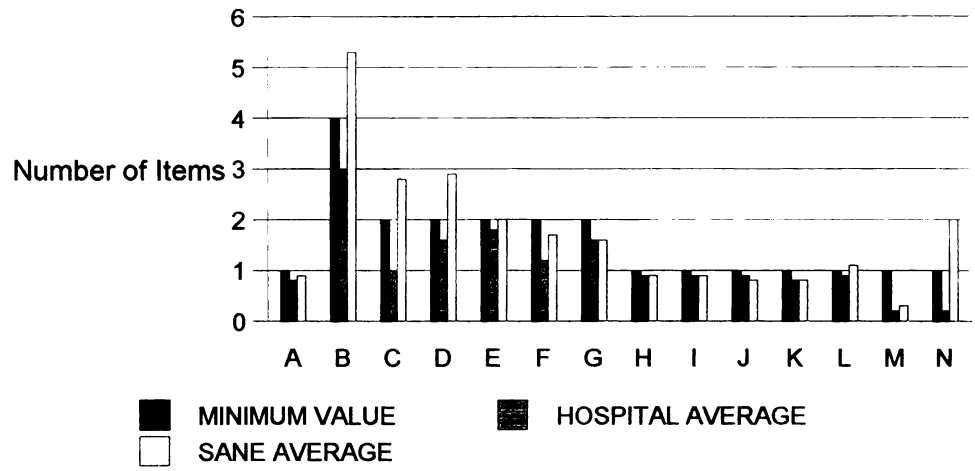
After the spreadsheets were formulated for the hospital and SANE rape kits, the average number of each type of evidence contained in the kits was calculated (Table 3 and as illustrated in Figure 1).

See KEY on page 24

	Table 3: Average Number of Items Per Rape Kit From Hospitals and SANE Clinic, Macomb County, Michigan, August 1998-August 2000		
	MINIMUM VALUE	**HOSPITALS**	**SANE**
A	1	0.8	0.9
B	4	3.0	5.3
C	2	1.0	2.8
D	2	1.6	2.9
E	2	1.8	2.0
F	2	1.2	1.7
G	2	1.6	1.6
H	1	0.9	0.9
I	1	0.9	0.9
J	1	0.9	0.8
K	1	0.8	0.8
L	1	0.9	1.1
M	1	0.2	0.3
N	1	0.2	2.0

Figure 1: Average Number of Items Per Rape Kit

(See KEY on page 24)



The minimum amount of the various types of evidence that a rape kit should contain is listed, and the average number of each type of evidence contained in both the SANE and the hospital kits is shown in comparison with the minimum standards. (At minimum a rape kit should contain the following: a medical report, four vaginal or penile swabs, two vaginal or penile smears, two anal swabs, two anal smears, two oral swabs, two oral smears, head hair combings, 25-30 pulled head hairs, pubic hair combings, 25-30 pulled pubic hairs, an undergarment sample, and a blood sample in a purple-topped tube.) The average number of each item in a rape kit should be at or above the minimum value. The hospitals' averages were below the minimum standards in every type of evidence collected. The SANE clinic's averages were below the minimum standard in eight

categories, the same in one category, and above the minimum standards in four categories. Vaginal, rectal, and oral swabs, and a blood sample are the four categories in which the SANE clinic's averages were above the minimum values. These are often the most important sources of evidence in a rape case because they often contain the suspect's DNA evidence.

The rape kits were categorized by the *number of items per kit* (Tables 4 and 5). These data are important in helping to compare the mode or most common number of each type of evidence.

Table 4: Hospitals-Number of Rape Kits Categorized by Number of Items Per Kit (See KEY on page 24)

NUMBER OF ITEMS	0	1	2	3	4	5
A	10	40	0	0	0	0
B	4	2	12	2	30	0
C	21	7	22	0	0	0
D	9	4	36	0	1	0
E	4	0	46	0	0	0
F	19	1	30	0	0	0
G	9	0	41	0	0	0
H	5	45	0	0	0	0
I	8	42	0	0	0	0
J	7	43	0	0	0	0
K	10	40	0	0	0	0
L	7	42	1	0	0	0
M	42	6	2	0	0	0
N	42	7	1	0	0	0

Table 5: SANE-Number of Rape Kits Categorized by Number of Items per Kit (NUMBER OF ITEMS SHOWN ON ROW 1, See KEY on page 24)

	0	1	2	3	4	5	6	7	8	9	10	NA
A	6	44	0	0	0	0	0	0	0	0	0	0
B	3	1	2	1	9	2	24	0	7	0	1	0
C	6	2	14	3	25	0	0	0	0	0	0	0
D	10	0	8	0	32	0	0	0	0	0	0	0
E	4	0	43	0	3	0	0	0	0	0	0	0
F	7	3	40	0	0	0	0	0	0	0	0	0
G	10	2	38	0	0	0	0	0	0	0	0	0
H	3	47	0	0	0	0	0	0	0	0	0	0
I	4	46	0	0	0	0	0	0	0	0	0	0
J	13	35	1	0	0	0	0	0	0	0	0	1
K	12	37	0	0	0	0	0	0	0	0	0	1
L	3	42	3	1	0	1	0	0	0	0	0	0
M	36	14	0	0	0	0	0	0	0	0	0	0
N	3	22	13	4	4	3	0	1	0	0	0	0

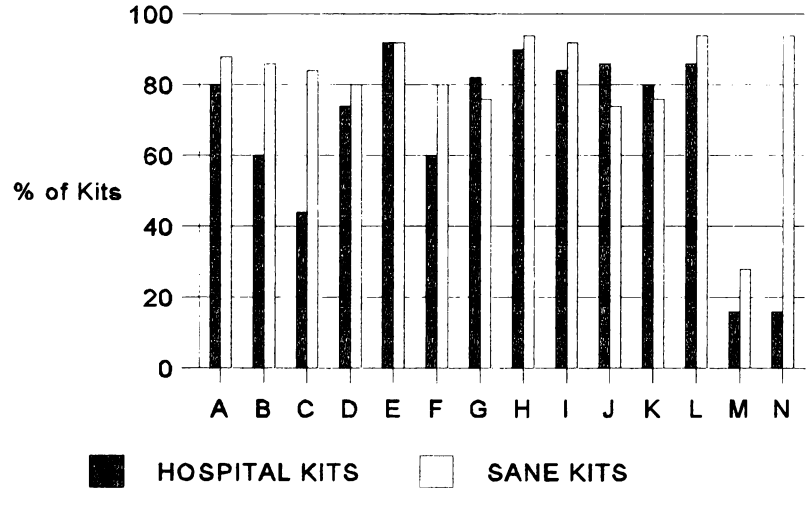
Based on rectal swabs, for example, the hospitals' mode was 2, while the SANE clinic's was 4. Thus, the SANE kits tended to have more rectal swabs than the hospital kits. When looking at all of the data, the SANE clinic had a higher mode for all swabs categories (vaginal, rectal, and oral), as well as additional evidence.

The percentage of kits containing the *minimum criteria* (as stated above) was also calculated (Table 6 and illustrated in Figure 2).

Table 6: Percent of Rape Kits Containing the Minimum Criteria from Hospitals and SANE Clinic, Macomb County, MI, August, 1998 through August, 2000 (see KEY on page 24)		
	HOSPITALS	**SANE**
A	80%	88%
B	60%	86%
C	44%	84%
D	74%	80%
E	92%	92%
F	60%	80%
G	82%	76%
H	90%	94%
I	84%	92%
J	86%	74%
K	80%	76%
L	86%	94%
M	16%	28%
N	16%	94%

Figure 2: % of Kits With Minimum Criteria

(See KEY on page 24)



DISCUSSION

Taking into account all of the evidence gathered in the rape kits, the SANE clinic's collection of evidence is more complete and thorough than those of the area hospitals. The SANE clinic is above the minimum number of swabs collected in all swab categories--vaginal, oral, and rectal. Furthermore, the SANE kits have three times more kits than the hospitals (66% vs. 18%) that are complete in the swab categories. The SANE nurses also drew a victim's blood 10 percent more often than did the hospitals. Based on these values, the SANE clinic's cases had the potential for much more DNA evidence than did the hospitals' kits.

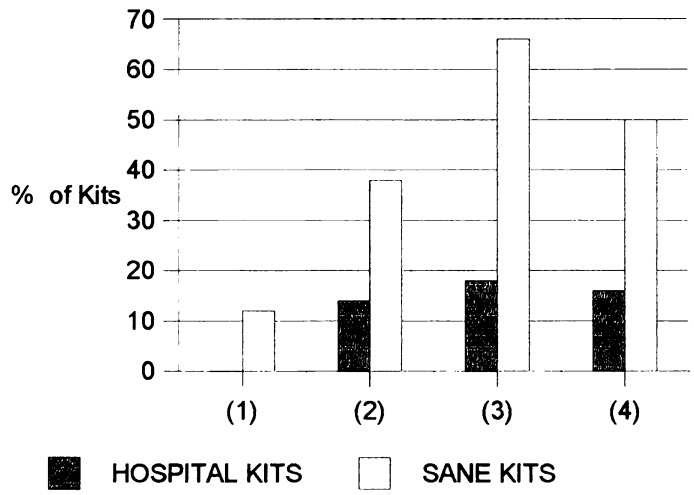
The only area in which the hospital was above the SANE clinic, as far as completeness of evidence goes, was in the collection of pulled pubic hair, pubic hair combings, and oral smears. Although the hospitals are more efficient in collecting pubic hair samples, they are not collecting swabs from the vaginal area during the subsequent pelvic examination.

When the kits were analyzed for completeness, it was discovered that none of the hospital kits were complete, while 12 percent of the SANE kits were complete (see Table 7 and Figure 3 on page 35).

Table 7: Percent of Rape Kits Complete According to Various Standards, Hospitals and SANE Clinic, Macomb County, MI, August, 1998 through August, 2000	
Percent of Kits 100% complete including undergarments (1)	
HOSPITALS	0%
SANE	12%
Percent of Kits 100% complete excluding undergarments (2)	
HOSPITALS	14%
SANE	38%
Percent of Kits 100% complete in the swabs categories-vaginal, rectal, and oral (3)	
HOSPITALS	18%
SANE	66%
Percent of Kits 100% complete excluding trace evidence (hair) and undergarments (4)	
HOSPITALS	16%
SANE	50%

Figure 3: % of Rape Kits 100% Complete

(See Table 7 for the Standards the Bars Depict)



Sometimes an assault victim will not give up his or her undergarments. Therefore, the rape kit's completeness was again analyzed disregarding the collection of the undergarments. In this instance the hospitals had 14 percent complete and the SANE clinic 38 percent complete. While both values again appear rather low, it is noted that the SANE kits are complete (disregarding undergarments) over two times as often as the hospital kits.

SANE nurses collected additional evidence, not required in the rape kit, in 94 percent of their cases. Hospitals collected additional evidence in only 16 percent. The training of a SANE nurse, with regard to extra evidence, is clearly demonstrated by this fact. The SANE nurse's use of an alternate light source and colposcope in the examination may account for some of the supplementary evidence contained in their kits.

At the time of evidence collection for rape kits analyzed, the SANE clinic had been in operation for approximately 1 year. The area hospitals had been treating victims of rape for many years. This study demonstrates that SANE nurses are more effective in properly collecting rape kit evidence than are hospitals. I believe this is because SANE nurses receive special training in the care and treatment of rape victims, and are on call 24 hours a day. The SANE clinic's total focus is on the health and well-

being of the victim, and the complete preservation of evidence.

FUTURE DIRECTIONS

While the SANE clinics collect more complete evidence than the hospitals in cases of rape, both facilities still need to improve their performance. Every victim of rape deserves to have a rape kit collected that is complete. In the future, if a victim refuses the collection of a certain type of evidence this should be noted on the evidence container as "patient refused." If a victim is too young to have pubic hair or if the pubic area is shaved, the proper envelopes for hair should be marked "not available" or "not applicable". The kit will reflect that the medical personnel did their job checking for evidence, but no evidence was available for collection.

Another area that needs to be addressed in a future study is the time period that a victim waits in a hospital setting, verses the time elapsed before being seen by a nurse examiner at a SANE clinic. As time passes, DNA and other evidence undergo degradation. Thus, time is essential in collecting evidence from a victim of rape. If there is a large enough difference in the time frame, perhaps hospitals will consider hiring an on-staff forensic nurse examiner whose main focus would be sexual assault victims. In areas

where a SANE clinic is not feasible, the hospital would be better equipped to treat rape victims.

Another area of interest is how many assault cases examined by SANE nurses have gone to trial, and prosecution rates in comparison to cases treated at a hospital. Also, are the SANE nurses as credible as expert witnesses as are the physicians of area hospitals? In other words, is the SANE nurse's testimony credible by itself or is a physician's testimony required to review and validate the SANE nurse's findings?

The SANE clinic of Macomb County sends a weekly report to the Sterling Heights Crime Lab so the lab can track how many cases it should be expecting via the various police agencies in Macomb County. As this study was carried out, it was of interest to note that only about half of the rape kits collected by SANE nurses were submitted to the crime lab by the police agency involved. A number of the kits were submitted to the lab several weeks after the police agencies received them. Why were some kits not submitted to the lab after the victim underwent an examination, and why was there a significant delay in the delivery time of still others? Agencies should not withhold or disregard any sexual assault case and its evidence kit. Their duty is not to judge, but to submit all evidence to the crime lab and then to leave the rest to the court system. A study of

submitting police agencies reasons for withholding the kits is another area that should be researched. How does the turnover rate for hospital kits compare? A protocol might be established requiring all police agencies to submit all rape kits, collected by hospitals or the SANE clinic, to the crime lab. Another area of concern should be quality of the evidence contained in the kits. The DNA evidence in the kits can degrade if not stored properly at the police agencies. Each rape kit needs to be collected correctly, stored properly, delivered promptly, and analyzed carefully in order to best serve the sexual assault victim.

The Macomb County SANE Clinic and the hospitals in Macomb County should be given a copy of the findings of this report. This might be in the form of a Michigan State Police Crime Lab report. A rape victim suffers further injustice when the medical agency fails to properly and throughly examine them and correctly complete the rape kit. In the near future, a follow-up study should be carried out to compare performance of rape kit examination with the present and between those facilities responsible for completion.

CONCLUSION

Throughout history rape has been a fact of life, but only recently has it come to be considered a crime. The rape investigation provides crucial evidence in the prosecution and conviction of the criminals involved in the assaults. No longer must victims be treated as "criminals" if they are raped. To this end, medical institutions need to realize they play an important role in victim advocacy. It is never the victim's fault he or she is violated, and the evidence collected is the best witness to this fact. As long as medical facilities focus on this truth, the victim will receive a proper examination and evidence collection will be enhanced. The Macomb County SANE Clinic demonstrates that specialized training in the examination of rape victims leads to a higher standard of evidence collection. I believe other counties should follow their example and either establish a SANE clinic in their community of hire or train staff members to be certified as a SANE.

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