The author(s) shown below used Federal funds provided by the U.S. Department of Justice and prepared the following final report:

Document Title:	**Alaska Sexual Assault Nurse Examiner Study**
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Document No.:	**224520**
Date Received:	**October 2008**
Award Number:	**2004-WG-BX-0003**

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Final Report:
Alaska Sexual Assault Nurse Examiner Study

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Providence Kodiak Island Medical Center (Kodiak, Alaska)
Yukon-Kuskokwim Health Corporation (Bethel, Alaska)
Central Peninsula General Hospital (Soldotna, Alaska)
Norton Sound Health Corporation (Nome, Alaska)
Fairbanks Memorial Hospital (Fairbanks, Alaska)
South Peninsula Hospital (Homer, Alaska)
Maniilaq Association (Kotzebue, Alaska)

and

The Alaska Department of Law
State of Alaska

JC #0501
October 2008

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Abstract

This project examined the characteristics of sexual assault victimizations in Alaska, as observed and recorded by sexual assault nurse examiners in Anchorage, Kodiak, Bethel, Soldotna, Nome, Fairbanks, Homer, and Kotzebue. The sample utilized for this study includes all sexual assault nurse examinations conducted in Anchorage from 1996 to 2004, in Bethel and Fairbanks in 2005 and 2006, and in Homer, Kodiak, Kotzebue, Nome, and Soldotna in 2005 (N = 1,699). This final report provides a thorough descriptive analysis of the sexual assault nurse examinations included in this study. This descriptive analysis focuses on demographic characteristics of patients; pre-assault, assault, and post-assault characteristics; exam characteristics and findings; suspect characteristics; and legal resolutions. The report then examines the predictors of genital injury. More specifically, it examines the effect of time elapsed from assault to report and of patient condition at the time of the assault. The effect of time elapsed from assault to report is examined by comparing the genital injuries of patients that reported to a sexual assault nurse examiner within 24 hours to the genital injuries of patients that did not. The effect of patient condition at the time of the assault is examined by comparing the genital injuries of patients that were sober, intoxicated, and incapacitated at the time of the assault. Results show that neither time elapsed from assault to report nor patient condition at the time of the assault impacted genital injury. The report also examines the effect of genital injury on legal resolutions. More specifically, it examines how the presence and frequency of genital injury impacts the likelihood that cases are referred for prosecution, the likelihood that cases are accepted by prosecutors, and the likelihood that cases result in a conviction. Results show that genital injury did not impact legal resolutions. Other factors, non-genital injury in particular, were significantly associated with both genital injury and legal resolutions. The relevance of these additional factors is discussed.

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Acknowledgments

This project was supported by Grant No. 2004-WB-GX-0003 awarded by the National Institute of Justice, Office of Justice Programs, U.S. Department of Justice. Points of view in this document are those of the authors and do not necessarily represent the official position or policies of the U.S. Department of Justice.

In Anchorage, the principal investigators, André B. Rosay and Tara Henry, sincerely thank the Department of Health and Human Services at the Municipality of Anchorage. In particular, we thank Beverly K. Wooley (former Director), Diane Ingle (Director), Jennifer Meyer (Sexual Assault Response Team [SART] Program Manager), Ronald Schoedel (Operations Manager), Randall Henderson (MIS Coordinator), Lynda McLarrin (Grant Administrator), Carrie Longoria (Interpersonal Violence Prevention [IVP] Program Manager), Emily Davies (IVP Analyst), Renée Aguilar (IVP Specialist), and Angelia Morris (Forensic Examiner).

In Kodiak, we sincerely thank the Providence Kodiak Island Medical Center. In particular, we thank Brenda Franz (SART Coordinator).

In Bethel, we sincerely thank the Yukon-Kuskokwim Health Corporation. In particular, we thank Barbara Jacobson (Chief Nursing Officer), Heather Hamblin (Manager, Emergency Department), Jennifer Meyer (Lead Forensic Nurse Clinician), and Stephanie Wade (Forensic Nurse Examiner), and Dawn Hackney (Forensic Nurse Examiner).

In Homer and Soldotna, we sincerely thank the South Peninsula Hospital and the Central Peninsula General Hospital. In particular, we thank Colleen James (Clinical Forensic Services Coordinator).

In Nome, we sincerely thank the Norton Sound Health Corporation. In particular, we thank Mary Kay McCarty (Director, Public Health Nursing) and Annie Blandford, Karen McLane, Terry Romenesko, and Patricia Power (Sexual Assault Nurse Examiners). We also thank the Research Ethics Review Board for their good work and support.

In Fairbanks, we sincerely thank Fairbanks Memorial Hospital. In particular, we thank Angie Ellis (Forensic Nursing Services Patient Care Coordinator) and all forensic nurse examiners that participated. They include Shany Fair, Debbie Verkyk, Kathleen Gumbleton, Paula Ciniero, Ilene DuToit, and Carol Meyer.

In Kotzebue, we sincerely thank the Maniilaq Association. In particular, we thank Dara Whalen (RN, FNP).

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Principal investigators also sincerely thank the Alaska Department of Law. In particular, we acknowledge Susan Parkes (former Deputy Attorney General), Richard Svobodny (Deputy Attorney General), and Lu Woods (Criminal Records Information and Management Exchange System [CRIMES] Coordinator).

Finally, the principal investigators sincerely thank Dr. Catherine Joan Carter-Snell. Her recent dissertation titled “Understanding Women’s Risks for Injury From Sexual Assault” (University of Alberta) was very helpful.

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Final Report:
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Executive Summary

This project examined the characteristics of sexual assault victimizations in Alaska, as observed and recorded by sexual assault nurse examiners in Anchorage, Kodiak, Bethel, Soldotna, Nome, Fairbanks, Homer, and Kotzebue. The sample utilized for this study includes all sexual assault nurse examinations conducted in Anchorage from 1996 to 2004, in Bethel and Fairbanks in 2005 and 2006, and in Homer, Kodiak, Kotzebue, Nome, and Soldotna in 2005 (N = 1,699).

An important limitation of this study is that all information is based on medical / forensic examinations of sexual assault victims and therefore excludes all victims who did not have a medical / forensic examination. In addition, all information included herein is based on self reports from the patients and on medical / forensic examinations that include observations, physical assessments, and laboratory tests. Nonetheless, we hope that the results from this study will be useful to practitioners and policy makers to develop and strengthen comprehensive responses to sexual assaults.

This final report includes three parts. In Part I, we document sexual assault trends in Alaska, describe sexual assault nurse examinations, provide an overview of this study's purpose, review the prior research, and present the study's methodology. We also summarize important limitations of the sample and data. In Part II, we provide a thorough descriptive analysis of the sexual assault nurse examinations included in this study. In Part III, we examine the predictors of genital injury and legal resolutions. A summary of Parts II and III is provided below.

Descriptive Analysis of Sexual Assault Nurse Examinations in Alaska

Demographic Characteristics of Patients

The vast majority of patients (98%) were female. Over half of the patients (56%) were Native and 36% were White. At the time of the report, 50% of patients were 24 years of age or younger. More precisely, 20% of patients were under the age of 18, 30% were between the ages of 18 to 24, 23% were between the ages of 25 to 34, 17% were between the ages of 35 to 44, and 10% were 45 years of age or older. Most patients (88%) did not report being homeless at the time of the assault and few patients reported having a developmental disability (2%), intellectual disability (2%), or mental illness (2%).

Pre-Assault Characteristics

Very few patients reported they had engaged in anal or oral sex within three days prior to the assault, but 28% reported they had engaged in vaginal sex. The most

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common location of initial contact prior to the assault was a private residence, with 19% of initial contacts occurring at the patient's house, 12% occurring at the suspect's house, 16% occurring at another's house, and 3% occurring at the patient and suspect's house. Together, these four locations accounted for 50% of all locations. Other common locations of initial contact included outdoors (for 20% of locations) and bars (for 13% of locations).

Assault Characteristics

Most assaults (88%) took place in the same city, town, or village as the sexual assault nurse examiner (others took place elsewhere but were referred to sexual assault nurse examiner for a medical / forensic examination). The most common location for assaults was a private residence. More specifically, 63% of assaults took place in private residences, with 21% occurring at the patient's house, 23% occurring at the suspect's house, 17% occurring at another's house, and 2% occurring at the suspect and patient's house. Other common locations included vehicles (for 12% of assaults), outdoors (for 10% of assaults), and hotels (for 10% of assaults). Half of the assaults involved weapons, physical blows, physical restraints, strangulation, or verbal threats. In particular, 10% of assaults involved strangulation. Methods used during the assault varied by the location of initial contact (where assaults *initiated*) and the location of assault (where assaults *occurred*). Assaults that *initiated* outdoors were the most likely to involve weapons, blows, grabbing, and threats. Assaults that *initiated* in bars were the most likely to involve restraints and strangulation. Assaults that *occurred* outdoors were the most likely to involve blows and grabbing. Assaults that *occurred* in vehicles were the most likely to involve weapons or threats. Assaults that *occurred* at the suspect's house were the most likely to involve restraints and assaults that *occurred* in hotels were the most likely to involve strangulation. For all locations of initial contact and assault, the most prevalent method used during the assault was grabbing.

Many patients were intoxicated at the time of the assault (67% reported being alcohol intoxicated and 10% reported being drug intoxicated) and some patients were severely intoxicated (26% reported being passed out). Common drugs included THC (marijuana) and cocaine (including crack cocaine). Most assaults were felonious, with 87% of assaults including penile penetration of the vagina. Other common sexual acts reported included digital penetration of the vagina and sexual contact (e.g., kissing, touching breasts, touching vagina). Penile penetration of the anus was reported by 15% of patients and digital penetration of the anus was reported by 9% of patients. Overall, 97% of assaults included penetration or attempted penetration of the vagina or anus. Relatively few suspects (10%) used a condom during the assault.

Post-Assault Characteristics

Post-assault characteristics are important because they may affect the extent to which forensic evidence is still available to collect. Most patients urinated (75%), ate or drank (61%), and wiped or washed genitalia (57%) prior to the medical / forensic exam. Other common post-assault actions included changing clothing (45%). Few patients (less than 4%) removed, inserted, or placed a sponge, diaphragm, tampon, or pad. Even fewer

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(1%) engaged in consensual vaginal sex after the assault. No patient engaged in consensual anal or oral sex after the assault. Most reports (95%) to the sexual assault nurse examiner were made within three days, with 13% of reports occurring within two hours of the assault, 33% occurring within four hours, 58% occurring within 12 hours, and 77% occurring within 24 hours.

Exam Characteristics and Findings

Most reports (89%) led to a complete exam. The most common reasons for not completing the medical / forensic exam were attributable to lack or withdrawal of patient consent. Many patients were described as cooperative (76%), controlled (64%), quiet (55%), tearful (45%), and calm (35%). A smaller number were tense (17%), fidgeting (16%), trembling (11%), sleeping (10%), stoic (9%), staring (8%), sobbing (7%), agitated (7%), fearful (6%), or angry (5%). The majority of patients had clothing that appeared intact or clean (75% and 64% respectively). Upon arrival, 10% of patients required emergency medical care and 2% were admitted to the hospital. The vast majority of patients (95%) had a sexual assault evidence collection kit completed during the medical / forensic examination. Speculum and colposcope exams were very common. An alternative light source (e.g., Wood's lamp, blue max, LED) was used in 71% of exams and fluorescence was found in 37% of these exams. The most common locations for finding fluorescence included legs and feet, buttocks and hips, arms and hands, and the face. Most patients (80%) were tested for sexually transmitted infections and other genital infections; and 19% of them tested positive. Patients tested positive for bacterial vaginosis, chlamydia, genital warts, gonorrhea, HIV, herpes, trichomoniasis, hepatitis B, syphilis, yeast, and hepatitis C.

Non-genital injuries were recorded for 52% of patients. The most common non-genital injury types included bruising and abrasions and the most common non-genital injury locations included legs and arms. Genital injuries were recorded in 41% of patients. The most common genital injury type was a laceration and the most common genital injury locations included the posterior fourchette, the labia minora, the perineum, the fossa navicularis, and the anus. Seventeen percent of patients received a follow-up examination or consultation, performed, on average, 23 days after the first exam.

Suspect Characteristics

The average number of suspects per assault was 1.16. Overall, 90% of patients were assaulted by a single suspect and 71% of suspect identities were known. Most suspects (99.7%) were male and most were Native (34%), White (34%), or Black (22%). Victimizations across racial and ethnic groups were least common for Black patients (71% were assaulted by Black suspects) and most common for Pacific Islander patients (only 20% were assaulted by Pacific Islander suspects). In terms of age, 15% of suspects were 10 to 19 years of age, with over half of them being 18 or 19. Additionally, 39% of suspects were 20 to 29, 25% were 30 to 39, and 22% were 40 or older. Alcohol use was more common than drug use, with 85% of suspects using alcohol prior to the assault and 18% using drugs. Overall, 16% of patients were assaulted by strangers and 84% were assaulted by non-strangers. The most common relationships between patients and

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suspects included friends and acquaintances, with 67% of patients reported being assaulted by someone they knew either as a friend or an acquaintance.

Legal Resolutions

Legal resolutions were obtained from the Alaska Department of Law only for a sub-sample of the cases included in this report. More precisely, legal resolutions were obtained only for examinations conducted from 1999 to 2005 (because legal resolutions for the 2006 cases were not yet completed by the time of data collection and legal resolutions for cases prior to 1999 were not available electronically). Of the original 1,699 sexual assault nurse examinations, 1,229 (72%) were searched in the Alaska Department of Law records. Results show that 29% were referred for prosecution, 20% were accepted for prosecution, and 16% resulted in a conviction. Of the referred cases, 69% were accepted. Of the accepted cases, 78% resulted in a conviction. At first glance, the likelihood of reported cases being referred, being accepted, and resulting in a conviction appears significantly higher in this sample of medical / forensic cases than in previous samples of Anchorage police cases.

Predictors of Genital Injury and Legal Resolutions

We then examined the effect of time elapsed from assault to report and of patient condition at the time of the assault on genital injury. More specifically, we examined the effect of time elapsed from assault to report by comparing the genital injuries of patients that reported to a sexual assault nurse examiner within 24 hours to the genital injuries of patients that did not. We examined the effect of patient condition at the time of the assault by comparing the genital injuries of patients that were sober, intoxicated, and incapacitated at the time of the assault. We examined the effects of time elapsed and patient condition on both the presence and frequency of genital injury. We also examined the effect of genital injury on legal resolutions. More specifically, we examined how the presence and frequency of genital injury impacted the likelihood that cases would be referred for prosecution, the likelihood that cases would be accepted by prosecutors, and the likelihood that cases would result in a conviction.

It is important to emphasize that this analysis is not an evaluation of Sexual Assault Nurse Examiner programs in Alaska, of police investigative strategies, or of prosecutorial success. The first goal of this analysis is to examine how patient condition at the time of the assault and time from assault to report affect genital injury. The second goal of this analysis is to examine how genital injury then impacts legal resolutions. These results cannot be used to evaluate the effectiveness of Sexual Assault Nurse Examiner programs, local or state police agencies, or the Alaska Department of Law.

Sample and Variables

For this analysis, we utilized a sample of 813 cases. Our sample was limited to female patients between the ages of 12 to 69 examined from 1999 to 2005 who had reported a completed, non-consensual, and substantiated assault committed by a single

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suspect. In addition, our sample was limited to cases that had complete data on condition at time of assault, time elapsed from assault to report, and genital injury.

Patient condition at the time of the assault was categorized into three mutually exclusive groups. These three groups represent patients that were sober at the time of the assault, patients that were intoxicated (but awake) at the time of the assault, and patients that were incapacitated at the time of the assault. Time elapsed from assault to report was categorized into two mutually exclusive groups. These two groups represent patients that reported their victimization to a sexual assault nurse examiner within 24 hours of the assault and patients that reported their victimization to a sexual assault nurse examiner 24 hours or more after the assault. Two measures of genital injury were developed. The first was a dichotomous measure indicating the presence of genital injury. The second was a continuous measure indicating the frequency of genital injury. Legal resolutions were examined using three dichotomous measures indicating whether a case was referred for prosecution, whether a case was accepted for prosecution, and whether a case resulted in a conviction.

Finally, we used a total of 48 control variables to measure characteristics of cases, patients, assaults, exams, and suspects. Case characteristics included whether the case was examined in Anchorage, whether the case was referred from Alaska State Troopers, and whether the case was reported prior to 2003. Patient demographic characteristics included the patient's race and age. Other patient characteristics included whether the patient was homeless; whether the patient was disabled; whether the patient was currently pregnant; whether the patient had previously given birth; whether the patient was currently menstruating; whether the patient had engaged in consensual sexual activity within 96 hours prior to the assault or from the assault to the exam; whether the patient had engaged in any of nine post assault actions (urinating; taking a bath, shower, or steam; brushing teeth; defecating; douching; gargling; wiping or washing genitalia; and eating or drinking); whether the patient had removed, inserted, or placed a sponge, pad, diaphragm, or tampon; whether the patient had changed her clothing; and whether the patient's clothing was clean and intact. Assault characteristics included whether the assault initiated or occurred in a private residence, whether physical force was used, whether verbal threats were made, whether ejaculation had occurred, whether lubricants or condoms were used, and whether the patient was assaulted in the supine position. Additional assault characteristics included whether the assault included kissing, licking, biting, or scratching; touching or fondling; oral copulation; anal penetration; or vaginal penetration. Exam characteristics included whether an evidence collection kit was obtained, whether a speculum exam was performed, whether a colposcope exam was performed, whether an anoscope exam was performed, whether an alternative light source was used, and whether a genital follow-up exam was conducted. Exam findings included whether fluorescence was found, whether spermatozoa were seen on a wet prep, whether spermatozoa were still motile, whether the patient tested positive for a sexually transmitted infection or another genital infection, and whether the patient was controlled or expressive at any point during the interview / examination process. In addition, we included both the presence and frequency of non-genital injury. Finally, suspect characteristics included the relationship between the suspect and the patient and whether the suspect's identity was known, whether the suspect had used drugs or alcohol, and whether the assault was intra-racial.

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Bivariate Results

Contrary to expectations, none of the hypotheses were confirmed. More specifically, the patient's condition at the time of the assault had no impact on either the presence or frequency of genital injury. The time elapsed from assault to report also had no impact on either the presence or frequency of genital injury. Furthermore, neither the presence nor the frequency of genital injury impacted the likelihood that reported cases would be referred for prosecution, the likelihood that referred cases would be accepted for prosecution, or the likelihood that accepted cases would result in a conviction.

Multivariate Results: Presence of Genital Injury

Neither the patient's condition at the time of the assault nor the time elapsed from the assault to the report significantly impacted the presence of genital injury. Ten control variables were significantly associated with the presence of genital injury. Final results show that the odds of genital injury were on average 1.53 times larger in cases reported prior to 2003, 0.69 times smaller if the patient engaged in consensual sexual activity within 96 hours prior to the assault, 1.54 times larger if the assault included vaginal penetration, 0.55 times smaller if the ejaculation had occurred during the assault, 2.61 times larger if the examination included an anoscope exam, 1.49 times larger if an alternative light source was used, 3.17 times larger if the patient received a genital follow-up exam, 1.71 times larger if the patient also had non-genital injuries, and 1.49 times larger if the patient was expressive at some point during the interview / examination process.

Multivariate Results: Frequency of Genital Injury

Neither the patient's condition at the time of the assault nor the time elapsed from the assault to the report significantly impacted the frequency of genital injury. Seven control variables were significantly associated with the frequency of genital injury. Final results show that the average number of genital injuries was significantly higher for cases examined prior to 2003, was significantly lower for patients between the ages of 18 to 49 (rather than 12 to 17), was significantly higher when the assault included vaginal penetration, was significantly higher when an anoscope examination was performed, was significantly higher when patients received a genital follow-up exam, was significantly higher for patients who also had non-genital injuries, and was significantly higher for patients who were expressive at any time during the interview / examination process. This final model explained 17% of the variation in the frequency of genital injury.

Multivariate Results: Referring a Case for Prosecution

Neither the presence nor the frequency of genital injury significantly impacted the likelihood that a reported case would be referred for prosecution. Five control variables were significantly associated with the likelihood that reported cases would be referred for prosecution. Final results show that the odds of referring a case for prosecution were on average 2.49 times larger if the case was referred by Alaska State Troopers, 0.39 times

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smaller if the patient was disabled, 2.08 times larger if an alternative light source was used during the examination, and 3.52 times larger if the suspect identity was known. In addition, the odds of referring a reported case for prosecution increased as the number of non-genital injuries increased.

Multivariate Results: Accepting a Case for Prosecution

Neither the presence nor the frequency of genital injury significantly impacted the likelihood that a referred case would be accepted for prosecution. Three control variables were significantly associated with the likelihood that referred cases would be accepted for prosecution. Final results show that the odds of accepting a referred case for prosecution were on average 0.41 times smaller in cases with intoxicated patients than in cases with sober patients and 0.39 times smaller in cases with masturbation. On the other hand, the odds of referred cases being accepted for prosecution were on average 2.96 times greater if a genital follow-up exam was performed.

Multivariate Results: Securing a Conviction

Neither the presence nor the frequency of genital injury significantly impacted the likelihood that an accepted case would result in a conviction. Only two control variables were significantly associated with the likelihood that accepted cases would result in a conviction. Final results show that the odds of securing a conviction among cases that were accepted for prosecution were on average 0.29 times smaller if the patient tested positive for a sexually transmitted infection or another genital infection and 0.41 times smaller if the assault was inter-racial rather than intra-racial.

Conclusions

None of the key hypotheses were confirmed. Patient condition at the time of the assault (i.e., sober, intoxicated, or incapacitated) did not impact the presence or frequency of genital injury. Time elapsed from the assault to the report (i.e., within 24 hours or not) did not impact the presence or frequency of genital injury. Finally, neither the presence nor the frequency of genital injury impacted any of the legal resolutions. Instead, nine control variables were associated with the presence of genital injury, seven were associated with the frequency of genital injury, five were associated with whether reported cases were referred for prosecution, three were associated with whether referred cases were accepted for prosecution, and two were associated with whether accepted cases resulted in a conviction. Because many of these control variables act as proxies for unmeasured differences between cases, additional research will be necessary to further unpack the significant relationships uncovered here. In the meantime, these control variables may be useful as potential indicators of genital injury and some plausible explanations are offered. In particular, results show that genital injury is less likely to occur when patients engage in consensual sexual activity within 96 hours of the assault and when the suspect ejaculates. In addition, the number of genital injuries decreases with age, with patients between the ages of 18 to 49 having fewer genital injuries than patients between the ages of 12 to 17. However, it is clear, at least in this sample and

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with the current measures, that patient condition at the time of the assault and time elapsed from assault to exam had no impact on genital injury and that genital injury had no impact on legal resolutions.

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Section I

Final Report:
Alaska Sexual Assault Nurse Examiner Study

This report provides an overview of the characteristics of sexual assault victimizations, as observed and recorded by sexual assault nurse examiners in Alaska. It is the first report that documents the characteristics of sexual assault victimizations throughout Alaska. In this report, we summarize the characteristics of sexual assault nurse examinations conducted in Anchorage, Bethel, Fairbanks, Homer, Kodiak, Kotzebue, Nome, and Soldotna. We also examine the predictors of genital injury and legal resolutions. In particular, we examine if the patient's condition at the time of the assault (i.e., sober, intoxicated, incapacitated) and the time elapsed from assault to report impacts genital injury. We then examine how genital injury impacts the likelihood that cases reported to law enforcement were referred for prosecution, the likelihood that cases referred for prosecution were accepted for prosecution, and the likelihood that cases accepted for prosecution resulted in a conviction. We hope that this report provides a valuable source of information about sexual assault victimizations in Alaska and that this will be useful to practitioners and policy makers to develop and strengthen comprehensive responses to sexual assaults.

We begin this report by providing a brief overview of sexual assault in Alaska, from 1996 to 2006 and of sexual assault nurse examinations. We then discuss the purpose of this study and summarize the research done prior to this study. We conclude Section I by presenting the study's methodology and its limitations. In Section II, we present a descriptive analysis of the data. This descriptive analysis includes a thorough overview of demographic characteristics of patients, pre-assault characteristics, assault characteristics, post-assault characteristics, exam characteristics and findings, suspect characteristics, and legal resolutions. In Section III, we then examine the predictors of genital injury and legal resolutions.

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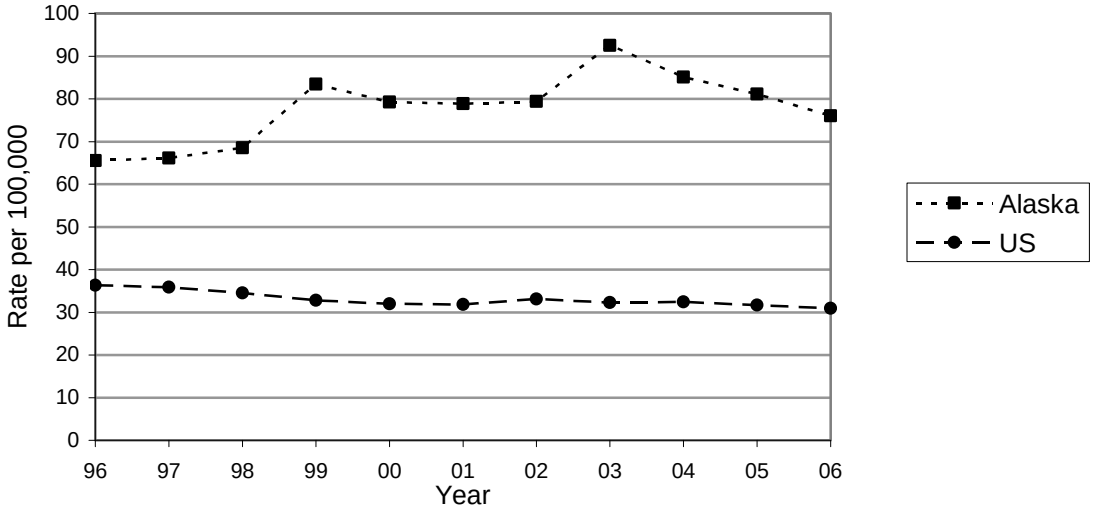
A. Sexual Assaults in Alaska; 1996-2006

The State of Alaska has a long history of high rates of reported forcible rapes. Forcible rapes are defined in the Uniform Crime Reports as "the carnal knowledge of a female forcibly and against her will." The Uniform Crime Reports tabulate the rate of reported forcible rapes and attempted forcible rapes in Alaska and the U.S. These data (from 1996 to 2006) are shown in Figure 1.

Figure 1. Rates of Forcible Rape Reported to Law Enforcement, 1996-2005



Source of data: *Uniform Crime Reports (1996-2005)*

The average rate of forcible rape reported to law enforcement from 1996 to 2006 was 77.8 per 100,000 in Alaska versus 33.1 per 100,000 in the U.S. By comparison, the average rate of forcible rape reported to law enforcement from 1996 to 2006 was 135% higher in Alaska than in the U.S. Stated differently, the average rate of forcible rape reported to law enforcement was 2.4 times higher in Alaska than in the U.S. These statistics only provide a partial description of the sexual assault problem because they do not include statutory rapes, incapacitated rapes, and other sex offenses, generally included under the umbrella category of "sexual assault." Unlike the federal definition of forcible rape, sexual assaults include acts (and attempted acts) perpetrated against males as well as acts (and attempted acts) without forceful carnal knowledge against the victim's will (e.g., sexual contact, incapacitated rape, statutory rape).

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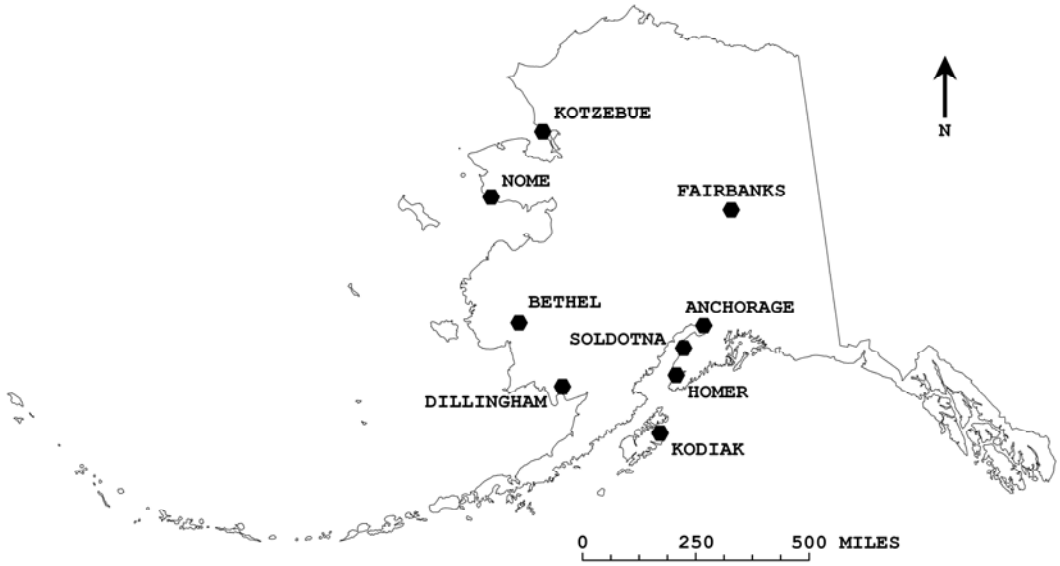
B. Sexual Assault Nurse Examinations

The sexual assault nurse examiner plays a critical role in our response to sexual assault victims. Once a sexual assault has been reported to law enforcement, it may be referred to the sexual assault nurse examiner (SANE) for a medical / forensic examination. The SANE is a component of the Sexual Assault Response Team (SART). Other members of SART include law enforcement and victim advocates. If law enforcement determines that it would be worthwhile to conduct a medical / forensic examination, SART is called into action. Generally speaking, this determination is based on the need for medical attention, the likelihood of collecting forensic evidence, and minimum legal requirements of proof. In general, referrals to SART will not be made if the time elapsed from assault to report is greater than 96 hours because the likelihood of collecting forensic evidence becomes remote (and because the need for medical attention is no longer urgent).

Figure 2. Sexual Assault Nurse Examiners in Alaska



At the time of the study, sexual assault nurse examiners in Alaska were located in Anchorage, Bethel, Dillingham, Fairbanks, Homer, Kodiak, Kotzebue, Nome, and Soldotna. All sites participated in this study, except for Dillingham. In Anchorage, SART/SANE services were contracted by the Municipality of Anchorage to Alaska Regional Hospital in 1996 and are now housed under the Municipality's Department of Health and Human Services. Victim advocates are provided by Standing Together Against Rape (STAR) and law enforcement personnel primarily include the Anchorage Police Department and the Alaska State Troopers. In Kodiak, SART/SANE services are provided by the Providence Kodiak Island Medical Center. Victim advocates are provided by the Kodiak Women's Resource and Crisis Center and law enforcement personnel primarily include the Kodiak Police Department and the Alaska State Troopers.

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In Bethel, SART/SANE services are provided by the Yukon-Kuskokwim Health Corporation. Victim advocates are provided by the Tundra Women's Coalition and law enforcement personnel primarily include the Bethel Police Department and the Alaska State Troopers. In Soldotna, SART/SANE services are provided by the Central Peninsula General Hospital. Victim advocates are provided by the LeeShore Center and law enforcement personnel primarily include the Soldotna Police Department, the Kenai Police Department, and the Alaska State Troopers. In Nome, SART/SANE services are provided by the Norton Sound Health Corporation. Victim advocates are provided by the Bering Sea Women's Group and law enforcement personnel primarily include the Nome Police Department and the Alaska State Troopers. In Fairbanks, SART/SANE services are provided by Fairbanks Memorial Hospital. Victim advocates are provided by the Interior Alaska Center for Non-Violent Living and law enforcement personnel primarily include the Fairbanks Police Department and the Alaska State Troopers. In Homer, SART/SANE services are provided by the South Peninsula Hospital. Victim advocates are provided by the South Peninsula Haven House and law enforcement personnel primarily include the Homer Police Department and the Alaska State Troopers. Finally, SART/SANE services in Kotzebue are provided by the Maniilaq Association. Victim advocates are provided by the Maniilaq Family Crisis Center and law enforcement personnel primarily include the Kotzebue Police Department and the Alaska State Troopers.

Prior to the SART/SANE protocol, victims of sexual assault who needed emergency medical care were referred to emergency departments where they often waited long periods of time before seeing a nurse or doctor. Although emergency departments have the capacity to provide excellent emergency care, they do not have the luxury of spending additional time with victims of sexual assault to address their many emotional and medical needs. In addition, victims of sexual assault were triaged with other patients (who often needed more urgent care) and were required to report the details of their victimization several times for medical care, police reports, and to receive victim advocacy. The SART/SANE protocol now provides a significantly better response to victims of sexual assault, by utilizing a collaborative team of a law enforcement official, a forensic nurse, and a victim advocate. Although some victims may still be referred to emergency departments for urgent care of serious to life threatening injuries (e.g., extensive trauma, respiratory distress), most can be effectively treated by trained sexual assault nurse examiners. In addition, sexual assault nurse examiners have been specifically trained for the documentation and collection of forensic evidence. Examinations follow a standard sexual assault protocol that utilizes specialized (and expensive) instruments such as a colposcope.

The main goals of the SANE intervention include the assessment of injury, the objective documentation of health history to determine bio/psycho/social risks and the risk of medical sequelae, the objective non-judgmental documentation of the history of the crime, the collection and preservation of forensic data, the prevention of potential psychological and physical health risks associated with the assault, the facilitation of client control over assault and abuse issues, and the facilitation of healthy reorganization and re-adaptation following a sexual assault (International Association of Forensic of Forensic Nurses, SANE Standards of Practice, 1996).

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The SART/SANE protocol presents a clear benefit for the provision of medical care and the collection and documentation of forensic evidence and these enhancements in our ability to collect and document forensic evidence can facilitate the prosecution of perpetrators. Although the research evidence on SANE interventions is still limited, previous studies have shown that sexual assault nurse examiners are more qualified to collect forensic evidence (Cornell, 1998; Littel, 2001; Stone, Henson, and McLaren, 2006) and collect better forensic evidence than others (Ledray and Simmelink, 1997, Sievers, Murphy, and Miller, 2003; Carter-Snell, 2007). The limited research on the impact of SANE interventions on criminal prosecution is also promising. Crandall and Helitzer (2003) reported that the implementation of a SANE program significantly increased the proportion of cases reported to law enforcement, the proportion of cases referred for prosecution, and the proportion of cases resulting in a conviction. Similar results were obtained by Campbell, Patterson, and Lichty (2005) who generally found that case attrition was reduced after the implementation of the SANE program.

Campbell (2008) identifies three mechanisms by which SANE interventions may create these changes. More specifically, SANE interventions may provide greater support to patients, thereby increasing their participation in the criminal justice system. SANE interventions may have also enhanced the quality of law enforcement investigations, by, for example, more effectively establishing rapport with patients. Finally, the SANE interventions may have led to systemic or community changes, particularly when interagency collaborations are significantly strengthened.

The SART/SANE protocol presents a significantly more compassionate response to victims of sexual assault than could previously be provided by busy emergency departments. In particular, the SART/SANE response can afford to provide more specialized and more sensitive responses to victims' immediate and emergent needs. The victim advocate plays a key role in providing support to the victim. The coordinated response between law enforcement, trained medical personnel, and victim advocates also reduces the need for multiple and redundant interviews with victims that may enhance secondary victimizations and lower victims' desire to pursue a criminal justice response.

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C. Purpose of this Study

It is important to emphasize that this study did not evaluate the effectiveness of the SANE intervention. Data from sexual assault nurse examinations were collected for three primary reasons. The first was to present information about the characteristics of sexual assaults, as observed and recorded by Sexual Assault Nurse Examiners. This goal is accomplished in Section II of this report. A second goal was to examine the effect of patient condition at the time of the assault on genital injury and the effect of time elapsed from assault to report on genital injury. This goal is accomplished in Section III of this report, where we compare the genital injuries of sober, intoxicated, and incapacitated patients and compare the genital injuries of patients who reported within 24 hours of the assault and patients who reported 24 hours or more after the assault. In Section III, we also examine the effect of genital injury on legal resolutions.

Data were collected from medical / forensic evaluations of sexual assault victims to provide additional information on sexual assault victimizations and to better understand the effects of patient condition at the time of the assault and of time elapsed from assault to report. In particular, this project was designed to better understand the effects of patient condition at the time of the assault and time elapsed from assault to report on the presence and frequency of genital injury. In addition, this project was designed to better understand how the presence and frequency of genital injury would impact three key legal resolutions. These three key legal resolutions are whether cases were referred for prosecution, whether cases were accepted for prosecution, and whether cases resulted in a conviction.

This study was conducted in cooperation with all sexual assault nurse examiners in Alaska (except for Dillingham). These included sexual assault nurse examiners in Anchorage, Bethel, Fairbanks, Homer, Kodiak, Kotzebue, Nome, and Soldotna. This study was also conducted in cooperation with the Alaska Department of Law. Before describing the methodology in greater detail, we present a review of the prior research on the genital injury, the predictors of genital injury, and the predictors of legal resolutions.

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D. Review of Prior Research

While a significant amount of research has examined sexual assault victimizations from official reports (i.e., police and prosecution) and, to a lesser extent, from self-reports (i.e., victimization surveys), there is significantly less research on sexual assault victimizations from medical / forensic reports, and this is particularly true for research on genital injury. As Carter-Snell (2007:15) recently concluded, "despite the significance of injuries to women, relatively little is known about how often women are injured, what types of injuries they sustain or the types of risk factors most often associated with injury." In this section, we review the prior research on genital injury. We then examine the prior research on the predictors of genital injury, focusing on the patient's condition at the time of the assault and the time elapsed from assault to report. Finally, we review the prior research on the effect of genital injury on legal resolutions.

1. Genital Injury

A very thorough review of injury from sexual assault was recently offered in a meta-analytic review by Cartner-Snell (2007). A total of 43 studies were included in this review, representing over 17,000 women. Previous studies were included in the meta-analytic review only if they contained at least one injury outcome and at least one risk factor from a recent sexual assault. In addition, studies were included only if the data were obtained from clinical reports (rather than self-reports) and only if all subjects were females of menarchal age.

On average, 45% of the patients included in Carter-Snell's (2007) meta-analysis had genital injuries, with 19% having genital injuries only and 29% having both genital and non-genital injuries (totals do not add up because estimates are gathered from different samples). On average, patients had 1.9 genital injuries (s = 1.0) and 51% of patients had two or more genital injuries. Although definitions are not consistent across studies (and are mainly subjective), 71% of patients were described as having mild genital injuries, 23% were described as having moderate genital injuries, and six percent were described as having severe genital injuries. The most common genital injury site was the posterior fourchette (for 42% of patients), followed by the hymen (for 26% of patients), the anus (for 25%), and vaginal walls (for 24%). The most common type of genital injury was a laceration (for 49% of patients) followed by abrasions (for 34% of patients).

Relevant risk factors for genital injury were grouped into biographic factors, contextual factors, and assault factors. Biographic factors included the age of the patient, the race of the patient, whether the patient was unconscious, whether the patient had used alcohol or drugs, the patient's prior sexual experience, the patient's education level, the patient's marital status, the patient's income, and the patient's psychiatric diagnosis. Contextual factors included the relationship between the patient and the suspect, the setting of the assault, whether the patient was incapacitated, the weekday and time of the assault, the city/region in which the assault took place, and the method of attack. Assault factors included whether a weapon was used, the site of penetration, whether the assault was committed by multiple suspects, whether force was used by the suspects, whether penetration by an object occurred, whether the patient was restrained, whether the patient

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was strangled, whether the patient was threatened, and whether the patient resisted. Most of these biographic, contextual, and assault factors are included in our investigation, as are some not included in Carter-Snell's (2007) review. In addition, Carter-Snell (2007) was not able to include all factors in the meta-analytic review because some have not received enough attention in the previous literature.

Among biographic factors, the age of the patient, the patient's prior sexual experience, the patient's race, and whether the patient was unconscious or intoxicated were found to impact the presence of genital injury. Young and mature women were the most likely to have genital injury. Patients with prior sex experience had lower injury rates (except for adolescents). White and Black patients were more likely to have genital injury than others. Patients who were unconscious or markedly intoxicated were less likely to have genital injury. Few contextual factors were found in the previous literature to affect genital injury. Genital injury was more likely when the suspects were known rather than strangers and when the assault occurred indoors rather than outdoors. Several assault factors were found to be important risk factors for genital injury. More specifically, victim resistance increased the likelihood of genital injury. Assaults with weapons were less likely to cause genital injury. Other assault factors (e.g., type of penetration and the patient's position during the assault) are likely to affect genital injury, but too few results are currently available to develop firm conclusions.

The clinical relevance for many of these results remains unclear. Many of these results may be related to the amount of force used by the suspect, the amount of resistance used by the patient, and the resiliency and elasticity of genital tissue. Carter-Snell (2007) concludes that additional research is necessary to better understand the biographic, contextual, and assault risk factors for genital injury. In this investigation, we examine a wide variety of risk factors, but we focus on two that were deemed particularly important. These include the patient's condition at the time of the assault (i.e., sober, intoxicated, incapacitated) and the time elapsed from assault to report.

2. Predictors of Genital Injury

As summarized in the previous section, over half of sexual assault nurse examiners' patients do not have genital injury. Again, Carter-Snell (2007) estimated that 45% of patients seen by sexual assault nurse examiners had genital injuries and 55% did not. Being able to explain negative findings is important so that victims are not disbelieved when genital injury is absent. Obtaining a greater understanding of the etiology of genital injury is also important for legal resolutions. As explained by Slaughter et al. (1997:616):

> "The role of the forensic examiner is to provide a thorough examination as the basis for a report. Findings must be accurately, reliably, and clearly documented. Ultimately, the examiner must be able to analyze and explain findings and medical information in an understandable format for the court."

The first goal of this analysis was to provide a greater understanding of the factors that influence the risk of genital injury, to assist sexual assault nurse examiners in forming evidence-based opinions regarding the presence and absence of genital injury. In

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addition, we were interested in explaining the absence of genital injury so that legal resolutions would not be impeded by these negative results.

Through clinical assessments in Alaska, we identified two key factors that would affect genital injury – the patient's condition at the time of the assault (i.e., whether the patient was sober, intoxicated, or incapacitated) and the time elapsed from assault to report. Although these clinical assessments were based on Alaska patients (and are therefore important for this analysis), they are corroborated by literature that has examined the taxonomy of genital injury.

Previous researchers have examined the effect of offenders' and victims' substance use on victims' injuries (e.g., Ullman and Knight, 1993; Martin, 1998; Martin and Bachman, 1998; Tjaden and Thoennes, 2000; Brecklin and Ullman, 2001; Testa et al., 2003; Testa, Vanzile-Tamsen, and Livingston, 2004). These studies typically include a wide variety of physical injuries such as "knife or gunshot wounds, broken bones, teeth knocked out, internal injuries, being knocked unconscious, bruises, cuts, black eyes, scratches, swelling, and chipped teeth" (Brecklin and Ullman, 2001:9) and generally find that both offenders' and victims' substance use increases the severity of physical injuries.

Fewer studies have examined the effect of victims' substance use on genital injuries. Although it is now increasingly more common for sexual assault victims to receive a medical / forensic examination in part to document the presence of genital injury, there is still relatively little known about the causes of genital injury. In particular, there is still relatively little known about how victim substance use may impact the prevalence and incidence of genital injury and even less known about the impact of condition at time of the assault. It is important to further understand the causes of genital injury because medical personnel need the ability to correctly interpret the lack of genital injury. Prior research has shown that many victims of sexual assault do not display genital injury. A victim's use of alcohol may significantly lower the risk of genital injury as it may lower the amount of force used during the assault. If alcohol use does lower the risk of genital injury, this provides an additional explanation of why genital injuries may not be visible and enhances the ability to explain the presence or absence of genital injury.

So far, however, the evidence seems to suggest that substance use has no effect on genital injury. Based on her recent meta-analytic review, Carter-Snell (2007:59) concluded that "there was a minimal difference in the proportion of women with genital injuries regardless of the presence of alcohol use." This conclusion was based from four studies that examined the relationship between victim substance use and the presence of genital injury (Sachs and Chu, 2002; Sugar, Fine, and Eckert, 2004; Hilden, Schei, and Sidenius, 2005; Read et al., 2005). Sachs and Chu (2002), for example, found that loss of consciousness and alcohol (or drug) use had no impact on the frequency of genital injury (p = 0.41 and 0.77, respectively). Similarly, Sugar et al. (2004) found that impaired consciousness at the onset of the assault had no significant impact on body trauma or genital-anal injury. Substance use also had no significant impact on genital-anal injury (but did significantly increase body trauma, Sugar et al., 2004). Read et al. (2005) also found no relationship between victim alcohol use and the presence of genital trauma.

Hilden et al. (2005) compared the presence of genitoanal injury between four groups of patients – those who had not consumed alcohol, those who had consumed a small quantity of alcohol, those who had consumed a large quantity of alcohol, and those

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who had consumed alcohol to the point of amnesia. Differences across groups in the presence of genitoanal injury were not statistically significant, but the presence of genitoanal injury was much lower among patients who consumed alcohol to the point of amnesia (19%) than among patients who had not used alcohol (30%), patients who had used a small quantity of alcohol (32%), and patients who had used a large quantity of alcohol (38%). Citing Sachs and Chu (2002), Hilden et al. (2005:204) hypothesized that patients who did not resist or who where "asleep" at the time of the assault may have "offered no or little physical or verbal resistance," thereby sustaining "less injury than women who tried to resist the assault" (see also Cartwright, 1987; Testa et al., 2003, 2004). The low sample size used by Hilden et al. (2005, N = 249) may have hindered their ability to find significant results. Although Testa et al. (2003) did not focus exclusively on genital injuries, they clearly found a lower rate of injury among incapacitated rapes (33.3%) than among forcible rapes (56.9%, $\underline{p} < 0.05$).

Time elapsed from assault to report is important because genital injuries may heal over time (and this may then lower the probability of a successful prosecution). More generally, time elapsed from assault to report hinders the collection of forensic samples and the administration of sexual assault health care (e.g., prophylaxis medication or emergency contraception). As shown by Ensink, Van Berlo, and Winkel (2000), time elapsed increases the likelihood of a multitude of health and mental difficulties including feelings of numbness, persistent intrusions of traumatic memories, psychosomatic complaints, and medication consumption.

According to the general guidelines in the National Protocol for Sexual Assault Medical Forensic Examinations for adults and adolescents (Office on Violence Against Women [OVW], 2004:7), "many jurisdictions currently use 72 hours after the assault as the standard cutoff time for collecting evidence." For all sexual assault nurse examinations included in this analysis, the standard cutoff time was 96 hours. Whether to provide a sexual assault nurse examination after 96 hours was determined on a case-by-case basis. The National Protocol (OVW, 2004:67) identifies the following reasons for examining patients promptly, in order to minimize the loss of evidence:

> "Evidence can be lost from the body and clothing through a number of mechanisms. For example, degradation of some seminal fluid components can occur within body orifices, semen can drain from the vagina or wash from the mouth, sperm can lose motility, bodily fluids can get washed away, and dried secretions and foreign materials can fall from the body and clothing. Prompt examination also helps to quickly identify patients' medical needs and concerns."

Because of recent advances in evidence collection and because "time limits for obtaining evidence vary due to factors such as the location of the evidence or type of sample collected," the decision to provide a sexual assault nurse examination after the standard cutoff should be made on a case-by-case basis (OVW, 2004:67). Nonetheless, the time between the assault and the report is important because it does impede the collection of forensic samples and the provision of needed sexual assault health care.

Carter-Snell (2007) identified four studies that examined the effect of time from assault to report on genital injury (Slaughter et al., 1997; Sachs and Chu, 2002; Sugar et al., 2004; Hilden et al., 2005). The general conclusion from these studies is that time elapsed from assault to report does indeed decrease genital injury. Slaughter et al. (1997)

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found that 89% of victims seen within 24 hours had genital injury, 75% of victims seen within 24-48 hours had genital injury, and 46% of victims seen at or after 72 hours had genital injury ($p < 0.01$, but the mean number of injuries was not affected by time to examination). Sachs and Chu (2002:149) found that "victims who were examined within 24 hours were also more than seven times as likely to have genitorectal injury" ($p = 0.03$). Similarly, Sugar et al. (2004) found higher rates of genital-anal trauma when patients were examined within 24 hours. Additional research that includes both genital and non-genital injury further confirms the importance of time elapsed from assault to examination (e.g., Crane, 2006). On the other hand, Hilden et al. (2005) found that time from assault to examination had no impact on the presence of genitoanal injury ($p = 0.15$, but N = 249).

3. Predictors of Legal Resolutions

Difficulties with legal resolutions in sexual assault cases have been repeatedly noted in the literature. For example, previous analyses by the Justice Center revealed that 18% of sexual assaults reported to the Anchorage Police Department from 2000 to 2003 were referred for prosecution, 12% were accepted for prosecution, and 11% resulted in a conviction (Snodgrass, 2006). Additional research revealed that 46% of sexual assaults reported to the Alaska State Troopers in 2003 and 2004 were referred for prosecution, 28% were accepted for prosecution, and 22% resulted in a conviction (Postle et al., 2007). Clearly, successful legal resolutions are difficult to obtain, both in Alaska and nationwide.

An important goal of this study was to examine the extent to which genital injury impacted the likelihood that cases were referred for prosecution, the likelihood that cases were accepted for prosecution, and the likelihood that cases resulted in a conviction. In this analysis, we controlled for patient condition at the time of the assault (i.e., sober, intoxicated, or incapacitated) and time elapsed from assault to report. We controlled for these factors because cases with intoxicated and incapacitated patients may be more difficult to prosecute if patients are less likely to recall the details of the case. In addition, intoxication and incapacitation may raise blame and believability questions (LaFree, 1981; Horney and Spohn, 1996). Along similar lines, time elapsed from assault to report may impede prosecution if it raises questions about the victim's credibility in court. Kerstetter (1990), for example, found that the likelihood of filing felony charges decreased as time elapsed increased (but in stranger assaults only). Although we controlled for patient condition at time of assault and time elapsed from assault to exam, we were mostly interested in examining how genital injury affected legal resolutions.

Most research suggests that effective prosecutions of sexual assault offenders are indeed difficult in the absence of anogenital trauma (Kerstetter, 1990; Penttilä and Karhumen, 1990; Rambow et al., 1992; McGregor et al., 1999; Bouffard, 2000; Littel, 2001; McGregor, Du Mont, and Myhr, 2002; Gray-Eurom, Seaberg, and Wears, 2002; Sommers, Fisher, and Karjane, 2005; Sommers, 2007; but see Tintinalli and Hoelzer, 1985, for an exception). In their studies, McGregor et al. (1999, 2002) examined retrospective cohorts of sexual assault victims examined by the British Columbia Women's Sexual Assault Service in 1992 (McGregor et al., 1999) and from 1993 to 1997 (McGregor et al., 2002). In both studies, McGregor et al. (1999; 2002) found that

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charges were more likely to be filed as the severity of victim's injuries (both anogenital and non-anogenital) increased. Convictions were more likely only when victim's injuries were rated as severe (i.e., "head injury with concussion and/or evidence of attempted strangulation and/or other major injuries (e.g., limb fracture, internal organ contusion)," McGregor et al., 2002:641).

However, McGregor et al. (1999; 2002) did not separate anogenital from non-anogenital injuries in their clinical injury scale. Rambow et al. (1992) did not either, but they also found that the documentation of trauma facilitated successful prosecution. More specifically, "the injuries associated with conviction were multiple contusions and abrasions, human bites, lacerations of the perineum, lacerations/puncture wounds to the extremities, burns, and depressed skull fracture with severe head injury." Similarly, Gray-Eurom et al. (2002) found that trauma (both body and genital) was significantly correlated with successful prosecution. Gray-Eurom et al. (2002:45) concluded that "the information gathered by a thorough forensic examination does make a difference in the legal outcome for cases of sexual assault."

Studies that specifically focused on the effect of genital injuries on legal resolutions include Kerstetter (1990) who examined the effect of anogenital injuries on police decisions. More specifically, Kerstetter (1990) examined rapes and sexual assaults reported to the Chicago Police Department in 1979 and 1981 to document the effect of injuries to complainant's sex organs as an aggravating element. An injury to sex organs was a significant predictor of police decision-making. "If the accused is in custody but an aggravating factor, such as injuries to the complainant's sex organs, does not exist, then the case is likely to be reclassified as a less serious crime." This was true, however, only for cases in which the suspect and victim were acquainted. Kerstetter (1990) did not examine the effect of genital injuries on successful prosecution.

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E. Methodology

All examinations conducted in Anchorage from 1996 to 2004, in Bethel and Fairbanks in 2005 and 2006, and in Homer, Kodiak, Kotzebue, Nome, and Soldotna in 2005 were included in the sample. Bethel and Fairbanks participated for two years (2005 and 2006). Anchorage participated for nine years (1996 to 2004). All other sites (Homer, Kodiak, Kotzebue, Nome, and Soldotna) participated for one year (2005). A total of 1,699 examinations were collected, with the majority (81%) coming from Anchorage. Bethel and Fairbanks (who participated for two years) contributed 105 and 144 cases, respectively. Together, the other sites (who participated for one year) contributed 4% of the total cases. The majority of cases (86%) were referred to the sexual assault nurse examiner from local police departments (such as those in Anchorage, Fairbanks, Bethel, Homer, Kenai, Kodiak, Kotzebue, Nome, Saint Mary's, Seward, Soldotna, and Togiak). In addition, 12% of the cases were referred from state law enforcement agencies (e.g., Alaska State Troopers) and 2% were referred from federal law enforcement agencies (e.g., military).

Table 1. Number of Sexual Assault Nurse Examinations

Column Percentages

Location	Number of Years	Examinations N	Examinations %	Average per Year
Anchorage	9	1383	81.4 %	153.7
Bethel	2	105	6.2	52.5
Fairbanks	2	144	8.5	72.0
Homer	1	9	0.5	9.0
Kodiak	1	4	0.2	4.0
Kotzebue	1	21	1.2	21.0
Nome	1	19	1.1	19.0
Soldotna	1	14	0.8	14.0
Total		1699		

Source of data: *Alaska SANE data*
N = 1699; 0 (0.0%) missing

An extensive array of information was collected to describe sexual assault characteristics. More specifically, the information contains demographic characteristics of patients, pre-assault characteristics, assault characteristics, post-assault characteristics, exam characteristics and findings, and suspect characteristics (see Appendix A for data collection instrument).

Demographic characteristics of patients included gender, race / ethnicity, and age, whether the patient was disabled, and whether the patient reported being homeless. Pre-assault characteristics included whether the patient reported engaging in consensual sexual activity within three days prior to the assault and information on the location of the initial contact with the suspect. Assault characteristics included information on the location of the assault, methods employed by the suspect, the patients' condition at the time of the assault, the patients' use of drugs and alcohol, and a detailed description of the assault itself. This detailed description included the patient's position during the assault, whether condoms and lubricants had been used, whether ejaculation had

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occurred, and an inventory of 17 different sexual acts. Post-assault characteristics included information on post-assault actions taken by the patient, whether the patient engaged in consensual sexual activity between the time of the assault to the examination, and the time elapsed from the assault to the examination.

Exam characteristics and findings included information on whether the exam was completed, the type of exam that was conducted, the patients' behavioral and emotional state during the exam, whether the patient required emergency medical care, whether the presence of sperm was documented, whether patients tested positive for sexually transmitted infections or other genital infections, whether the patient was pregnant, and whether injuries were documented. Injury characteristics included descriptions of both non-genital and genital injury. A total of 108 indicators of non-genital injury were captured. These included nine possible injuries (i.e., bruising, redness, abrasions, lacerations, swelling, fractures, bite marks, pain, and other) to 12 possible sites (i.e., head/face, mouth, neck, shoulders, arms, hands, chest, abdomen, back, buttocks/hips, legs, and feet). A total of 60 indicators of genital injury were also captured. These included four possible injuries (i.e., bruising, abrasions, lacerations, and tenderness) to 15 possible sites (i.e., mons pubis, labia majora, labia minora, labia majora / minora junction, clitoral hood, clitoris, periurethra, hymen, fossa navicularis, posterior fourchette, perineum, vaginal walls, cervix, anus, and rectum).

Suspect characteristics included the number of suspects, whether the identity of the suspect was known, demographic characteristics (gender, race/ethnicity, and age), whether the suspect had used alcohol or drugs, and the relationship between the patient and the suspect. Overall, these data provide a thorough description of sexual assault, as observed and recorded by sexual assault nurse examiners.

All prosecutorial outcome data were gathered directly from the Alaska Department of Law. These data were gathered only for a sub-sample of the 1,699 medical / forensic examinations. More specifically, searches through the Alaska Department of Law records excluded cases of patients examined prior to 1999, excluded cases of patients examined in 2006, excluded cases referred from the military, and excluded cases with unknown law enforcement case numbers (N=1,229). The primary restrictions were that cases prior to 1999 were excluded (because outcome data were not available in electronic form) and cases in 2006 were also excluded (because outcome data were not yet available at the time of data collection). The remaining cases were tracked by case number to determine if they had been referred by police to the Alaska Department of Law for prosecution, if the Alaska Department of Law had accepted the cases for prosecution, and if the cases resulted in a conviction. Again, this data collection was only performed for 1,229 (72%) of the original 1,699 cases.

This project was approved with a full review conducted by the University of Alaska Anchorage Institutional Review Board and utilized a Privacy Certificate issued by the National Institute of Justice. Although we also sought approval from the Alaska Area Institutional Review Board at the Alaska Native Medical Center, a formal notification of their decision was never obtained. All data collection was performed by Tara Henry (RN, BSN, SANE-A, SANE-P).

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F. Limitations of Sample and Data

There are several key limitations that are important when interpreting all results presented in this report. First and foremost, the sexual assault cases that are included in this report are not representative of all sexual assault cases. Many sexual assault cases are not reported to law enforcement and consequently are excluded from this analysis. This analysis also excludes all cases reported to law enforcement that were not referred to the sexual assault nurse examiner (SANE/SART). Cases are generally referred to the sexual assault nurse examiner if medical or forensic evidence can still be collected. If the time elapsed from the assault to the report is greater than 96 hours, the likelihood of collecting forensic evidence becomes remote and the likelihood of requesting a medical / forensic examination subsequently decreases dramatically. Overall, results uncovered by this study should only be generalized to victims of sexual assault who reported their victimization to law enforcement and were examined by a sexual assault nurse examiner. Furthermore, this analysis is only based on medical / forensic examinations conducted in Anchorage, Fairbanks, Bethel, Homer, Kodiak, Kotzebue, Nome, and Soldotna. Examinations conducted elsewhere are not included in this report. Characteristics of patients, assaults, and exams may vary substantially.

In addition to these sample limitations, there are some important data limitations. First, all data collected by this investigation are based on self-reported information by the patient and on observations, physical assessments and laboratory tests performed by the sexual assault nurse examiner. Second, as the reader will notice, sample sizes vary dramatically across tables. Differences in sample size are due to differences in the rate of missing data (i.e., in the rate of unknown information). Because data were collected retrospectively, because the sexual assault nurse examiner protocol has changed over time, and because medical / forensic examinations are necessarily individualized, not every single data element presented here was included in all medical / forensic examinations. Retrospective data collection is inherently limited by the contents of the medical / forensic reports. In particular, when data are missing from the reports, it is difficult, if not impossible, to determine the reason for these data to be missing. Common reasons may include the lack of patient consent or difficulties with recall (victims of violent crime often do not remember the specific details of their victimization). The sexual assault nurse examiner protocol has also been refined over the years. Some of the information that is now routinely collected was not routinely collected five or ten years ago. This information may show high rates of missing data simply because its importance was not revealed until recently and it was not incorporated into the sexual assault nurse examiner protocol until recently. Finally, although the sexual assault nurse examiner protocol is standardized, it must also be individualized. Because the specifics of the examination vary across patients, data documentation and collection necessarily does as well. Overall, the data collection instrument was designed to focus on key aspects of the medical / forensic examination that would generally be included (but of course, these are not always included and cannot be). Missing data are not presented in tables. As the number of missing data increases (i.e., as sample size decreases), the reader is cautioned that data uncertainties are necessarily increased.

The extent to which the results presented herein can be generalized outside of Alaska remains unknown. This is a common concern with any research conducted within

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a single state. However, there is no indication that results from Alaska are somewhat less generalizable than results from any other single state (there is also no indication that they are somewhat more generalizable). Nonetheless, the generalizabilty of the results is enhanced by including all sexual assault nurse examiner sites in the entire state, except for Dillingham. These different sites cover both urban and rural areas and provide a broad representation of cities, towns, and villages in Alaska.

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Section II

Descriptive Analysis of Sexual Assault Nurse Examinations

A. Demographic Characteristics of Patients

The vast majority (98%) of patients were female (only 39 were male). The primary race or ethnicity reported by patients is shown in Table 2. Very few patients indicated multiple races or ethnicities. In all such cases, patients indicated being White and being minority. In these very rare cases, the minority class was selected.

Table 2. Race and Ethnicity of Patients

Column Percentages

	Patients	
Race	N	%
White	597	35.5 %
Native	938	55.7
Black	77	4.6
Hispanic	36	2.1
Asian	17	1.0
Pacific Islander	18	1.1
Total	1683	

Source of data: *Alaska SANE data*
N = 1699; 16 (0.9%) missing

Over half of the patients (56%) were Native and 36% were White. Only 9% were neither Native nor White.

Table 3. Age of Patients

Column Percentages

	Patients	
Age	N	%
0 to 17	333	19.8 %
18 to 24	511	30.3
25 to 34	387	23.0
35 to 44	294	17.4
45 to 54	132	7.8
55 or over	29	1.7
Total	1686	

Source of data: *Alaska SANE data*
N = 1699; 13 (0.8%) missing

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At the time of the report, 50% of patients were 24 years of age or younger. More precisely, 20% of patients were under the age of 18, 30% were 18 to 24 years of age, 23% were 25 to 34 years of age, 17% were 35 to 44 years of age, and 10% were 45 years of age or older (see Table 3).

Most patients (88%) did not report being homeless at the time of the assault (204 patients (12%) did report being homeless). Most patients did not report being disabled at the time of the assault (2% reported an intellectual disability, 2% reported a developmental disability, and 2% reported a mental illness). Again, these statistics are based on assessments and observations only, including self-reports (see limitations of sample and data).

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B. Pre-Assault Characteristics

Table 4 describes whether patients reported they had engaged in anal, oral, or vaginal sex within three days prior to the assault. Results show that very few patients (1%) reported they had engaged in anal sex within three days prior to the assault, very few (1%) reported they had engaged in oral sex within three days prior to the assault, but 28% reported they had engaged in vaginal sex within three days prior to the assault.

Table 4. Sex within Three Days Prior to Assault

Row Percentages

	No		Yes		
Sex	N	%	N	%	**Total**
Anal	1495	99.3 %	10	0.7 %	**1505**
Oral	1485	99.3	10	0.7	**1495**
Vaginal	1085	72.2	418	27.8	**1503**

Source of data: *Alaska SANE data*
N = 1699; 194 to 204 (11.4 to 12.0%) missing

Where the initial contact between the patient and the suspect was reported to have occurred is shown in Table 5. The most common location of initial contact prior to the assault was a private residence, with 19% of initial contacts occurring at the patient's house, 12% occurring at the suspect's house, 16% occurring at another's house, and 3% occurring at the patient and suspect's house. Together, these four locations accounted for 50% of all locations. Other common locations of initial contact included outdoors (for 20% of locations) and bars (for 13% of locations).

Table 5. Location of Initial Contact Prior to Assault

Column Percentages

	Initial Contacts	
Location	N	%
Outdoors	282	20.3 %
Work	9	0.6
Vehicle	39	2.8
Patient's house	265	19.1
Suspect's house	171	12.3
Patient and suspect's house	36	2.6
Other's house	222	16.0
Hotel	89	6.4
Bar	180	12.9
Other indoor location	97	7.0
Total	**1390**	

Source of data: *Alaska SANE data*
N = 1699; 309 (18.2%) missing

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C. Assault Characteristics

Most assaults (88%) took place in the same city, town, or village as the Sexual Assault Nurse Examiner. The other assaults (12%) took place in neighboring cities, towns, or villages but patients were referred to the Sexual Assault Nurse Examiner for the medical / forensic examination (in most cases because a medical / forensic examination was not available in the patient's home community). Where assaults took place is shown in Table 6. The most common locations of assault included private residences. More specifically, 63% of assaults took place in private residences (i.e., 21% at the patient's house, 23% at the suspect's house, 17% at another's house, and 2% at the patient and suspect's house). Other common locations included vehicles (for 12% of assaults), outdoors (for 10% of assaults), and hotels (for 10% of assaults).

Table 6. Location of Assault

Column Percentages

	Assaults	
Location	N	%
Outdoors	143	10.0 %
Work	3	0.2
Vehicle	178	12.4
Patient's house	302	21.1
Suspect's house	325	22.7
Patient and suspect's house	35	2.4
Other's house	239	16.7
Hotel	130	9.1
Bar	4	0.3
Other indoor location	73	5.1
Total	**1432**	

Source of data: *Alaska SANE data*
N = 1699; 267 (15.7%) missing

By comparing Table 5 (Location of Initial Contact Prior to Assault) and Table 6 (Location of Assault), we see that private residences were common locations for both initial contacts and assault locations. More specifically, 50% of contacts initiated in private residences and 63% of assaults occurred in private residences. These private residences included the patient's house, the suspect's house, the patient and suspect's house, and another's house. Another common location for both initial contacts and assaults was outdoors. Of all assaults, 20% initiated outdoors and 10% occurred outdoors. Although 13% of initial contacts occurred in bars, less than 1% of assaults occurred in bars. Conversely, although 12% of assaults occurred in vehicles, only 3% of initial contacts occurred in vehicles. Given that sexual assaults are more likely to initiate in public places than to occur in public places, successful interventions should focus on the point of contact prior to the assault (because official interventions are easier to conduct in public places than in private places). For example, 33% of initial contacts occurred either outdoors or in bars (but only 10% of assaults occurred in these two locations).

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Table 7 describes the methods used during the assault. More specifically, we examined the extent to which each assault involved weapons; physical blows by hands or feet; grabbing, grasping, or holding; physical restraints; strangulation; toxic or chemical burns; and verbal threats. These include standard methods routinely documented in the medical / forensic examination.

Table 7. Methods Used During Assault

Row Percentages

	No		Yes		
Method	N	%	N	%	**Total**
Weapon	1566	93.9 %	102	6.1 %	**1668**
Physical blows by hands or feet	1402	84.1	266	15.9	**1668**
Grabbing, grasping, holding	1042	62.5	626	37.5	**1668**
Physical restraints	1476	88.5	192	11.5	**1668**
Strangulation	1498	89.8	170	10.2	**1668**
Toxic or chemical burns	1664	99.8	4	0.2	**1668**
Verbal threats	1336	80.1	332	19.9	**1668**

Source of data: *Alaska SANE data*
N = 1699; 31 (1.8%) missing

Half of the assaults involved at least one of these methods and only 28% involved two or more (results not shown). The most common methods included grabbing, grasping, and holding (38% of assaults), verbal threats (20% of assaults), physical blows by hands or feet (16% of assaults), physical restraints (12% of assaults), and strangulation (10% of assaults). It is important to emphasize that these estimates only reflect the contents of the SANE examination reports, not the characteristics of assaults. It is possible that these methods were more common than reflected here (i.e., they were not documented). On the other hand, the SANE examination may have captured information on strangulation to a much better extent than other records (e.g., police reports). Ten percent of patients reported being strangled as part of the assault. The high incidence of physical force noted in the SANE examinations (by physical blows, grabbing, grasping, holding, restraints, and strangulation) further documents the violent nature of these offenses.

Table 8. Common Methods by Common Locations of Initial Contact

Cell Percentages

	Weapon		Blows		Grabbing		Restraints		Strangle		Threats	
Initial Contact	N	%	N	%	N	%	N	%	N	%	N	%
Outdoors	43	15.2 %	64	22.7 %	163	57.8 %	31	11.0 %	35	12.4 %	105	37.2 %
Patient's house	12	4.5	55	20.8	112	42.3	45	17.0	31	11.7	56	21.1
Suspect's house	8	4.7	30	17.5	73	42.7	15	8.8	19	11.1	27	15.8
Other's house	6	2.7	15	6.8	52	23.4	19	8.6	12	5.4	22	9.9
Hotel	5	5.7	18	20.5	33	37.5	14	15.9	12	13.6	17	19.3
Bar	7	3.9	34	18.9	69	38.3	31	17.2	25	13.9	40	22.2
Other indoor	0	0.0	11	11.3	30	30.9	9	9.3	7	7.2	14	14.4

Source of data: *Alaska SANE data*
N = 1699; 309 to 310 (18.2%) missing

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Methods used during the assault may vary substantially by locations of initial contact (where assaults *initiated*) and locations of assault (where assaults *occurred*). These results may also be quite valuable from a policy point of view. Table 8 shows how methods vary by locations of initial contact and Table 9 shows how methods vary by locations of assault. More specifically, Table 8 shows the different methods used for the 282 assaults that *initiated* outdoors, the 265 that *initiated* at the patient's house, the 171 that *initiated* at the suspect's house, the 222 that *initiated* at another's house, the 89 that *initiated* in hotels, the 180 that *initiated* in bars, and the 97 that *initiated* in other indoor locations. We did not examine the different methods used for assaults that initiated at work ($N = 9$), in vehicles ($N = 39$), or at the patient and suspect's house ($N = 36$) because of low sample sizes. Similarly, we did not include toxic or chemical burns as a method, given its low occurence ($N = 4$). Table 9 shows the different methods (excluding toxic or chemical burns) used for the 143 assaults that *occurred* outdoors, the 178 that *occurred* in vehicles, the 302 that *occurred* at the patient's house, the 325 that *occurred* at the suspect's house, the 239 that *occurred* at another's house, the 130 that *occurred* in hotels, and the 73 that *occurred* in other indoor locations. We did not examine the different methods used for assaults that occurred at work ($N = 3$), at the patient and suspect's house ($N = 35$), or in bars ($N = 4$) because of low sample sizes.

Table 9. Common Methods by Common Locations of Assault

Cell Percentages

	Weapon		Blows		Grabbing		Restraints		Strangle		Threats	
Assault	N	%	N	%	N	%	N	%	N	%	N	%
Outdoors	17	11.9 %	38	26.6 %	88	61.5 %	16	11.2 %	22	15.4 %	46	32.2 %
Vehicle	31	17.4	35	19.7	106	59.6	25	14.0	26	14.6	72	40.4
Patient's house	13	4.3	58	19.2	115	38.1	42	13.9	34	11.3	58	19.2
Suspect's house	13	4.0	58	17.8	138	42.5	46	14.2	33	10.2	67	20.6
Other's house	5	2.1	27	11.3	59	24.7	20	8.4	13	5.4	27	11.3
Hotel	6	4.7	24	18.6	50	38.8	17	13.2	21	16.3	23	17.8
Other indoor	6	8.2	9	12.3	27	37.0	10	13.7	5	6.8	13	17.8

Source of data: *Alaska SANE data*
N = 1699; 267 to 268 (15.7 to 15.8%) missing

Results show that weapons were used in 15% of assaults that *initiated* outdoors (Table 8) and in 12% of assaults that *occurred* outdoors (Table 9). Weapons were more prevalent in assaults that *initiated* outdoors than in assaults that *initiated* elsewhere. However, weapons were more prevalent in assaults that *occurred* in vehicles than in assaults that *occurred* outdoors (17% of the assaults that *occurred* in vehicles involved weapons). Large differences in other methods were also uncovered. Blows were frequent in assaults that *initiated* outdoors (in 23% of these assaults), in the patient's house (in 21% of these assaults), in hotels (in 21% of these assaults), in bars (in 19% of these assaults), in the suspect's house (in 18% of these assaults), and in other indoor locations (in 11% of these assaults). Blows were least frequent in assaults that *initiated* in another's house (in 7% of these assaults). Blows were also common in all locations of assault. More specifically, blows were frequent in assaults that *occurred* outdoors (in 27% of these assaults), in vehicles (in 20% of these assaults), in the patient's house (in

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19% of these assaults), in hotels (in 19% of these assaults), in the suspect's house (in 18% of these assaults), in other indoor locations (in 12% of these assaults), and in another's house (in 11% of these assaults). Grabbing was prevalent in all locations of initial contact. More precisely, the prevalence of grabbing varied from a low of 23% in assaults *initiated* in another's house to a high of 58% for assaults *initiated* outdoors. Grabbing was similarly prevalent in all locations of assault. More precisely, the prevalence of grabbing varied from a low of 25% in assaults that *occurred* in another's house to a high of 62% in assaults that *occurred* outdoors. Restraints were most commonly used in assaults that *initiated* in bars (for 17% of these assaults) and in assaults that *initiated* at the patient's house (for 17% of these assaults). Restraints were least commonly used in assaults that *initiated* in the suspect's house, another's house, or another indoor location (for 9% of these assaults). Restraints were most commonly used in assaults that *occurred* in vehicles, the patient's house, the suspect's house, and other indoor locations (for 14% of these assaults). Restraints were also commonly used in assaults that *occurred* in hotels (for 13% of these assaults). Strangulation was less common than blows, grabbing, or restraints. Nonetheless, strangulation was prevalent for assaults that *initiated* in bars (in 14% of these assaults), in hotels (in 14% of these assaults), outdoors (in 12% of these assaults), in the patient's house (in 12% of these assaults), and in the suspect's house (in 11% of these assaults). Strangulation was also prevalent in assaults that *occurred* in hotels (in 16% of these assaults), outdoors (in 15% of these assaults), in vehicles (in 15% of these assaults), in the patient's house (in 11% of these assaults), and in the suspect's house (in 10% of these assaults). The lowest occurrence of strangulation was for assaults that *initiated* at another's house (for 5% of these assaults) and for assaults that *occurred* at another's house (for 5% of these assaults). But again, strangulation is, in this study, significantly more prevalent than previously reported. Finally, threats were relatively common across both locations of initial contact and locations of assault. They were most common for assaults that *initiated* outdoors (for 37% of these assaults), were least common for assaults that *initiated* at another's house (for 10% of these assaults), most common for assaults that *occurred* in vehicles (for 40% of these assaults), and least common for assaults that *occurred* at another's house (for 11% of these assaults).

Overall, assaults that initiated outdoors were the most likely to involve weapons, blows, grabbing, and threats. Assaults that occurred outdoors were the most likely to involve blows and grabbing. Assaults that initiated in bars were the most likely to involve restraints and strangulation. Assaults that occurred in vehicles were the most likely to involve weapons or threats. Assaults that occurred at the suspect's house were the most likely to involve restraints and assaults that occurred in hotels were the most likely to involve strangulation. For all locations of initial contact, the most prevalent method used during the assault included grabbing. Similarly, for all locations of assault, the most prevalent method included grabbing.

Patient condition at the time of the assault is described in Table 10. Intoxication was relatively frequent, with 67% of patients reporting being alcohol intoxicated at the time of the assault and 10% reporting being drug intoxicated. Levels of intoxication were often quite high. More precisely, 26% of patients were passed out or had blacked out at the time of the assault.

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Table 10. Patient Condition at Time of Assault

Row Percentages

	No		Yes		
Condition	N	%	N	%	**Total**
Alcohol intoxicated	519	33.1 %	1050	66.9 %	**1569**
Drug intoxicated	1414	90.1	155	9.9	**1569**
Sober	1220	77.8	349	22.2	**1569**
Sleeping	1597	97.1	48	2.9	**1645**
Passed out / blacked out	1216	74.3	421	25.7	**1637**
Unconscious from trauma	1638	99.6	6	0.4	**1644**

Source of data: *Alaska SANE data*
N = 1699; 54 to 130 (3.2 to 7.7%) missing

During the examination, 70% of patients indicated that they had used alcohol prior to the assault and 13% indicated that they had used drugs prior to the assault (results not shown). Table 11 shows patient drug and alcohol use measured at the time of the exam by breathalyzer, blood alcohol test, and urine toxicology screen. These results are imperfect measures of alcohol and drug use prior to the assault because of the time elapsed from the assault to the exam and the use of substances may have occurred after the assault. Nonetheless, these results do further support the relatively frequent use of alcohol and drugs.

Table 11. Measures of Drug and Alcohol Use

Row Percentages

	No		Yes		
Measure	N	%	N	%	**Total**
Breathalyzer	1426	92.2 %	120	7.8 %	**1546**
Blood alcohol	1034	67.2	505	32.8	**1539**
Urine tox screen	1072	69.8	463	30.2	**1535**

Source of data: *Alaska SANE data*
N = 1699; 153 to 164 (9.0 to 9.7%) missing

Table 12. Blood Alcohol and Breathalyzer Results

Column Percentages

	Blood Alcohol		Breathalyzer	
Grams per milliliter	N	%	N	%
Zero	81	23.7 %	19	16.1 %
.01 to .07	58	17.0	13	11.0
.08 to .14	72	21.1	29	24.6
.15 to .29	108	31.6	45	38.1
.30 or above	23	6.7	12	10.2
Total	**342**		**118**	

Source of data: *Alaska SANE data*
N = 505 and 120; 163 (32.3%) missing and 2 (1.7%) missing

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Breathalyzer and blood alcohol test results are shown in Table 12. Breathalyzer results were available for 118 (98%) of the 120 patients given a breathalyzer test, but blood alcohol results were only available for 342 (67%) of the 505 patients given a blood alcohol test (results were not available in the medical / forensic report). Negative results (zero grams per milliliter) were observed for 24% of patients given a blood alcohol test and 16% of patients given a breathalyzer test. Of the patients given a blood alcohol test, 59% tested above .08, 38% of patients tested at a .15 or above, and 7% tested at a .30 or above. Of the patients given a breathalyzer test, 73% tested above .08, 48% of patients tested at a .15 or above, and 10% tested at a .30 or above.

Among the 463 patients who received a urine toxicology screening, 42% tested negative and 58% tested positive (results not shown). Specific results were available for 450 (97%) of these patients. These results are presented in Table 13. Results show that the most common substances used by patients included THC (marijuana), cocaine (including crack cocaine), alcohol, and benzodiazepines (sedatives). More specifically, 33% of patients given a urine toxicology screen tested positive for THC, 20% tested positive for cocaine, 18% tested positive for alcohol, and 9% tested positive for benzodiazepines. Other, less common drugs included opiates and amphetamines (with 4% and 3% of patients testing positive for each, respectively).

Table 13. Urine Toxicology Screening Results, for Patients that Were Screened

Row Percentages

	No		Yes		
Drug	N	%	N	%	**Total**
Alcohol	368	81.8 %	82	18.2 %	**450**
Barbiturates	447	99.3	3	0.7	**450**
MDMA	450	100.0	0	0.0	**450**
THC	302	67.1	148	32.9	**450**
Benzodiazepines	409	90.9	41	9.1	**450**
Ketamine	449	99.8	1	0.2	**450**
Cocaine	358	79.6	92	20.4	**450**
Opiates	434	96.4	16	3.6	**450**
GHB	450	100.0	0	0.0	**450**
Amphetamines	435	96.7	15	3.3	**450**
Other drug	440	97.8	10	2.2	**450**

Source of data: *Alaska SANE data*
N = 463; 13 (2.8%) missing

A total of 17 sex acts were recorded from the SANE examinations (see Table 14), as self-reported by patients. These represent standard items routinely included in the medical / forensic examination. More specifically, we examined whether patients reported the following sexual acts had been completed or attempted. These included kissing, touching breasts, touching the vagina, touching the penis, touching the anus, oral copulation of patient's genitals, oral copulation of suspect's genitals, oral copulation of patient's anus, oral copulation of suspect's anus, masturbation of the patient, masturbation of the suspect, penetration of the vagina by a finger, penile penetration of the vagina, penetration of the vagina by an object, penetration of the anus by a finger, penile penetration of the anus, and penetration of the anus by an object. Some sample

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sizes are low due to recall difficulties. Patients may not always know or remember the details of the assault.

Table 14. Sex Acts Reported

Row Percentages

	No		Attempted		Yes		
Sex Act	N	%	N	%	N	%	**Total**
Kissing	433	40.8 %	16	1.5 %	611	57.6 %	**1060**
Touching breast	391	39.9	4	0.4	584	59.7	**979**
Touching vagina	402	40.6	5	0.5	582	58.8	**989**
Touching penis	961	89.6	2	0.2	110	10.3	**1073**
Touching anus	904	88.1	9	0.9	113	11.0	**1026**
Oral copulation of patient genitals	800	75.8	12	1.1	243	23.0	**1055**
Oral copulation of suspect genitals	906	78.3	31	2.7	220	19.0	**1157**
Oral copulation of patient anus	1036	97.4	1	0.1	27	2.5	**1064**
Oral copulation of suspect anus	1150	99.9	0	0.0	1	0.1	**1151**
Masturbation of patient	1016	94.6	3	0.3	55	5.1	**1074**
Masturbation of suspect	1091	94.5	4	0.3	59	5.1	**1154**
Penetration of vagina by finger	504	52.4	12	1.2	446	46.4	**962**
Penetration of vagina by penis	134	11.8	15	1.3	986	86.9	**1135**
Penetration of vagina by object	1017	97.0	0	0.0	31	3.0	**1048**
Penetration of anus by finger	959	90.2	14	1.3	90	8.5	**1063**
Penetration of anus by penis	877	80.6	50	4.6	161	14.8	**1088**
Penetration of anus by object	1082	99.2	0	0.0	9	0.8	**1091**

Source of data: *Alaska SANE data*
N = 1699; 542 to 737 (31.9 to 43.4%) missing

The most common sexual act reported was penile penetration of the vagina. This was reported by 87% of patients. Statutorily, these are aggravated offenses that meet the legal requirements for sexual assaults in the first, second, or third degree (and sexual abuse of a minor in the first, second, or third degree), all punishable as felonies (unclassified, class B, or class C). Generally speaking, any form of penetration or attempted penetration, defined by Alaska Statute § 11.81.900 as "genital intercourse, cunnilingus, fellatio, anal intercourse, or an intrusion, however slight, of an object or any part of a person's body into the genital or anal opening of another person's body" will be punishable as a felony.

These data clearly reveal that the vast majority of assaults were serious enough to be punishable as felonies. Overall, 97% of assaults included penetration or attempted penetration of the vagina or anus and 40% included oral copulation or attempted oral copulation of the patient's or suspect's genitals or anus (results not shown). Other common forms of penetration included digital penetration of the vagina (reported in 46% of assaults). The most common forms of oral copulation included the oral copulation of the patient's genitals (reported in 23% of assaults). Over half of assaults also included kissing and sexual contact with breasts and vagina.

The majority of assaults were not statutory (99%). Statutory sexual assaults include sexual acts prohibited by law because of the victim's age, the suspect's age, and the age difference between the victim and suspect. For example, an 18 year old suspect may be charged with sexual abuse of a minor in the third degree (AS §11.41.438) if the victim is 15 years of age. In these statutory cases, consent is not at issue. Regardless of

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whether the victim consented to the sexual acts, the suspect may be charged and convicted. Very few assaults (N = 17) were statutory cases.

Table 15. Position at Time of Assault

Row Percentages

	No		Yes		
Position	N	%	N	%	**Total**
Supine	148	13.4 %	959	86.6 %	**1107**
Standing	1061	95.8	46	4.2	**1107**
Straddling	1085	98.0	22	2.0	**1107**
Prone	1017	91.9	90	8.1	**1107**
Knee chest	1064	96.1	43	3.9	**1107**
Lying on side	1064	96.1	43	3.9	**1107**
Sitting	1075	97.1	32	2.9	**1107**
Other	1086	98.1	21	1.9	**1107**

Source of data: *Alaska SANE data*
N = 1699; 592 (34.8%) missing

Table 15 identifies the position of the patient at the time of the assault. The most common position during the assault was supine, with 87% of patients being assaulted in the supine position. Other positions were far less common, with prone as the next most common, reported by 8% of patients. This information, along with other assault characteristics, is important because it may affect the collection and documentation of forensic evidence. In particular, positions at time of assault may affect the presence and patterning of injury.

Table 16. Ejaculation Location, for Suspects that Ejaculated During the Assault

Row Percentages

	No		Yes		
Location	N	%	N	%	**Total**
Vagina	114	30.3 %	262	69.7 %	**376**
Rectum	349	92.8	27	7.2	**376**
Mouth	342	91.0	34	9.0	**376**
Stomach	356	94.7	20	5.3	**376**
Back	371	98.7	5	1.3	**376**
Napkin / cloth	373	99.2	3	0.8	**376**
Bed	364	96.8	12	3.2	**376**
Clothing	374	99.5	2	0.5	**376**
Condom	364	96.8	12	3.2	**376**
Other	331	85.3	57	14.7	**388**

Source of data: *Alaska SANE data*
N = 396; 8 to 20 (2.0 to 5.1%) missing

Whether ejaculation by the suspect had occurred was rarely known by the patient. Of the 1,699 patients, 396 (23%) reported that the suspect had ejaculated during the assault and 167 (10%) reported that the suspect had not ejaculated during the assault (1,136 patients, or 67%, did not know). Focusing on the 396 patients who reported that the suspect had ejaculated during the assault, Table 16 describes ejaculation locations.

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Not surprisingly, given the sex acts reported previously, the most common ejaculation location was the vagina (noted in 70% of assaults). Relatively few suspects used a condom during the assault (10%) and none used contraceptive jelly or foam. Few assaults (6%) included the use of lubricants.

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D. Post-Assault Characteristics

Post-assault actions taken by the patient are shown in Table 17. These actions may be important because they may affect the collection of forensic evidence. More specifically, they may affect the extent to which forensic evidence is still available to collect. Forensic evidence will decay over time and post-assault actions may enhance the decay of forensic evidence and, in some cases, may eliminate forensic evidence (e.g., by washing it away).

Table 17. Post-Assault Actions

Row Percentages

	No		Yes		
Actions	N	%	N	%	**Total**
Urinated	410	24.9 %	1239	75.1 %	**1649**
Defecated	1187	72.0	462	28.0	**1649**
Genital Wipe / Wash	714	43.3	935	56.7	**1649**
Bath / Shower	1232	74.7	417	25.3	**1649**
Douche	1613	97.8	36	2.2	**1649**
Ate / Drank	637	38.6	1012	61.4	**1649**
Brushed Teeth	1217	73.8	432	26.2	**1649**
Oral Gargle / Wash	1332	80.8	317	19.2	**1649**
Changed Clothing	913	55.4	736	44.6	**1649**
Steam	1646	99.8	3	0.2	**1649**

Source of data: *Alaska SANE data*
N = 1699; 50 (2.9%) missing

In Table 17, the majority of patients reported that they urinated, ate or drank, and wiped or washed genitalia after the assault. Close to half (45%) of patients also reported that they changed their clothing prior to the examination. Other common post-assault actions included defecating (28%), bathing or showering (25%), brushing teeth (26%), and gargling (19%).

Table 18. Consensual Sex Between Assault and Examination

Row Percentages

	No		Yes		
Sex	N	%	N	%	**Total**
Anal	1497	100.0 %	0	0.0 %	**1497**
Oral	1493	100.0	0	0.0	**1493**
Vaginal	1471	98.0	30	2.0	**1501**

Source of data: *Alaska SANE data*
N = 1699; 198 to 206 (11.7 to 12.1%) missing

Other factors that may affect the collection of forensic evidence are whether patients engaged in consensual sexual activity between the assault and the examination (Table 18). Engaging in consensual sexual activity between the assault and the examination could contaminate the forensic evidence from the assault. Very few patients engaged in any form of consensual sexual activity and none engaged in anal or oral sex

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after the assault. More precisely, only 30 patients (2%) engaged in consensual vaginal sex between the assault and the examination.

Whether patients removed, inserted, or placed sponges, diaphragms, tampons, or pads is shown in Table 19. All were relatively rare.

Table 19. Post-Assault Insertions and Removals

Row Percentages

	No		Yes		
Item	N	%	N	%	**Total**
Sponge	1651	100.0 %	0	0.0 %	**1651**
Diaphragm	1650	99.9	1	0.1	**1651**
Tampon	1605	97.2	46	2.8	**1651**
Pad	1587	96.1	64	3.9	**1651**

Source of data: *Alaska SANE data*
N = 1699; 48 (2.8%) missing

Table 20 shows that most reports to the sexual assault nurse examiner (95%) occurred within three days of the assault. More precisely, 13% of reports occurred within two hours of the assault, 33% occurred within four hours, 58% occurred within 12 hours, 77% occurred within one day, and (again) 95% occurred within three days.

Table 20. Time Elapsed Between Assault and Report

Column Percentages

	Patients		
Time	N	%	cum. %
< 2 hours	201	12.9 %	12.9 %
2 to < 4 hours	306	19.6	32.5
4 to < 12 hours	396	25.4	57.9
12 to < 24 hours	295	18.9	76.8
1 to < 3 days	279	17.9	94.7
3 days or more	83	5.3	100.0
Total	**1560**		

Source of data: *Alaska SANE data*
N = 1699; 139 (8.2%) missing

For those reports that occurred within 3 days of the assault, the number of hours from the assault to the report is shown in Figure 3. For reports that occurred within 3 days of the assault, the average number of hours between the assault and the report to the sexual assault nurse examiner was 13.2 hours (s = 15.6). Over half (51%) of these assaults were reported to the sexual assault nurse examiner within six hours.

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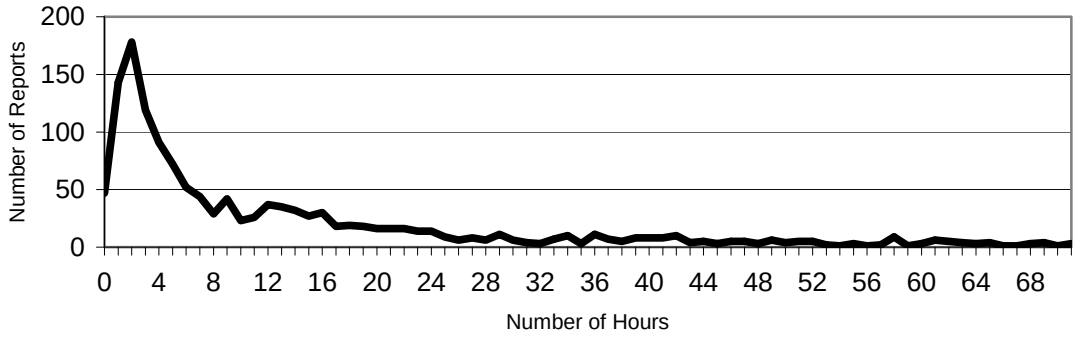
Figure 3. Hours Elapsed Between Assault and Report, for Reports Within Three Days of Assault



Source of data: *Alaska SANE data; N = 1390*

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E. Exam Characteristics and Findings

Exam characteristics and findings are based on the sexual assault nurse examiner's observations, physical assessments, and laboratory tests. Low sample sizes may preclude strong interpretations and results should not be generalized to sexual assault victims who did not receive a medical / forensic examination.

The traumatic effects of sexual victimizations can be clearly observed by patients' behavioral and emotional state during exams. All reports were read to record whether patients were described as controlled, quiet, calm, expressive, staring, sleeping, cooperative, stoic, agitated, fearful, tearful, fidgeting, tense, hysterical, sobbing, yelling, listless, loud, trembling, or angry. These statistics reflect the patient's behavioral and emotional state as routinely observed and documented by the SANE but may not depict all of the behavioral and emotional states the patients were experiencing at the time. Nonetheless, data in Table 21 show that most patients were cooperative (76%) and many were controlled (64%), quiet (55%), tearful (45%), and calm (35%). A smaller number were tense (17%), fidgeting (16%), trembling (11%), sleeping (10%), stoic (9%), staring (8%), sobbing (7%), agitated (7%), fearful (6%), or angry (5%). Overall, 63% of patients were either agitated, fearful, tearful, fidgeting, tense, hysterical, sobbing, yelling, listless, loud, trembling, or angry at some point during the medical / forensic exam (result not shown).

Table 21. Patients' Behavioral and Emotional State at Time of Exam

Row Percentages

	No		Yes		
State	N	%	N	%	**Total**
Controlled	534	35.7 %	962	64.3 %	**1496**
Quiet	673	45.0	823	55.0	**1496**
Calm	976	65.2	520	34.8	**1496**
Expressive	1480	98.9	16	1.1	**1496**
Staring	1375	91.9	121	8.1	**1496**
Sleeping	1346	90.0	150	10.0	**1496**
Cooperative	357	23.9	1139	76.1	**1496**
Stoic	1358	90.8	138	9.2	**1496**
Agitated	1393	93.1	103	6.9	**1496**
Fearful	1400	93.6	96	6.4	**1496**
Tearful	829	55.4	667	44.6	**1496**
Fidgeting	1259	84.2	237	15.8	**1496**
Tense	1238	82.8	258	17.2	**1496**
Hysterical	1487	99.4	9	0.6	**1496**
Sobbing	1388	92.8	108	7.2	**1496**
Yelling	1450	96.9	46	3.1	**1496**
Listless	1450	96.9	46	3.1	**1496**
Loud	1467	98.1	29	1.9	**1496**
Trembling	1327	88.7	169	11.3	**1496**
Angry	1425	95.3	71	4.7	**1496**
Other	1295	86.6	201	13.4	**1496**

Source of data: *Alaska SANE data*
N = 1699; 203 (11.9%) missing

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Most reports to the sexual assault nurse examiner (89%) led to a complete exam. Not surprisingly, given patients' behavioral and emotional state, 11% did not complete the examination. Reasons for not completing exams are shown in Table 22. The most common reasons were attributable to lack (or withdrawal) of patient consent followed by not having probable cause (i.e., having less evidence for than against). Only five reports (3%) were determined to be false, or baseless.

Table 22. Reasons for Not Completing Exams

Column Percentages

	Patients	
Reasons	N	%
Patient declined exam	118	62.4 %
Partial exam	13	6.9
RN stopped call out process	16	8.5
No probable cause	30	15.9
False report	5	2.6
Other	7	3.7
Total	**189**	

Source of data: *Alaska SANE data*
N = 192; 3 (0.2%) missing

At the time of the SANE examination, 50% of patients were not wearing the same clothing as that worn during the assault. The appearance of patients' clothing at the time of the examination is described in Table 23. Relatively few patients had clothing that appeared dirty (15%), partially missing (8%), torn (3%), bloody (2%), or wet (2%). The majority of patients had clothing that appeared intact or clean (75% and 64% respectively).

Table 23. Appearance of Patients' Clothing

Row Percentages

	No		Yes		
Clothing	N	%	N	%	**Total**
Intact	225	25.5 %	659	74.5 %	**884**
Clean	320	36.2	564	63.8	**884**
Dirty	755	85.4	129	14.6	**884**
Wet	867	98.1	17	1.9	**884**
Bloody	863	97.6	21	2.4	**884**
Torn	856	96.8	28	3.2	**884**
All missing	879	99.4	5	0.6	**884**
Partially missing	818	92.5	66	7.5	**884**
Buttons missing	879	99.4	5	0.6	**884**

Source of data: *Alaska SANE data*
N = 1699; 815 (48.0%) missing

As a result of the assault, 2% of patients were admitted to the hospital and 10% required emergency medical care (results not shown). Patients requiring emergency medical care were not necessarily admitted to the hospital. Reasons for requiring

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emergency medical care are shown in Table 24. The most common reasons for requiring emergency medical care were related to non-genital injuries suffered by patients, to patients' intoxication, and to other reasons.

Table 24. Reasons for Emergency Medical Care

Row Percentages

	No		Yes		
Reason	N	%	N	%	**Total**
Non-genital injury	1442	93.8 %	95	6.2 %	**1537**
Genital injury	1526	99.3	11	0.7	**1537**
Intoxication	1506	97.9	33	2.1	**1539**
Other	1485	97.6	36	2.4	**1521**

Source of data: *Alaska SANE data*
N = 1699; 160 to 178 (9.4 to 10.5%) missing

Few patients were pregnant at the time of the examination (2% of female patients) but over half were mothers (56% of female patients; results not shown). Of the female patients, 11% were menstruating at the time of the assault (result not shown).

The vast majority of patients (95%) had a sexual assault evidence collection kit completed during the medical / forensic examination (the evidence collection kit is a preassembled kit used to collect and preserve forensic samples following a sexual assault). Speculum and colposcope exams were very common (in 91% and 95% of exams, respectively). The speculum exam is an examination that utilizes an instrument to enhance the visualization of the vaginal walls and cervix while the colposcope exam is an examination of the genitalia with an instrument that provides illumination and magnification. Anoscope exams (examinations of the rectum using a small tube-shaped speculum) were less common (in 13% of exams).

An alternative light source was used in 71% of exams. An alternative light source is a light source that emits a different wavelength of electromagnetic radiation that stimulates fluorescence. Fluorescence is the production of light by radiant energy. Fluorescence was found in 37% of exams conducted with an alternative light source.

Table 25. Location of Fluorescence, for Cases Where Fluorescence was Found

Row Percentages

	No		Yes		
Location	N	%	N	%	**Total**
Abdomen	360	92.5 %	29	7.5 %	**389**
Arms and hands	303	77.9	86	22.1	**389**
Legs and feet	207	53.2	182	46.8	**389**
Buttocks and hips	293	75.3	96	24.7	**389**
Chest	366	94.1	23	5.9	**389**
Vagina and groin	361	92.8	28	7.2	**389**
Neck	378	97.2	11	2.8	**389**
Back	369	94.9	20	5.1	**389**
Face	341	87.7	48	12.3	**389**

Source of data: *Alaska SANE data*
N = 400; 11 (2.8%) missing

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Table 25 describes where fluorescence was found, for exams in which an alternative light source was used and fluorescence was found. The most common locations where fluorescence was found included legs and feet, buttocks and hips, arms and hands, and the face.

A wet prep examination (a microscopic examination of fluid obtained from the vaginal vault) was conducted for 841 (50%) of the patients, and the nurse observed spermatozoa on 71 (8%) of these examinations. In nine of these 71 cases (13%), the spermatozoa were still motile.

Most patients (80%) were tested for sexually transmitted infections and other genital infections; and 19% of them tested positive. The specific types of infections that these patients tested positive for are displayed in Table 26. This table only includes patients who tested positive (N = 224). The most common infection that patients tested positive for was bacterial vaginosis (51%), followed by chlamydia (17%), genital warts (14%), and trichomoniasis (12%). Other infections that patients tested positive for included gonorrhea, HIV, herpes, hepatitis B, syphilis, yeast, and hepatitis C.

Table 26. Infections, for Patients Who Tested Positive

Row Percentages

	Negative		Positive		
Infection	N	%	N	%	**Total**
Bacterial vaginosis	110	49.3 %	113	50.7 %	**223**
Chlamydia	186	83.4	37	16.6	**223**
Genital warts	193	86.5	30	13.5	**223**
Gonorrhea	212	95.1	11	4.9	**223**
HIV	218	97.8	5	2.2	**223**
Herpes	214	96.0	9	4.0	**223**
Trichomoniasis	197	88.3	26	11.7	**223**
Hepatitis B	219	98.2	4	1.8	**223**
Syphilis	222	99.6	1	0.4	**223**
Yeast	202	90.6	21	9.4	**223**
Hepatitis C	210	94.2	13	5.8	**223**

Source of data: *Alaska SANE data*
N = 224; 1 (0.4%) missing

Very detailed injury information was recorded from each medical examination. Injury information included both non-genital and genital injury. Non-genital injuries included nine injuries (i.e., bruising, redness, abrasions, lacerations, swelling, fractures, bite marks, pain, and other) to 12 sites (i.e., head/face, mouth, neck, shoulders, arms, hands, chest, abdomen, back, buttocks/hips, legs, and feet). Genital injuries for females included bruising, abrasions, lacerations, and tenderness to 15 different genital sites. These sites included the mons pubis, labia majora, labia minora, labia majora / minora junction, clitoral hood, clitoris, periurethra, hymen, fossa navicularis, posterior fourchette, perineum, vaginal walls, cervix, anus, and rectum. Genital injuries for males included bruising, abrasions, lacerations, and tenderness of the anus and rectum.

Non-genital injuries were recorded for 52% of patients. Overall, 15% of patients had non-genital injuries to the head or face, 6% to the mouth, 13% to the neck, 3% to shoulders, 31% to arms, 9% to hands, 9% to the chest, 3% to the abdomen, 9% to the

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back, 8% to buttocks or hips, 34% to legs, and 2% to feet. The most common non-genital injury types included bruising (documented for 48% of patients) and abrasions (documented for 22% of patients). Other non-genital injury types were far less common, with pain documented for 8% of patients, swelling documented for 7%, and lacerations, redness, and other injuries all documented for 4%. Detailed results by non-genital injury site and type are shown in Table 27. Each cell in this table represents the number and percentage of patients with documented non-genital injuries.

The detailed data Table 27 show that the most common non-genital injury was bruising to the legs, documented in 31% of patients, followed by bruising of the arms (documented in 29% of patients), bruising of the head / face (documented in 11% of patients), bruising to the abdomen (documented in 11% of patients), and bruising of the neck (documented in 11% of patients).

Table 27. Number and Percent of Patients With Non-Genital Injury

Cell Percentages

	Bruising		Redness		Abrasions		Lacerations		Swelling	
Location	N	%	N	%	N	%	N	%	N	%
Head / face	169	11.2 %	14	0.9 %	73	4.9 %	27	1.8 %	88	5.9 %
Mouth	81	5.4	0	0.0	23	1.5	28	1.9	25	1.7
Neck	163	10.8	24	1.6	45	3.0	2	0.1	12	0.8
Shoulders	33	2.2	3	0.2	12	0.8	0	0.0	1	0.1
Arms	431	28.7	7	0.5	100	6.6	2	0.1	2	0.1
Hands	95	6.3	5	0.3	39	2.6	8	0.5	12	0.8
Chest	102	6.8	4	0.3	42	2.8	0	0.0	1	0.1
Abdomen	16	11.1	0	0.0	18	1.2	0	0.0	0	0.0
Back	79	5.3	3	0.2	66	4.4	0	0.0	2	0.1
Buttocks / hips	75	5.0	4	0.3	50	3.3	0	0.0	1	0.1
Legs	460	30.6	6	0.4	145	9.6	4	0.3	5	0.3
Feet	15	1.0	1	0.1	11	0.7	1	0.1	2	0.1
Total	**724**	**48.1**	**53**	**3.5**	**337**	**22.4**	**60**	**4.0**	**109**	**7.2**

	Fracture		Bite Mark		Pain		Other		Total	
Location	N	%	N	%	N	%	N	%	N	%
Head / face	10	0.7 %	5	0.3 %	50	3.3 %	17	1.1 %	**218**	**14.5 %**
Mouth	0	0.0	0	0.0	16	1.1	4	0.3	**95**	**6.3**
Neck	0	0.0	2	0.1	32	2.1	4	0.3	**201**	**13.4**
Shoulders	0	0.0	3	0.2	2	0.1	2	0.1	**47**	**3.1**
Arms	0	0.0	7	0.5	13	0.9	7	0.5	**473**	**31.4**
Hands	1	0.1	3	0.2	9	0.6	15	1.0	**135**	**9.0**
Chest	0	0.0	4	0.3	5	0.3	3	0.2	**137**	**9.1**
Abdomen	0	0.0	1	0.1	2	0.1	3	0.2	**39**	**2.6**
Back	0	0.0	0	0.0	8	0.5	2	0.1	**136**	**9.0**
Buttocks / hips	1	0.1	0	0.0	5	0.3	4	0.3	**117**	**7.8**
Legs	0	0.0	7	0.5	12	0.8	7	0.5	**508**	**33.8**
Feet	0	0.0	0	0.0	1	0.1	6	0.4	**27**	**1.8**
Total	**1**	**0.6**	**1**	**0.6**	**13**	**7.8**	**7**	**4.2**	**785**	**52.2**

Source of data: *Alaska SANE data*
N = 1699; 195 (11.5%) missing

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Genital injuries were documented in 41% of patients. Overall, the most common genital injury type documented for patients was a laceration (33%), followed by abrasions (15%), bruising (11%), and tenderness (6%). The most common genital injury locations identified for female patients included the posterior fourchette (19%), the labia minora (16%), the perineum (14%), the fossa navicularis (13%), the hymen (7%), the labia majora / minora junction (6%), and vaginal walls (4%). Injury to the anus was identified for 10% of all patients.

Three anatomical sites had lacerations for 10% of patients. More specifically, 17% of examinations documented lacerations of the posterior fourchette, 12% documented lacerations to the perineum, and 10% documented lacerations to the fossa navicularis. An additional 9% of examinations documented lacerations of the anus. These were the most common genital injuries, followed by abrasions of the labia minora (documented for 8% of patients) and lacerations of the labia minora (documented for 6% of patients).

Table 28. Number and Percent of Patients With Genital Injury

Cell Percentages

	Bruising		Abrasions		Lacerations		Tenderness		Total	
Location	N	%	N	%	N	%	N	%	N	%
Mons pubis	1	0.1 %	2	0.1 %	2	0.1 %	1	0.1 %	**5**	**0.3 %**
Labia majora	4	0.3	19	1.3	10	0.7	9	0.6	**34**	**2.4**
Labia minora	62	4.3	113	7.8	83	5.8	52	3.6	**226**	**15.7**
Labia maj/min junction	7	0.5	21	1.5	63	4.4	19	1.3	**82**	**5.7**
Clitoral hood	6	0.4	13	0.9	10	0.7	10	0.7	**30**	**2.1**
Clitoris	2	0.1	1	0.1	4	0.3	1	0.1	**8**	**0.6**
Periurethra	16	1.1	4	0.3	8	0.6	12	0.8	**31**	**2.1**
Hymen	69	4.8	14	1.0	32	2.2	26	1.8	**97**	**6.7**
Fossa navicularis	3	0.2	30	2.1	146	10.1	38	2.6	**192**	**13.3**
Posterior fourchette	2	0.1	20	1.4	251	17.4	32	2.2	**280**	**19.4**
Perineum	1	0.1	33	2.3	178	12.3	13	0.9	**204**	**14.1**
Vaginal walls	39	2.7	10	0.7	25	1.7	3	0.2	**61**	**4.2**
Cervix	15	1.0	6	0.4	5	0.3	1	0.1	**23**	**1.6**
Anus	4	0.3	22	1.5	137	9.3	18	1.2	**150**	**10.2**
Rectum	22	1.5	9	0.6	16	1.1	0	0.0	**38**	**2.6**
Total	**161**	**10.9**	**227**	**15.4**	**490**	**33.2**	**89**	**6.0**	**604**	**40.9**

Source of data: *Alaska SANE data*
N = 1,660; 218 (13.1%) missing; for anus, rectum, and total rows, N = 1699; 224 (13.2%) missing

Seventeen percent of patients received a follow-up examination or consultation. On average, follow-up examinations occurred 23 days after the first exam (s = 21.2). More specifically, 22% occurred within one week and 69% within four weeks (results not shown).

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F. Suspect Characteristics

Suspect characteristics were self-reported by the patients. Rates of missing data for suspect characteristics were often high. Suspect characteristics were not always documented by the sexual assault nurse examiner and, in some cases, suspects were not well-known by patients. Readers are cautioned to take into account the rate of unknown information prior to making strong inferences.

The average number of suspects per assault was 1.16 ($s = 0.6$), for a total of 1,746 suspects. The number of suspects per assault is shown in Table 29. Results show that 90% of patients were assaulted by one suspect, 7% by two suspects, and 4% by three or more suspects.

Table 29. Number of Suspects per Report

Column Percentages

	Reports		
Number of Suspects	N	%	cum. %
One	1416	89.6 %	89.6 %
Two	107	6.8	96.3
Three	36	2.3	98.6
Four	16	1.0	99.6
Five	2	0.1	99.7
Six	2	0.1	99.9
Seven	1	0.1	99.9
Eight	1	0.1	100.0
Total	**1581**		

Source of data: *Alaska SANE data*
N = 1699; 118 (6.9%) missing

Suspect information includes the gender, race or ethnicity, and age of the suspect, whether the suspect has used alcohol or drugs, and the relationship between the suspect and the patient. Not surprisingly, the vast majority (99.7%) of suspects were male (only six were female).

Table 30. Race and Ethnicity of Suspects

Column Percentages

	Suspects	
Race	N	%
White	506	33.6 %
Native	517	34.4
Black	326	21.7
Hispanic	109	7.2
Asian	27	1.8
Pacific Islander	19	1.3
Total	1504	

Source of data: *Alaska SANE data*
N = 1,746; 242 (13.9%) missing

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Of the 1,746 suspects, 71% of their identities were known. Table 30 identifies the race and ethnicity of suspects. In rare cases when patients reported multiple races or ethnicities for suspects, the minority class was selected. Overall, the majority of suspects were Native (34%) or White (34%). An additional 22% were Black.

Overall, the race of suspects was similar to the race of patients, with two clear exceptions. More precisely, 34% of suspects were White (and 36% of patients were White), 34% of suspects were Native (but 56% of patients were Native), 22% of suspects were Black (but 5% of patients were Black), 7% of suspects were Hispanic (and 2% of patients were Hispanic), 2% of suspects were Asian (and 1% of patients were Asian), and 1% of suspects were Pacific Islander (and 1% of patients were Pacific Islander). Additional detail on suspect and patient race is shown in Table 31.

Table 31. Suspect Race and Ethnicity by Patient Race and Ethnicity

Row Percentages

	Suspects												
	White		Native		Black		Hispanic		Asian		Pacific Islander		
Patients	N	%	N	%	N	%	N	%	N	%	N	%	**Total**
White	**269**	**55.2** %	53	10.9 %	108	22.2 %	42	8.6 %	8	1.6 %	7	1.4 %	**487**
Native	207	23.9	**455**	**52.5**	132	15.2	54	6.2	12	1.4	7	0.8	**867**
Black	13	16.3	5	6.3	**57**	**71.3**	5	6.3	0	0.0	0	0.0	**80**
Hispanic	7	24.1	1	3.4	13	44.8	**7**	**24.1**	1	3.4	0	0.0	**29**
Asian	5	35.7	0	0.0	4	28.6	1	7.1	**4**	**28.6**	0	0.0	**14**
Pacific Islander	4	16.0	2	8.0	12	48.0	0	0.0	2	8.0	**5**	**20.0**	**25**

Source of data: *Alaska SANE data*
N = 1,746; 262 (17.2%) missing

Results in Table 31 show that victimizations across racial and ethnic groups were least common for Black patients (71% were assaulted by Black suspects) and most common for Pacific Islander patients (only 20% were assaulted by Pacific Islander suspects). Additional results in Table 31 show that 55% of White patients were assaulted by White suspects, 53% of Native patients were assaulted by Native suspects, 24% of Hispanic patients were assaulted by Hispanic suspects, and 29% of Asian patients were assaulted by Asian suspects.

Alcohol use was frequent among suspects, with 85% of suspects using alcohol (result not shown). Drug use was less frequent, with 18% using drugs (result not shown). Again, these statistics are all based on self-reported information by the patient and their true validity therefore remains unknown.

Table 32 describes the age of suspects. Unless the suspect was well known by the patient, this information is likely to be missing. Suspect age was known for 1,061 (61%) of the suspects. Results show that 15% of suspects were 10 to 19 years of age (over half of those were 18 or 19 years of age), 39% were 20 to 29 years of age, 25% were 30 to 39 years of age, 15% were 40 to 49 years of age, and 7% were 50 years of age or older.

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Table 32. Age of Suspects

Column Percentages

	Suspects	
Age	N	%
10 to 19	162	15.3 %
20 to 29	408	38.5
30 to 39	260	24.5
40 to 49	160	15.1
50 to 59	53	5.0
60 to 69	14	1.3
70 to 79	4	0.4
Total	1061	

Source of data: *Alaska SANE data*
N = 1,746; 685 (39.2%) missing

Patient-suspect relationship is shown in Table 33. Overall, 16% of patients were assaulted by strangers and 84% were assaulted by non-strangers, ranging from current spouses to acquaintances known for less than 12 hours. The most common relationships included friends and acquaintances. Overall, 67% of patients reported being assaulted by someone they knew as a friend or an acquaintance. Among patients assaulted by non-strangers, 80% were assaulted by someone known as a friend or acquaintance.

Table 33. Relationship Between Suspects and Patients

Column Percentages

	Suspects		
Relationship	N	%	% of non-stranger
Stranger	269	16.0 %	
Friend / acquaintance (>24 hrs)	694	41.2	49.0 %
Acquaintance (< 24 hrs)	34	2.0	2.4
Acquaintance (< 12 hrs)	407	24.2	28.8
Current spouse	21	1.2	1.5
Former spouse	10	0.6	0.7
Current partner	58	3.4	4.1
Former partner	70	4.2	4.9
Relative	100	5.9	7.1
Authority figure	21	1.2	1.5
Total	1684		

Source of data: *Alaska SANE data*
N = 1,746; 62 (3.6%) missing

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G. Legal Resolutions

Prosecutorial outcomes were collected directly from the Alaska Department of Law, but were collected only for a sub-sample of the examinations included in this report. More precisely, searches through the Alaska Department of Law records were limited to examinations conducted from 1999 to 2005, because the legal resolutions for the examinations conducted in 2006 were not yet completed by the time of data collection and the legal resolutions for the examinations conducted prior to 1999 were not electronically available. In addition, searches through the Alaska Department of Law records excluded cases referred from the military and excluded cases with unknown law enforcement numbers. Consequently, we examined the legal resolutions for the 1,229 examinations conducted from 1999 to 2004 (i.e., for 72% of the original 1,699 examinations included in the sample). These legal resolutions are summarized in Table 34.

Table 34. Case Outcomes by Stage

Stage	N	% of reported	% of referred	% of accepted
Reported	1229	100.0 %		
Referred	353	28.7	100.0 %	
Accepted	244	19.9	69.1	100.0 %
Convicted	190	15.5	53.8	77.9

Source of data: *Alaska Department of Law*
N = 1229; 0 (0.0%) missing

Of the 1,229 reports examined, 29% were referred to the Alaska Department of Law for prosecution. Once referred for prosecution, cases had a high likelihood of getting accepted (69%) and once accepted, cases had a high likelihood of resulting in a conviction (78%). Stated differently, 69% of referred cases were accepted and 78% of accepted cases resulted in a conviction. Overall, 29% of reported cases were referred, 20% were accepted, and 16% resulted in a conviction. As previous analyses of Alaska Department of Law data have revealed, the greatest point of attrition is from report to referral (see Snodgrass, 2006; Rosay et al., 2008). Predictors of both genital injury and legal resolutions are now examined in Section III.

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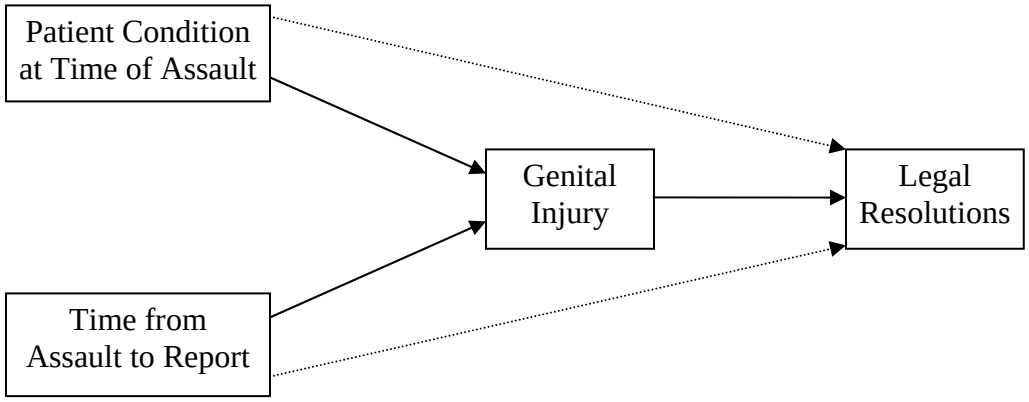
Section III

Predictors of Genital Injury and Legal Resolutions

A. Goals of this Analysis

The goals of this analysis are best summarized diagrammatically. This analysis examines the effect of patient condition at the time of the assault and of time elapsed from assault to report on genital injury. This analysis also examines the effect of genital injury on legal resolutions.

Figure 4. Goals of this Analysis



More specifically, we examine the effect of patient condition at the time of the assault by comparing the genital injuries of patients that were sober, intoxicated, and incapacitated at the time of the assault. We also examine the effect of time elapsed from assault to report by comparing the genital injuries of patients that reported to a sexual assault nurse examiner within 24 hours to the genital injuries of patients that did not. We examine the effects of patient condition and time elapsed on both the presence and frequency of genital injury.

We also examine the effect of genital injury on three legal resolutions. These three legal resolutions include whether cases were referred for prosecution, whether cases were accepted for prosecution, and whether cases resulted in a conviction. In this analysis, we control for patient condition at the time of the assault and for time elapsed from assault to report.

We emphasize again that this is not an evaluation of Sexual Assault Nurse Examiner programs in Alaska, of police investigative strategies, or of prosecutorial success. Instead, this is an examination of what affects genital injury and of how genital injury subsequently impacts legal resolutions.

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B. Sample and Variables

For this analysis, we utilized a sample of 813 cases. Our sample was limited to female patients between the ages of 12 to 69 who had reported a completed, non-consensual, and substantiated assault committed by a single suspect. In addition, our sample was limited to cases examined from 1999 to 2005 that had complete data on the patient's condition at the time of the assault, the time elapsed from assault to report, and genital injury.

From the 1,699 cases in the Alaska SANE study, we eliminated 42 male patients (N = 1,699 – 42 = 1,657). We then selected patients between the ages of 12 and 69. This eliminated 26 patients younger than 12 years of age and seven patients older than 69 years of age (N = 1,657 – 33 = 1,624). We then selected patients whose condition at the time of the assault was known. This eliminated 132 patients whose records did not indicate whether patients were sober, intoxicated, or incapacitated during the assault (N = 1,624 – 132 = 1,492). Next, we selected patients whose assaults were non-consensual (e.g., whose assaults were not statutory). This eliminated 23 patients (N = 1,492 – 23 = 1,469). We eliminated 58 reports that were not substantiated as completed sexual assaults (N = 1,469 – 58 = 1,411). These 58 reports did not include offenses that were determined by a law enforcement agency investigator, based on some credible evidence, to constitute a sexual assault as defined by Alaska statutes. From the remaining 1,411 cases, we then selected cases that were examined from 1999 to 2005. Cases examined prior to 1999 were excluded because legal resolutions were not electronically available. Cases examined in 2006 were excluded because the legal resolutions were not yet complete by the time of data collection. This eliminated 360 patients (N = 1,411 – 360 = 1,051). We then restricted the analysis to patients who had been assaulted by a single suspect. This eliminated 147 patients (N = 1,051 – 147 = 904). Finally, we eliminated 40 patients for whom time elapsed from assault to report was unknown (N = 904 – 40 = 864) and 51 patients who did not have a genital exam (N = 864 – 51 = 813).

The final sample therefore included all female patients between the ages of 12 to 69 examined from 1999 to 2005 who had reported a completed, non-consensual, and substantiated assault that was committed by a single suspect and for whom valid data were available on their condition at the time of the assault, the time elapsed from assault to report, and genital injury (N = 813).

It is important to again emphasize that cases included in the Alaska SANE study are not representative of all sexual assault cases reported to law enforcement (see limitations of sample and data). Data from the Alaska State Troopers (2003-2004), for example, revealed that 26% of victims received a medical / forensic exam while 76% did not (Postle et al., 2007). Because these data were gathered only from sexual assault victims who received a medical / forensic examination, results should not be generalized to sexual assault victims who did not receive a medical / forensic examination. Specific criteria are used to determine whether a victim should receive a medical / forensic examination (e.g., time elapsed from assault to report, victim cooperation) and victims who do not receive medical / forensic examinations are therefore not comparable to victims who do.

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1. Condition at Time of Assault

Patient condition at the time of the assault was categorized into three mutually exclusive groups. These three groups represent patients that were sober at the time of the assault, patients that were intoxicated (but awake) at the time of the assault, and patients that were incapacitated at the time of the assault. Patients were categorized as sober if they reported not using alcohol or drugs at the time of the assault. Patients were categorized as intoxicated if they had reported being alcohol and/or drug intoxicated at the time of the assault but had not reported being unconscious. Patients were categorized as incapacitated if they had reported being unconscious or passed out. Descriptive statistics for these categorizations are provided in the following table.

Table 35. Patient Condition at Time of Assault

Column Percentages

	Patients	
Condition	N	%
Sober	180	22.1 %
Intoxicated	344	42.3
Incapacitated	289	35.5
Total	813	

Source of data: *Alaska SANE data*

Of the 813 patients included in this sample, 180 (22%) were sober at the time of the assault (i.e., were neither alcohol nor drug intoxicated at the time of the assault). Of the 813 patients included in this sample, 344 (42%) were intoxicated (but awake) at the time of the assault. Finally, of the 813 patients included in this sample, 289 (36%) were incapacitated at the time of the assault.

The proportion of incapacitated patients in this sample (36%) is higher than recent estimates from a general population sample of U.S. women but lower than recent estimates from a national sample of college women (Kilpatrick et al., 2007). Kilpatrick et al. (2007) gathered information on the most recent rape victimization (and on first rapes for women who had experienced more than one) and found that incapacitation was present in 22% of cases in the general population sample and in 46% of cases in the college sample. In both the general population and college sample, incapacitation was more likely due to alcohol use (than drug use) and was more likely due to voluntary intoxication (rather than involuntary; see also Testa et al., 2003). Similar results were previously reported in police cases in Alaska (Rosay and Langworthy, 2003).

2. Time Elapsed from Assault to Report

Time elapsed from assault to report was categorized into two mutually exclusive groups. These two groups represent patients that reported their victimization to a sexual assault nurse examiner within 24 hours of the assault and patients that reported their victimization to a sexual assault nurse examiner 24 hours or more after the assault. 'Time elapsed from assault to report' represents the amount of time from the sexual assault to

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the report being made to the sexual assault nurse examiner. We selected a 24 hour cutoff to be consistent with previous literature (e.g., Sachs and Chu, 2002; Sugar et al., 2004). A limitation of this study is that we did not capture the time elapsed from the sexual assault to the genital exam. Genital exams are not done immediately at the time of the report. Other procedures such as obtaining a history and conducting non-genital physical assessments must occur first. Additionally, some patients may have to wait for the sexual assault nurse examiner (e.g., if another examination is in progress). Descriptive statistics for time elapsed from assault to report are provided in the following table.

Table 36. Time Elapsed from Assault to Report

Column Percentages

	Patients	
Time	N	%
Less than 24 hours	630	77.5 %
24 hours or more	183	22.5
Total	813	

Source of data: *Alaska SANE data*

Of the 813 patients included in this sample, 630 (78%) reported their victimization to a sexual assault nurse examiner within 24 hours of the assault and 183 (23%) reported their victimization to a sexual assault nurse examiner 24 hours or more after the assault. More specific results (not shown) indicate that 13% reported in less than two hours, 21% reported in two or three hours, 25% reported in four to 11 hours, 20% reported in 12 to 23 hours, 18% reported in one to two days, and 5% reported in three days or more.

3. Genital Injury

As previously described, the Alaska SANE data include 60 standard measures of genital injury. These measures include four types of injuries (bruising, abrasions, lacerations, and tenderness) to 15 different sites (mons pubis, labia majora, labia minora, labia majora / minora junction, clitoral hood, clitoris, periurethra, hymen, fossa navicularis, posterior fourchette, perineum, vaginal walls, cervix, anus, and rectum). From these 60 measures, we developed one dichotomous measure to indicate the presence of genital injury and one continuous measure to indicate the frequency of genital injury. The presence of genital injury was coded 'yes' if any injury was noted for any site (and was coded 'no' otherwise). It is important to note that our measures of genital injury include injuries to the anus and rectum.

Descriptive statistics in Table 37 indicate that genital injury was present for 43% of patients (and was absent for 57% of patients). The frequency of genital injury varied from zero to 26. The mean number of genital injuries was 1.4 (s = 2.4). Among patients with genital injury, the mean number of genital injuries was 3.1 (s = 2.7); with 31% having only one injury, 21% having two injuries, and 48% having three or more injuries.

Given the strong deviation from normality in the number of genital injuries (kurtosis = 19.5 and skewness = 3.3), we logged the sum of genital injuries (after adding

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one) thereby reducing the kurtosis to -0.2 and the skewness to 1.0. In the sample with genital injury, the kurtosis was reduced from 16.2 to 0.1 while the skewness was reduced from 3.0 to 0.7. These new values are "considered excellent for most psychometric purposes" (George and Mallery, 2006:98).

Table 37. Presence and Frequency of Genital Injury

Column Percentages

	Patients		
Number of Injuries	N	% of all patients	% of patients with injury
Zero	460	56.6 %	
One	111	13.7	31.4 %
Two	73	9.0	20.7
Three	55	6.8	15.6
Four	44	5.4	12.5
Five	28	3.4	7.9
Six	13	1.6	3.7
Seven	9	1.1	2.5
Eight	4	0.5	1.1
Nine	5	0.6	1.4
Ten	2	0.2	0.6
Eleven	1	0.1	0.3
Twelve	2	0.2	0.6
Thirteen	2	0.2	0.6
Fourteen	3	0.4	0.8
...	...	...	...
Twenty-Six	1	0.1	0.3
Total	**813**		

Source of data: *Alaska SANE data*

More specific results (not shown) reveal that the most common types of injury were lacerations (for 35% of patients), followed by abrasions (for 17% of patients), bruising (for 11% of patients), and tenderness (for 8% of patients). The five most common injury sites included the posterior fourchette (for 21% of patients), followed by the perineum and labia minora (each for 16% of patients), the fossa navicularis (for 15% of patients), and the anus (for 11% of patients). No other site was injured for more than 10% of the patients. The next two most common sites included the labia majora / minora junction and the hymen (each for 6% of patients). These results are similar to the descriptive results presented in Section II (see Table 28).

4. Legal Resolutions

Legal resolutions were collected directly from the Alaska Department of Law. We examined whether cases were referred for prosecution, whether cases were accepted for prosecution, and whether cases resulted in a conviction. Legal resolutions were examined using three dichotomous measures indicating whether a case was referred for prosecution, whether a case was accepted for prosecution, and whether a case resulted in a conviction. These legal resolutions are summarized in the following table.

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Of the 813 reports included in this sample, 263 (32%) were referred to the Alaska Department of Law for prosecution. Of the 263 referred cases, 175 (67%) were accepted for prosecution and 140 (80%) of those cases accepted for prosecution resulted in a conviction. Once referred for prosecution, cases had a high likelihood of getting accepted (67%) and, once accepted, cases had a high likelihood of resulting in a conviction (80%).

Table 38. Legal Resolutions by Stage

Stage	N	% of reported	% of referred	% of accepted
Reported	813	100.0 %		
Referred	263	32.3	100.0 %	
Accepted	175	21.5	66.5	100.0 %
Convicted	140	17.2	53.2	80.0

Source of data: *Alaska SANE data*

Overall, 32% of reported cases were referred, 22% were accepted, and 17% resulted in a conviction. As previous analyses of Alaska Department of Law data have revealed, the greatest point of attrition is from report to referral (Snodgrass, 2006). These results are consistent with the descriptive results presented in Table 34, in Section II.

5. Control Variables

Because the causes (or correlates) of genital injury and legal resolutions are more encompassing that those hypothesized, we utilized a wide array of control variables, sometimes termed "confounders." These control variables or confounders broadly summarize case characteristics, patient characteristics, assault characteristics, exam characteristics, exam findings, and suspect characteristics. These control variables contextualize the sample used for this investigation. More importantly, they allow us to test the veracity of our hypotheses while holding other factors constant. Again, these factors which are held constant by statistical control include the characteristics of cases, patients, assaults, exams, and suspects. Broadly speaking, prior research has emphasized the importance of these control variables because of their effects on genital injury (see, for example, Carter-Snell, 2007) and/or legal resolutions (see, for example, Bryden and Lengnick, 1997).

As previously explained, this study utilized retrospective data. The information gathered and recorded by sexual assault nurse examiners therefore varied across time and location. In some cases, it is unclear whether information that was not recorded (e.g., whether the patient was homeless at the time of the assault) indicates that the patient was not homeless or whether it simply indicates that this was not documented in the report (i.e., the sexual assault nurse examiner did not ask about or record information on homelessness). All control variables reflect whether a specific characteristic was documented in the medical / forensic report. The absence of documentation on homelessness, for example, may indicate two things. First, it is possible that the patient was not homeless. Second, it is possible that this information was not gathered or not recorded. Control variables therefore reflect the contents of the report. They may not depict all of the characteristics of patients, assaults, examinations, or suspects. This is an

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important limitation of this analysis. This further enhances the cautions that are necessary when interpreting the effects of control variables.

In addition, we made no attempt to theoretically select or limit the number of potential control variables. Because we wanted to broadly examine all predictors of genital injury and legal resolutions, we included as many predictors as possible. In many cases, these variables are more appropriately identified and interpreted as correlates than predictors.

6. Case Characteristics

The first three controls included the location of the sexual assault nurse examiner, the referral agency, and the year of the report. It is important to again emphasize that these controls do not (and cannot) test the efficacy of sexual assault nurse examiners or referral agencies. Instead, they capture differences between cases across locations, referral agencies, and time that are not measured in medical / forensic reports. Consequently, these are critical statistical controls.

Table 39. Control Variables: Case Characteristics

Row Percentages

	0 = No		1 = Yes		
Case Characteristic	N	%	N	%	**Total**
Examined in Anchorage	110	13.5 %	703	86.5 %	**813**
Referred by State Trooper	722	88.8	91	11.2	**813**
Reported Prior to 2003	345	42.4	468	57.6	**813**

Source of data: *Alaska SANE data*

In this analysis, we control for unmeasured differences between cases examined in Anchorage and cases examined elsewhere, between cases referred from Alaska State Troopers and cases referred from local police departments, and between cases reported before 2003 and cases reported in 2003 or later (2003 was selected as the cutoff simply because it was the median year of report). These proxy measures capture differences between cases that are not included in the medical / forensic reports (e.g., detailed information on suspects). They do not in any way capture the effectiveness of sexual assault nurse examiners or referral agencies, because cases across locations and referral agencies are so different, in ways that are not described in medical / forensic reports. In the sample used for this analysis, 86.5% of cases were examined in Anchorage. The remaining 13.5% were examined in Bethel, Fairbanks, Homer, Kodiak, Kotzebue, Nome, and Soldotna. The Alaska State Troopers referred 11.2% of the cases (and 88.8% of the cases were referred from local police departments). Slightly over half of the cases (58%) were reported prior to 2003 and 42% were reported in 2003 or later.

7. Patient Characteristics

Demographic characteristics of patients included race and age. Previous research has examined the impact of race and age on genital injury and legal resolutions. This research documents the importance of controlling for both race and age (see, for example,

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Bryden and Lengnick, 1997; Jones et al., 2003; Carter-Snell, 2007). Patient race was categorized into three groups (White, Native, and Other; with White used as the reference category). Overall, 33% of patients were White, 59% were Native, and 8% were of another racial or ethnic group (including Black, Asian, Pacific Islander, and Hispanic). Age was categorized into three groups (12 to 17, 18 to 49, 50 to 69; with 12 to 17 used as the reference category), based on physiological differences in the risk for genital injury. Overall, 15% of patients were 12 to 17 years old, 80% were 18 to 49 years old, and 4% were 50 to 69 years old.

In addition, we included a measure to indicate if the patient was homeless at the time of the assault (13% were homeless) and a measure to indicate if the patient reported having an intellectual disability, developmental disability, or mental illness (5% did).

Table 40. Control Variables: Patient Characteristics

Row Percentages

	0 = No		1 = Yes		
Patient Characteristic	N	%	N	%	**Total**
Patient Race: White[1]	544	67.0 %	268	33.0 %	**812**
Patient Race: Native	336	41.4	476	58.6	**812**
Patient Race: Other	744	91.6	68	8.4	**812**
Patient Age: 12-17[1]	685	84.7	124	15.3	**809**
Patient Age: 18-49	159	19.7	650	80.3	**809**
Patient Age: 50-69	774	95.7	35	4.3	**809**
Homeless	710	87.3	103	12.7	**813**
Disabled	770	94.7	43	5.3	**813**
Currently Pregnant	804	98.9	9	1.1	**813**
Parity	338	41.6	475	58.4	**813**
Currently Menstruating	722	88.8	91	11.2	**813**
Pre-Assault Sex	590	72.6	223	27.4	**813**
Post-Assault Sex	798	98.2	15	1.8	**813**
Post-Assault Actions	74	9.1	739	90.9	**813**
Removed / Inserted Pad or Tampon	742	91.3	71	8.7	**813**
Changed Clothing	395	48.6	418	51.4	**813**
Clean / Intact Clothing	511	62.9	302	37.1	**813**

Source of data: *Alaska SANE data*
[1] Reference Category

Information on parity, current pregnancy, and current menstruation was also recorded. These factors may affect the presence of genital injury, which in turn may affect legal resolutions. Parity, current pregnancy, and current menstruation are all dichotomous measures (58% of patients had given birth to a child, 1% of patients were currently pregnant, and 11% were currently menstruating).

Other factors that may affect the presence of genital injury or legal resolutions include pre-assault and post-assault actions. These include whether the patient had consensual sexual activity within 96 hours prior to the assault (27% did), whether the patient had consensual sexual activity between the assault and the exam (2% did), whether patients engaged in any of nine post assault actions (urinating; taking a bath, shower, or steam; brushing teeth; defecating; douching; gargling; wiping or washing genitalia; and eating or drinking; 91% did), and whether patients removed, inserted, or placed a sponge, pad, diaphragm, or tampon (9% did). Finally, we examined whether the

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patient had changed her clothing (51% did) and whether the patient had clothing that was intact and clean (37% did). Descriptive statistics for all patient characteristics are provided in Table 40.

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8. Assault Characteristics

Characteristics of the assaults included the location of the initial contact, the location of the assault, the methods employed by the assailant, the patient's position during the assault, the sex acts that were reported, whether lubricants or condoms had been used, and whether ejaculation occurred. The location of the initial contact and the location of the assault indicate whether patients were initially contacted and subsequently assaulted in a private residence (i.e., the patient's house, the suspect's house, the patient and suspect's house, or another's house) or not (i.e., outdoors, work, vehicles, hotels, or bars). Overall, 49% of initial contacts occurred in a private residence and 64% of assaults occurred in a private residence. Two variables were utilized to describe the methods employed by the assailant. The first examined whether methods included weapons, physical blows, grabbing, grasping, holding, physical restraints, strangulation, or burns (52% did). The second examined whether methods included verbal threats (20% did). The most common position at assault was supine (lying down, face up). We therefore categorized position during the assault using a dichotomous variable indicating whether patients were assaulted in the supine position (69% were).

Table 41. Control Variables: Assault Characteristics

Row Percentages

	0 = No		1 = Yes		
Assault Characteristic	N	%	N	%	**Total**
Initiated in Private Residence	415	51.0 %	398	49.0 %	**813**
Occurred in Private Residence	295	36.3	518	63.7	**813**
Physical Force	391	48.1	422	51.9	**813**
Verbal Threats	654	80.4	159	19.6	**813**
Supine Position	251	30.9	562	69.1	**813**
Kissing, Licking, Biting, Scratching	476	58.5	337	41.5	**813**
Touching, Fondling	402	49.4	411	50.6	**813**
Oral Copulation	613	75.4	200	24.6	**813**
Anal Penetration	708	87.1	105	12.9	**813**
Vaginal Penetration	204	25.1	609	74.9	**813**
Masturbation	747	91.9	66	8.1	**813**
Lubricants and Condoms	724	89.1	89	10.9	**813**
Ejaculation	595	73.2	218	26.8	**813**

Source of data: *Alaska SANE data*

We examined six additional characteristics of the sex acts that were reported to the sexual assault nurse examiner. First, we examined whether patients reported kissing, licking, biting, or scratching (42% did). Second, we examined whether patients reported touching or fondling of breasts, the vagina, penis, or anus (51% did). Third, we examined whether patients reported oral copulation of either the patient's or the suspect's genitals or anus (25% of assaults included some form of oral copulation). Fourth, we examined whether patients reported anal penetration by a finger, penis, or object (13% of assaults included some type of anal penetration). Fifth, we examined whether patients reported vaginal penetration by a finger, penis, or object (75% of assaults included some type of vaginal penetration). Finally, we examined whether patients reported masturbating the suspect or being masturbated by the suspect (8% did).

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The use of lubricants and condoms was also measured as a dichotomous variable, indicating whether lubricants or condoms had been used. Lubricants and condoms had been used in 11% of cases. Finally, ejaculation was also measured as a dichotomous variable. Ejaculation was reported to have occurred in 27% of cases. In the remaining 73%, the patients reported that ejaculation did not occur or the patients reported that they did not know if ejaculation had occurred.

9. Exam Characteristics

Exam characteristics included whether an evidence collection kit was obtained, whether a speculum exam was performed, whether a colposcope exam was performed, whether an anoscope exam was performed, whether an alternative light source was used, and whether a genital follow-up exam was conducted. Evidence collection kits were obtained in 99% of cases. Most examinations (97%) included a speculum exam and most included a colposcope exam (99%), but fewer included an anoscope exam (15%). An alternative light source was used in 71% of examinations. A genital follow-up examination was conducted for 18% of patients. Finally, we examined whether patients were admitted to a hospital or received emergency care (9% did).

Table 42. Control Variables: Exam Characteristics

Row Percentages

	0 = No		1 = Yes		
Exam Characteristic	N	%	N	%	**Total**
Evidence Collection Kit	9	1.1 %	804	98.9 %	**813**
Speculum Exam	26	3.2	787	96.8	**813**
Colposcope Exam	12	1.5	801	98.5	**813**
Anoscope Exam	693	85.2	120	14.8	**813**
Alternative Light Source	236	29.0	577	71.0	**813**
Follow-Up Exam	665	81.8	148	18.2	**813**
Hospital / Emergency Care	743	91.4	70	8.6	**813**

Source of data: *Alaska SANE data*

10. Exam Findings

All medical / forensic reports were examined to record key examination findings. These included whether fluorescence was found, whether spermatozoa were seen on a wet prep, whether spermatozoa were still motile, and whether patients tested positive for sexually transmitted infections and other genital infections. Fluorescence was found in 30% of cases. Spermatozoa were seen on a wet prep in 7% of examinations, and were still motile in 1%. Overall, 17% of patients tested positive for at least one sexually transmitted infection or other genital infection (i.e., bacterial vaginosis, chlamydia, genital warts, gonorrhea, HIV, herpes, trichamoniasis, hepatitis B or C, syphilis, and yeast infections). The remaining 83% include patients that tested negative for sexually transmitted infections and other genital infections (67%), patients that were not tested (15%), and patients who were tested but whose test results were not available (1%). The

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most common infection was bacterial vaginosis, positive for 9% of patients (result not shown).

As previously described, the Alaska SANE data include detailed evidence of nongenital injuries. More specifically, there are a total of 72 indicators of nongenital injury. These indicators measure six types of injury (i.e., bruising, lacerations, bite marks, redness, swelling, pain, abrasions, fractures, and other) to 12 different sites (i.e., head/face, mouth, neck, shoulders, arms, hands, chest, abdomen, back, buttocks/hips, legs, and feet). For this analysis, we relied on two indicators of nongenital injury. First, we measured the presence of nongenital injury (54% of patients had nongenital injuries). Second, we measured the frequency of nongenital injury. The number of nongenital injuries varied from zero to 19, with a mean of 2.0 (s = 3.2). Because the number of nongenital injury was highly skewed (as was the number of genital injuries), we logged the sum of nongenital injuries (after adding one).

Table 43. Control Variables: Exam Findings

Row Percentages

	0 = No		1 = Yes		
Exam Findings	N	%	N	%	**Total**
Fluorescence	573	70.5 %	240	29.5 %	**813**
Spermatozoa	756	93.0	57	7.0	**813**
Motile Spermatozoa	805	99.0	8	1.0	**813**
Infection	676	83.1	137	16.9	**813**
Presence of Non-Genital Injury	371	45.6	442	54.4	**813**
Frequency of Non-Genital Injury		Continuous measure			**813**
Controlled	46	5.7	767	94.3	**813**
Expressed	313	38.5	500	61.5	**813**

Source of data: *Alaska SANE data*

Finally, we recorded the patient's behavioral and emotional state during the exam. More specifically, we examined whether patients' behavioral and emotional states during the exam were controlled and/or expressed (many patients displayed both, at different times during the exam). Patients were categorized as controlled if they were described as calm, cooperative, controlled, quiet, staring, stoic, listless, or tense, at any time during the interview / examination process (94% of patients were controlled). Patients were categorized as expressive if they were described as loud, expressive, agitated, fearful, tearful, fidgeting, sobbing, yelling, trembling, angry, or hysterical, at any time during the interview / examination process (62% of patients were expressive). Over half (58%) of patients were both controlled and expressive, at different times during the interview / examination process (results not shown).

11. Suspect Characteristics

Suspect characteristics included whether the suspect's identity was known (76% were) and whether the suspect had used alcohol or drugs (65% had). The first variable reflects whether the suspect's identity was documented as being known in the medical / forensic report while the second reflects whether the sexual assault nurse examiner recorded that the suspect had used alcohol or drugs, according to the patient.

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We also examined whether the suspect was of a different race or ethnicity as the patient. Overall, 44% of assaults were inter-racial. Suspect gender was not used as a control variable because only one suspect was female. All others were male. Suspect age was not used as a control variable because it was unknown from 24% of the medical / forensic reports.

Table 44. Control Variables: Suspect Characteristics

Row Percentages

	0 = No		1 = Yes		
Suspect Characteristic	N	%	N	%	**Total**
Suspect Identity Known	198	24.4 %	615	75.6 %	**813**
Suspect Alcohol / Drug Use	288	35.4	525	64.6	**813**
Inter-Racial Assault	430	56.4	333	43.6	**763**
Relationship: Stranger[1]	686	86.2	110	13.8	**796**
Relationship: Friend / Acquaintance	253	31.8	543	68.2	**796**
Relationship: Intimate / Family	653	82.0	143	18.0	**796**

Source of data: *Alaska SANE data*
[1] Reference Category

Finally, we also controlled for the relationship between the patient and the suspect. Relationships were categorized into three mutually exclusive groups (stranger, friend/acquaintance, intimate/family; with stranger used as the reference category). The friend/acquaintance category included friends, acquaintances, and authority figures. Authority figures were included in the friend/acquaintance category mostly because these could not be considered strangers, intimate partners, or family members (only 1% of patients were assaulted by authority figures). The intimate/family category included current and former spouses, current and former partners, and relatives. Overall, 14% of patients were assaulted by strangers, 68% by friends or acquaintances (or authority figures), and 18% by intimate partners or family members.

12. Summary

The sample used for this analysis included all female patients between the ages of 12 to 69 examined from 1999 to 2005 who had reported a completed, non-consensual, and substantiated assault that was committed by a single suspect and for whom valid data were available on their condition at the time of the assault, the time elapsed from assault to report, and genital injury (N = 813).

Patient condition at the time of the assault was categorized into three mutually exclusive groups. These three groups represent patients that were sober at the time of the assault, patients that were intoxicated (but awake) at the time of the assault, and patients that were incapacitated at the time of the assault. Time elapsed from assault to report was categorized into two mutually exclusive groups. These two groups represent patients that reported their victimization to a sexual assault nurse examiner within 24 hours of the assault and patients that reported their victimization to a sexual assault nurse examiner 24 hours or more after the assault. Two measures of genital injury were developed. The first was a dichotomous measure indicating the presence of genital injury. The second

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was a continuous measure indicating the frequency of genital injury. Legal resolutions are examined using three dichotomous measures indicating whether a case was referred for prosecution, whether a case was accepted for prosecution, and whether a case resulted in a conviction.

In addition, we used a total of 48 control variables (see Tables 39 through 44). These include characteristics of cases, patients, assaults, exams, and suspects. We again caution the reader that most of these variables represent the extent to which specific characteristics were documented in the report. We only examined the contents of the medical / forensic report and therefore only measured whether specific characteristics had been documented to have occurred. For example, if the medical / forensic report had no information about an anoscope exam, we assumed that one was not performed. Ultimately, these control variables only examine how the contents of the medical / forensic report affect our outcome variables. This severely limits the generalizability of conclusions drawn from the effect of control variables. Control variables should only be interpreted as proxies for differences across cases that were not well measured.

Nonetheless, these control variables are of great value for several key statistical reasons. First, they contextualize the sample that we use for this investigation. There is also local and national literature that emphasizes the importance of these variables. Not including these variables would statistically bias our main effects. In the statistical literature, this is referred to an "omitted variable bias" or uncontrolled confounding. If important variables are omitted, estimates for our main effects will be biased. Finally, our approach is not all that different than the one used by prosecutors. Ultimately, prosecutors also need to rely on what was documented within the medical / forensic report. If something was not documented, they too must assume that it did not occur.

However, this strategy was not used for patient and suspect demographic characteristics (race, gender, age, and relationship), as these would be readily available to the prosecutor from other reports (e.g., police reports). In cases where the patient's race, gender, or age was unknown, we coded these as missing values. We also coded the suspect's race and the relationship between the patient and suspect as missing values when these were unknown. The suspect's age was not included as a control variable given the high number of missing values. We also did not include the suspect's gender, as all suspects were male, except for one.

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C. Methodology

We begin by examining the key bivariate effects diagrammed in Figure 4. These include the effect of patient condition at the time of the assault on both the presence and frequency of genital injury, the effect of time elapsed from assault to report on both the presence and frequency of genital injury, and the effect of the presence and frequency of genital injury on all three legal resolutions (i.e., whether reported cases were referred, whether referred cases were accepted, and whether accepted cases resulted in a conviction). These bivariate associations are initially examined using simple cross-tabulations and descriptive statistics. Differences are examined using standard statistical techniques (*F* and *t*-tests), using a standard significance level of 0.05.

We then present five sets of multivariate models. The first two sets examine the predictors of the presence of genital injury and the frequency of genital injury. The last three sets examine the three legal resolutions sequentially (i.e., predictors of reported cases being referred, predictors of referred cases being accepted, and predictors of accepted cases resulting in a conviction). Predictors of dichotomous outcomes are examined with logistic regression models. The four dichotomous outcomes include the presence of genital injury, the decision to refer a case for prosecution, the decision to accept a case for prosecution, and the ability to secure a conviction. Predictors of the frequency of genital injury (a continuous outcome) are examined with ordinary least squares regression models.

Each set of multivariate models includes three parts (i.e., main effects, control variables, and final model). Within each set, we begin with a simple multivariate model that only includes the main effects. When predicting the presence and frequency of genital injury, the main effects include the patient's condition at the time of the assault and the time elapsed from the assault to the report. When predicting the three legal resolutions, the main effects include the presence and frequency of genital injury. These models directly assess the main effects diagrammed in Figure 4 and are presented in the sections titled "Main Effects."

After presenting these main effects, we then examine the effects of the control variables. Because of high multicolinearity in the control variables, a strategy was developed to identify potential control variables to include in the final model. Potential control variables were selected for inclusion into the final model if their bivariate effect was statistically significant. Bivariate regression models were therefore estimated to determine which control variables should be included in the final multivariate model. To err on the side of caution, we selected potential control variables if their bivariate effect was statistically significant at a probability level of 0.10 or less. These results are presented in the sections titled "Control Variables."

The final multivariate regression models are then presented in the sections titled "Final Model." Each final model initially included all variables with a bivariate effect that was statistically significant at a probability level of 0.10 or less. A backward elimination procedure was then performed to remove non-significant effects one at a time. At each step, the least significant effect was removed until all remaining effects were statistically significant at a standard probability level of 0.05 or less.

Four categorical variables have more than two values (i.e., patient condition at the time of the assault, patient race, patient age, and patient-suspect relationship). For each

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variable, all values were selected for potential inclusion in the final model if at least one of the values had an effect that was statistically significant at a probability level of 0.10. Similarly, all values of each variable were maintained together during the backward elimination procedure.

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D. Bivariate Results

We first examine the bivariate effects of patient condition at time of assault on the presence and frequency of genital injury (Table 45), of time from assault to report on the presence and frequency of genital injury (Table 46), of the presence of genital injury on legal resolutions (Table 47), and of the frequency of genital injury on legal resolutions (Table 48). These were the key effects diagrammed in Figure 4. Unless otherwise noted, the frequency of genital injury is always operationalized as the logged sum of genital injuries (after adding one).

Table 45. Genital Injury by Patient Condition at Time of Assault

	Presence of Injury			Frequency of Injury	
Condition	% with no injury	% with injury	Odds of Injury	Mean	St. Dev.
Sober	57 %	43 %	0.75	0.57	0.75
Intoxicated	53	47	0.89	0.60	0.73
Incapacitated	60	40	0.67	0.48	0.68
***F* (*p*)**	1.59 (0.20)			2.00 (0.14)	

Source of data: *Alaska SANE data*

Contrary to expectations, patient condition at the time of the assault did not significantly impact genital injury. More precisely, it did not impact either the presence of injury ($p = 0.20$) or the frequency of injury ($p = 0.14$). Injuries were present for 43% of sober patients, 47% of intoxicated patients, and 40% of incapacitated patients. Although incapacitated patients were the least likely to have genital injuries, the difference was not statistically significant. The mean frequency of injury varied from a low of 0.48 for incapacitated patients to a high of 0.60 for intoxicated patients (recall that the frequency of injury is a logged sum). Again, although the mean frequency of genital injury was lower for incapacitated patients, the difference was not statistically significant. Overall, results were in the expected direction, but differences were not large enough to be statistically significant.

Results (not shown) also indicate that patient condition at time of assault did not impact the frequency of injury, among those with injury (N=353, $p = 0.28$). Additional analyses (not shown) also revealed that incapacitated patients had significantly less genital injuries than non-incapacitated patients (i.e., sober or intoxicated, $p = 0.04$; but differences in the presence of genital injury were still non-significant).

Table 46. Genital Injury by Time from Assault to Report

	Presence of Injury			Frequency of Injury	
Time	% with no injury	% with injury	Odds of injury	Mean	St. Dev.
Less than 24 hours	43 %	57 %	1.33	0.56	0.72
24 hours or more	44	56	1.27	0.54	0.71
***t* (*p*)**	0.32 (0.75)			-0.09 (0.93)	

Source of data: *Alaska SANE data*

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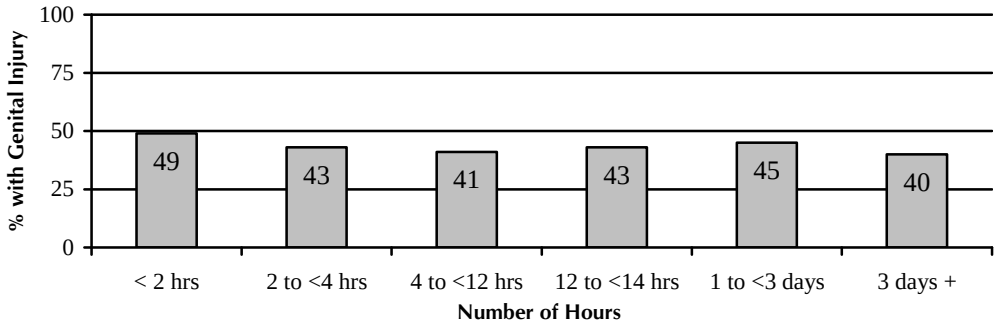
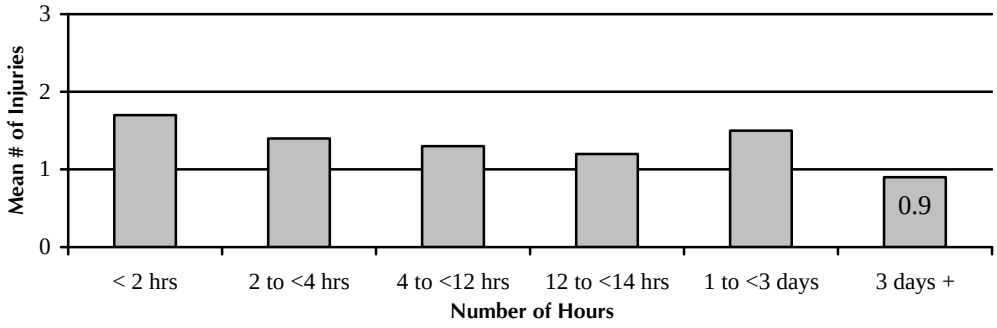
Similarly, time from assault to report did not significantly impact genital injury. More precisely, time from assault to report had no significant impact on the presence of genital injury (p = 0.75) or the frequency of genital injury (p = 0.93). Time from assault to report also did not significantly impact the frequency of injury among those with injury (p = 0.40; results not shown). More detailed analyses compared patients who reported in less than two hours, in two or three hours, from four to 11 hours, from 12 to 23 hours, from one to three days, and in three days or more. Time from assault to report still did not significantly impact the presence of injury (p = 0.87) or the frequency of injury (p = 0.47). Results are shown in Figures 5 and 6. Results in Figure 6 show the raw (unlogged) average number of genital injuries by time from assault to report.

Figure 5. Presence of Genital Injury by Time from Assault to Report



Source of data: *Alaska SANE data*

Figure 6. Frequency of Genital Injury by Time from Assault to Report



Source of data: *Alaska SANE data*

In Table 47, we examine how the presence of genital injury impacted the likelihood of referring a case, the likelihood of accepting a case, and the likelihood that a case resulted in a conviction. When examining the likelihood of accepting a case, we only selected cases that had been referred. Similarly, when examining the likelihood of cases resulting in a conviction, we only selected cases that had been accepted. Contrary to expectations, the presence of genital injury had no impact on legal resolutions.

Although the presence of genital injury did slightly increase the likelihood that a reported case would be referred for prosecution, the increase was too small to be statistically significant (p = 0.24). Similarly, although the presence of genital injury did slightly increase the likelihood that a referred case would be accepted for prosecution, the

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increase was too small to be statistically significant (p = 0.46). Finally, the presence of genital injury slightly decreased the likelihood that an accepted case would result in a conviction, but again, the change was too small to be statistically significant (p = 0.65). Overall, the presence of genital injury had no impact on legal resolutions.

Table 47. Legal Resolutions by Presence of Genital Injury

	813 Reported Cases			263 Referred Cases			175 Accepted Cases		
Genital Injury	% not referred	% referred	Odds of referral	% not accepted	% accepted	Odds of acceptance	% not convicted	% convicted	Odds of conviction
Absent	69 %	31 %	0.45	35 %	65 %	1.86	19 %	81 %	4.26
Present	65	35	0.54	31	69	2.26	21	79	3.76
***t* (*p*)**	-1.18 (0.24)			-0.74 (0.46)			0.45 (0.65)		

Source of data: *Alaska SANE data*

The frequency of genital injury also had no impact on legal resolutions. The results in Table 48 show the extent to which the mean frequency of genital injury varied by legal resolution.

Table 48. Mean Genital Injury Levels by Legal Resolutions

	Frequency of Genital Injury		Difference in Means	
	Mean	St. Dev.	*t*	*p*
813 Reported Cases				
Not Referred	0.53	0.71		
Referred	0.60	0.74	-1.44	0.15
263 Referred Cases				
Not Accepted	0.51	0.66		
Accepted	0.65	0.77	-1.53	0.13
175 Accepted Cases				
Not Convicted	0.69	0.79		
Convicted	0.64	0.77	0.31	0.76

Source of data: *Alaska SANE data*

Although the mean frequency of genital injury was higher in referred cases than in non-referred cases and although the mean frequency of genital injury was also higher in accepted cases than in non-accepted cases, the mean frequency of genital injury was slightly lower in convicted cases than in non-convicted cases. However, none of these differences were statistically significant. Similar results were obtained when only selecting cases with genital injury (results not shown).

Overall, bivariate results do not support any of the key hypotheses. Patient condition at time of the assault did not impact the presence or frequency of genital injury. Time from assault to exam also did not impact the presence or frequency of genital injury. Finally, the presence and frequency of genital injury did not impact the legal resolutions.

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E. Multivariate Results: Presence of Genital Injury

1. Main Effects: Presence of Genital Injury

We now examine multivariate models to predict the presence of genital injury. We begin with a logistic regression model that includes as independent variables the patient's condition at the time of the assault (with sober as the reference category) and the time elapsed from assault to report. Results are shown in Table 49.

Table 49. Regression of Genital Injury on Patient Condition and Time Elapsed

	Presence of Genital Injury		
Variables	B	St. Err.	*p*
Constant	-0.30	0.16	0.06
Patient Condition: Intoxicated	0.17	0.19	0.37
Patient Condition: Incapacitated	-0.12	0.19	0.53
Time Elapsed (24+ hours)	0.04	0.17	0.82

Source of data: *Alaska SANE data*

Not surprisingly, neither the patient's condition at the time of the assault nor the time elapsed from assault to report significantly impacted the presence of genital injury. This just confirms previous bivariate results.

2. Control Variables: Presence of Genital Injury

Because of high potential for multicolinearity in control variables, each control variable was added independently and was selected for inclusion in the final model only if their bivariate association with the presence of genital injury was statistically significant at a probability level of 0.10 or less. The bivariate effects of each control variable on the presence of genital injury are shown in Tables 50 through 55.

Two case characteristics were significantly associated with the likelihood of genital injury. More specifically, the odds of genital injury were higher for patients examined in Anchorage than for patients examined elsewhere and were higher in cases reported prior to 2003 than in cases reported in 2003 or later. The odds of genital injury were not associated with whether the case was reported to state or local law enforcement agencies.

Table 50. Bivariate Regressions of Genital Injury on Case Characteristics

	Presence of Genital Injury		
Variables	B	St. Err.	*p*
Examined in Anchorage	0.43	0.21	0.05
Referred by State Trooper	-0.34	0.23	0.15
Reported Prior to 2003	0.37	0.14	0.01

Source of data: *Alaska SANE data*

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Only one patient characteristic was significantly associated with the odds of genital injury (at a significance level of 0.05 or less). The odds of genital injury were significantly lower for patients who had engaged in consensual sexual activity within 96 hours prior to the assault. The effect of age was not statistically significant at a standard 0.05 level, but was statistically significant at a 0.10 level. Age was therefore selected for potential inclusion into the final model. The odds of genital injury were higher for patients between the ages of 50 to 69 than for patients between the ages of 12 to 17 (p = 0.07).

Table 51. Bivariate Regressions of Genital Injury on Patient Characteristics

	Presence of Genital Injury		
Variables	B	St. Err.	*p*
Patient Race: Native	-0.02	0.15	0.89
Patient Race: Other	-0.18	0.28	0.52
Patient Age: 18-49	-0.28	0.20	0.15
Patient Age: 50-69	0.72	0.40	0.07
Homeless	-0.12	0.21	0.56
Disabled	-0.17	0.32	0.60
Currently Pregnant	-0.43	0.71	0.54
Parity	-0.03	0.14	0.86
Currently Menstruating	0.03	0.22	0.91
Pre-Assault Sex	-0.33	0.16	0.04
Post-Assault Sex	-0.14	0.53	0.79
Post-Assault Actions	-0.35	0.24	0.15
Removed / Inserted Tampon or Pad	-0.31	0.26	0.23
Changed Clothing	-0.15	0.14	0.29
Clean / Intact Clothing	0.06	0.15	0.67

Source of data: *Alaska SANE data*

Table 52. Bivariate Regressions of Genital Injury on Assault Characteristics

	Presence of Genital Injury		
Variables	B	St. Err.	*p*
Initiated in Private Residence	-0.04	0.14	0.80
Occurred in Private Residence	-0.06	0.15	0.67
Physical Force	0.38	0.14	0.01
Verbal Threats	0.28	0.18	0.11
Supine Position	-0.07	0.15	0.64
Kissing, Licking, Biting, Scratching	0.10	0.14	0.50
Touching, Fondling	0.03	0.14	0.83
Oral Copulation	0.17	0.16	0.31
Anal Penetration	0.68	0.21	< 0.01
Vaginal Penetration	0.31	0.17	0.06
Masturbation	0.36	0.26	0.17
Lubricants and Condoms	0.37	0.23	0.10
Ejaculation	-0.30	0.16	0.06

Source of data: *Alaska SANE data*

Two assault characteristics were significantly associated with the odds of genital injury at a significance level of 0.05 or less. The odds of genital injury were significantly higher when the assault included physical force and were also significantly higher when

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the assault included anal penetration. Three additional assault characteristics were significantly associated with the odds of genital injury at a significance level of 0.10 or less. These included vaginal penetration, lubricants and condoms, and ejaculation. The odds of genital injury were greater when vaginal penetration had occurred, when lubricants and condoms had been used, and when ejaculation had not occurred.

In this sample, the relationship between conducting a colposcope examination and genital injury could not be determined. Only 12 patients did not receive a colposcope examination (and none had genital injuries). Three other exam characteristics were significantly associated with the odds of genital injury. First, the odds of genital injury were significantly greater in cases where an anoscope examination was performed (and recall that the odds were also significantly greater in cases where anal penetration had been reported). Second, the odds of genital injury were significantly greater in cases where an alternative light source had been used. Using an alternative light source should have no impact on genital injury (alternative light sources were used to find fluorescence). This relationship is likely spurious due to some unknown characteristic. Stated differently, it is likely that there is some unknown characteristic that enhances both the required need to use an alternative light source and the presence of genital injury. Additional research will be needed to identify these characteristics. Finally, the odds of genital injury were significantly greater in cases that received a genital follow-up exam. This is not surprising because genital follow-up exams are performed in part to assess the healing of genital injury.

Table 53. Bivariate Regressions of Genital Injury on Exam Characteristics

	Presence of Genital Injury		
Variables	B	St. Err.	*p*
Evidence Collection Kit	0.43	0.71	0.54
Speculum Exam	0.05	0.40	0.91
Colposcope Exam	---	---	---
Anoscope Exam	1.00	0.21	<0.01
Alternative Light Source	0.38	0.16	0.02
Follow-Up Exam	1.22	0.19	<0.01
Hospital / Emergency Care	0.35	0.25	0.16

Source of data: *Alaska SANE data*

Table 54. Bivariate Regressions of Genital Injury on Exam Findings

	Presence of Genital Injury		
Variables	B	St. Err.	*p*
Fluorescence	0.21	0.16	0.17
Spermatozoa	0.17	0.28	0.53
Motile Spermatozoa	0.78	0.73	0.29
Infection	-0.16	0.19	0.40
Presence of Non-Genital Injury	0.68	0.15	<0.01
Frequency of Non-Genital Injury	0.40	0.09	<0.01
Controlled	0.09	0.31	0.77
Expressed	0.47	0.15	<0.01

Source of data: *Alaska SANE data*

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Three exam findings were significantly associated with the odds of genital injury. Both the presence and frequency of non-genital injury significantly increased the odds of genital injury. These effects suggest that the odds of genital injury increase as the severity of the assault increases. The odds of genital injury were also significantly greater in cases where the patient was described as expressive, for reasons that remain unknown.

In terms of suspect characteristics, suspect-patient relationship was the only characteristic significantly associated with genital injury at a significance level of 0.05. More precisely, the odds of genital injury were significantly lower in assaults that involved intimate partners or family members than in assaults that involved strangers. Whether the suspect's identity was known was statistically significant at a 0.10 level. The odds of genital injury were lower when the suspect's identity was known.

Table 55. Bivariate Regressions of Genital Injury on Suspect Characteristics

	Presence of Genital Injury		
Variables	B	St. Err.	*p*
Suspect Identity Known	-0.27	0.16	0.10
Suspect Alcohol / Drug Use	0.18	0.15	0.23
Inter-Racial Assault	0.16	0.15	0.28
Relationship: Friend / Acquaintance	-0.33	0.21	0.12
Relationship: Intimate / Family	-0.57	0.26	0.03

Source of data: *Alaska SANE data*

3. Final Model: Presence of Genital Injury

In our final logistic regression model of the presence of genital injury, we included as independent variables all variables that had a bivariate association with the presence of genital injury that was statistically significant at a probability level of 0.10. These results are presented as the full model. We then used a backward elimination procedure to remove the least significant variable, one at a time, until all remaining variables were statistically significant at a probability level of 0.05. These results are presented as the reduced model.

The variables in the full model include two case characteristics (whether the patient was examined in Anchorage and whether the case was reported prior to 2003), two patient characteristics (age and whether the patient engaged in consensual sexual activity within 96 hours prior to the assault), five assault characteristics (whether the assault included physical force, whether the assault included anal penetration, whether the assault included vaginal penetration, whether lubricants or condoms had been used, and whether ejaculation had occurred), three exam characteristics (whether an anoscope exam was performed, whether an alternative light source was used, and whether a genital follow-up exam was conducted), three exam findings (the presence of non-genital injury, the frequency of non-genital injury, and whether the patient was expressive), and two suspect characteristics (whether the suspect's identity was known and relationship to patient). These final results are presented in Table 56.

The effects of eight variables were not statistically significant in the full multivariate model. These same eight variables were systematically eliminated (one by

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one) through the backward elimination procedure. These eight variables include one case characteristic (whether the patient was examined in Anchorage), one patient characteristic (age), three assault characteristics (whether the assault included physical force, whether the assault included anal penetration, and whether lubricants or condoms had been used), one exam finding (the frequency of non-genital injury), and all suspect characteristics (whether the suspect's identity was known and relationship to patient).

Table 56. Multivariate Regression Models for the Presence of Genital Injury

	Full Model				Reduced Model			
Variables	B	St. Err.	*p*	Exp (B)	B	St. Err.	*p*	Exp (B)
Constant	-1.15	0.46	0.01	0.32	-1.34	0.24	<0.01	0.26
Examined in Anchorage	0.12	0.28	0.66	1.13	--	--	--	--
Reported Prior to 2003	0.33	0.19	0.08	1.39	0.43	0.16	0.01	1.53
Patient Age: 18-49	-0.30	0.23	0.18	0.74	--	--	--	--
Patient Age: 50-69	0.55	0.43	0.21	1.73	--	--	--	--
Pre-Assault Sex	-0.34	0.18	0.06	0.71	-0.38	0.17	0.03	0.69
Physical Force	-0.04	0.19	0.86	0.97	--	--	--	--
Anal Penetration	-0.23	0.34	0.50	0.80	--	--	--	--
Vaginal Penetration	0.41	0.21	0.05	1.50	0.43	0.19	0.02	1.54
Lubricants and Condoms	0.32	0.25	0.20	1.38	--	--	--	--
Ejaculation	-0.56	0.19	<0.01	0.57	-0.60	0.18	<0.01	0.55
Anoscope	1.12	0.32	<0.01	3.08	0.96	0.22	<0.01	2.61
Alternative Light Source	0.39	0.18	0.03	1.47	0.40	0.17	0.02	1.49
Follow-Up Exam	1.18	0.21	<0.01	3.25	1.16	0.20	<0.01	3.17
Presence of Non-Genital Injury	0.64	0.29	0.03	1.89	0.54	0.16	<0.01	1.71
Frequency of Non-Genital Injury	-0.09	0.19	0.65	0.92	--	--	--	--
Expressed	0.41	0.17	0.01	1.51	0.40	0.16	0.01	1.49
Suspect Identity Known	-0.14	0.26	0.59	0.87	--	--	--	--
Relationship: Friend / Acquaintance	0.05	0.31	0.87	1.05	--	--	--	--
Relationship: Intimate / Family	-0.28	0.37	0.45	0.75	--	--	--	--

Source of data: *Alaska SANE data*

Two variables were not quite statistically significant in the full model but became statistically significant in the reduced model. These two variables were whether the case was reported prior to 2003 and whether the patient engaged in consensual sexual activity within 96 hours of the report. The remaining seven variables were statistically significant in the full model and remained statistically significant through the backward elimination procedure. Final results from the reduced model show that the odds of genital injury were on average 1.53 times larger in cases reported prior to 2003 ($p = 0.01$), 0.69 times smaller if the patient engaged in consensual sexual activity within 96 hours prior to the assault ($p = 0.03$), 1.54 times larger if the assault included vaginal penetration ($p = 0.02$), 0.55 times smaller if the ejaculation had occurred during the assault ($p <0.01$), 2.61 times larger if the examination included an anoscope exam ($p < 0.01$), 1.49 times larger if an alternative light source was used ($p = 0.02$), 3.17 times larger if the patient required a genital follow-up exam ($p < 0.01$), 1.71 times larger if the patient also had non-genital injuries ($p < 0.01$), and 1.49 times larger if the patient was expressive at some point during the interview / examination process ($p = 0.01$). These results are discussed further in the conclusions.

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F. Multivariate Results: Frequency of Genital Injury

1. Main Effects: Frequency of Genital Injury

We now examine multivariate models to predict the frequency of genital injury. The dependent variable in all models presented in this section, the frequency of genital injury, is operationalized as the logged sum of genital injury (after adding one). We begin with an ordinary least squares regression model that includes as independent variables the patient's condition at the time of the assault (with sober as the reference category) and the time elapsed from assault to report. Results are shown in Table 57.

Table 57. Regression of Genital Injury on Patient Condition and Time Elapsed

	Frequency of Genital Injury		
Variables	*b*	St. Err.	*p*
Constant	0.58	0.06	< 0.01
Patient Condition: Intoxicated	0.02	0.07	0.75
Patient Condition: Incapaciated	-0.09	0.07	0.19
Time Elapsed (24+ hours)	-0.02	0.06	0.80

Source of data: *Alaska SANE data*

Not surprisingly, neither the patient's condition at the time of the assault nor the time elapsed from assault to report significantly impacted the frequency of genital injury. This again just confirms previous bivariate results. Together, patient condition at time of assault and time elapsed from assault to exam explained less than 1% of the variation in the frequency of genital injury (*R*-square = 0.005, $p = 0.26$).

2. Control Variables: Frequency of Genital Injury

In order to avoid problems with multicolinearity (and to select control variables), we again examined the bivariate associations between each control variable and the frequency of genital injury. If their association was statistically significant at a probability level of 0.10 or less, they were then selected for inclusion into the final multivariate model. Bivariate associations are shown in Tables 58 through 63 and multivariate results are shown in Table 64.

Table 58. Regressions of Genital Injury on Case Characteristics

	Frequency of Genital Injury		
Variables	*b*	St. Err.	*p*
Examined in Anchorage	0.19	0.07	0.01
Referred by State Trooper	-0.10	0.08	0.20
Reported Prior to 2003	0.20	0.05	< 0.01

Source of data: *Alaska SANE data*

Two of the three case characteristics again had significant effects. Patients examined in Anchorage had a higher frequency of genital injury than patients examined

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elsewhere and cases reported prior to 2003 also had a higher frequency of genital injury than cases reported in 2003 or later. The frequency of genital injury was not associated with whether the case was reported to state or local law enforcement agencies.

Only one patient characteristic was significantly associated with the presence of genital injury (whether patients had engaged in consensual sexual activity within 96 hours prior to the assault). This was also significantly associated with the frequency of genital injury. On average, patients who had engaged in consensual sexual activity within 96 hours prior to the assault had fewer genital injuries than patients who had not. Although post-assault actions were not significantly associated with the odds of genital injury, they were significantly associated with the frequency of genital injury. On average, patients who urinated, took a bath, shower, or steam, brushed their teeth, defecated, douched, gargled, wiped or washed genitalia, and ate or drank prior to the examination had fewer genital injuries than patients who had not engaged in any of these post-assault actions. In addition, age was also associated with the frequency of genital injury (but was not associated with the presence of genital injury). Patients who were 18 to 49 years of age had fewer genital injuries than patients who were 12 to 17 years of age. No other patient characteristic was associated with the frequency of genital injury (and none of these were associated with the presence of genital injury either). One additional variable indicating whether the patient had changed clothing was significant at a probability level of 0.10 (and was therefore included in the final model). Patients who had changed their clothing had fewer genital injuries than patients who had not.

Table 59. Bivariate Regressions of Genital Injury on Patient Characteristics

	Frequency of Genital Injury		
Variables	*b*	St. Err.	*p*
Patient Race: Native	-0.02	0.06	0.74
Patient Race: Other	-0.04	0.10	0.65
Patient Age: 18-49	-0.19	0.07	0.01
Patient Age: 50-69	0.22	0.14	0.11
Homeless	-0.05	0.08	0.55
Disabled	-0.03	0.11	0.81
Currently Pregnant	-0.12	0.24	0.61
Parity	-0.03	0.05	0.55
Currently Menstruating	0.01	0.08	0.94
Pre-Assault Sex	-0.11	0.06	0.05
Post-Assault Sex	-0.01	0.19	0.98
Post-Assault Actions	-0.18	0.09	0.04
Removed / Inserted Tampon or Pad	-0.13	0.09	0.13
Changed Clothing	-0.08	0.05	0.10
Clean / Intact Clothing	0.05	0.05	0.31

Source of data: *Alaska SANE data*

The bivariate associations between all assault characteristics and the frequency of genital injury are shown in Table 60. Five assault characteristics were significantly associated with the frequency of genital injury. These included physical force, verbal threats, anal penetration, vaginal penetration, and masturbation. On average, assaults that included physical force and assaults that included verbal threats had significantly more genital injuries than assaults that did not. Similarly, assaults that included anal penetration, assaults that included vaginal penetration, and assaults that included

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masturbation had significantly more genital injuries than assaults that did not. The other assault characteristics were not associated with the frequency of genital injury (and were not associated with the presence of genital injury either). Physical force and anal penetration were the only assault characteristics that were significantly associated with both the presence and frequency of genital injury, at a probability level of 0.05 or less.

Table 60. Bivariate Regressions of Genital Injury on Assault Characteristics

	Frequency of Genital Injury		
Variables	*b*	St. Err.	*p*
Initiated in Private Residence	0.00	0.05	1.00
Occurred in Private Residence	-0.05	0.05	0.30
Physical Force	0.15	0.05	<0.01
Verbal Threats	0.15	0.06	0.02
Supine Position	0.03	0.05	0.61
Kissing, Licking, Biting, Scratching	0.05	0.05	0.31
Touching, Fondling	0.04	0.05	0.43
Oral Copulation	0.09	0.06	0.11
Anal Penetration	0.25	0.07	<0.01
Vaginal Penetration	0.16	0.06	0.01
Masturbation	0.19	0.09	0.04
Lubricants and Condoms	0.13	0.08	0.11
Ejaculation	-0.09	0.06	0.12

Source of data: *Alaska SANE data*

Three exam characteristics were significantly associated with the presence of genital injury (anoscope exam, alternative light source, and follow-up exam). These characteristics were also significantly associated with the frequency of genital injury. On average, patients had more genital injuries if an anoscope exam was performed, an alternative light source was used, and a genital follow-up exam was received. It is again important to note that these bivariate effects likely capture the characteristics of the assault. In particular, receiving a genital follow-up exam is not expected to increase the number of genital injuries. Rather, patients with a greater number of genital injuries are more likely to receive a genital follow-up exam (in part to examine the healing of genital injury). Again, all control variables should be interpreted as proxies for unmeasured differences between cases.

Table 61. Bivariate Regressions of Genital Injury on Exam Characteristics

	Frequency of Genital Injury		
Variables	*b*	St. Err.	*p*
Evidence Collection Kit	0.15	0.24	0.52
Speculum Exam	-0.02	0.14	0.87
Colposcope Exam	0.56	0.21	0.01
Anoscope Exam	0.37	0.07	<0.01
Alternative Light Source	0.11	0.06	0.05
Follow-Up Exam	0.50	0.06	<0.01
Hospital / Emergency Care	0.28	0.09	<0.01

Source of data: *Alaska SANE data*

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Two additional exam characteristics were associated with an increase in the frequency of genital injury. Patients who required hospital or emergency care had a greater number of genital injuries than patients who did not require such care. Finally, patients who were examined with a colposcope had a greater number of genital injuries than patients who were not.

Three exam findings were significantly associated with the presence of genital injury (the presence of non-genital injury, the frequency of non-genital injury, and expressed behavioral / emotional state). The same three exam findings were also associated with the frequency of genital injury. Patients who had non-genital injuries had more genital injuries than patients who did not have non-genital injuries. Patients who were expressive at some point during the interview / examination process also had a greater number of genital injuries than patients who were not. It is still unclear how the patient's behavioral and emotional state during the examination impacts both the presence and frequency of genital injury. Additional research will be necessary to explain this anomalous finding. In addition, the average number of genital injuries increased as the number of non-genital injuries also increased. Again, this effect suggests that the frequency of genital injury increases as the severity of the assault increases. Testing positive for a sexually transmitted infection or another genital infection was not associated with the presence of genital injury, but was associated with the frequency of genital injury. On average, patients who tested positive for a sexually transmitted infection or another genital infection had fewer genital injuries.

Table 62. Bivariate Regressions of Genital Injury on Exam Findings

	Frequency of Genital Injury		
Variables	*b*	St. Err.	*p*
Fluorescence	0.04	0.06	0.43
Spermatozoa	0.06	0.10	0.55
Motile Spermatozoa	0.26	0.25	0.31
Infection	-0.13	0.07	0.05
Presence of Non-Genital Injury	0.28	0.05	<0.01
Frequency of Non-Genital Injury	0.18	0.03	<0.01
Controlled	0.09	0.11	0.41
Expressed	0.13	0.05	0.01

Source of data: *Alaska SANE data*

Table 63. Bivariate Regressions of Genital Injury on Suspect Characteristics

	Frequency of Genital Injury		
Variables	*b*	St. Err.	*p*
Suspect Identity Known	-0.10	0.06	0.08
Suspect Alcohol / Drug Use	0.06	0.05	0.28
Inter-Racial Assault	0.06	0.05	0.22
Relationship: Friend / Acquaintance	-0.19	0.08	0.01
Relationship: Intimate / Family	-0.21	0.09	0.02

Source of data: *Alaska SANE data*

Finally, we examine the bivariate associations between suspect characteristics and the frequency of genital injury. Suspect-patient relationship was the only characteristic

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significantly associated with the presence of genital injury and is the only characteristic significantly associated with the frequency of genital injury (at a probability level of 0.05 or less). On average, patients assaulted by friends and acquaintances had significantly fewer genital injuries than patients assaulted by strangers. Similarly, patients assaulted by intimate partners or family members had significantly fewer genital injuries than patients assaulted by strangers.

One additional suspect characteristic (whether the suspect identity was known) was statistically significant at a probability level of 0.10 or less (and was therefore included in the final model). On average, patients assaulted by a suspect whose identity was known had fewer injuries than patients assaulted by a suspect whose identity was not known.

3. Final Model: Frequency of Genital Injury

Table 64. Multivariate Regression Models for the Frequency of Genital Injury

	Full Model			Reduced Model		
Variables	*b*	St. Err.	*p*	*b*	St. Err.	*p*
Constant	0.18	0.25	0.46	0.38	0.08	<0.01
Examined in Anchorage	0.03	0.08	0.72	--	--	--
Reported Prior to 2003	0.15	0.06	0.01	0.16	0.05	<0.01
Patient Age: 18-49	-0.19	0.07	0.01	-0.20	0.07	<0.01
Patient Age: 50-69	0.11	0.13	0.42	0.12	0.13	0.33
Pre-Assault Sex	-0.08	0.05	0.12	--	--	--
Post-Assault Actions	-0.04	0.09	0.69	--	--	--
Changed Clothing	-0.04	0.05	0.47	--	--	--
Physical Force	-0.05	0.06	0.67	--	--	--
Verbal Threats	-0.05	0.07	0.45	--	--	--
Anal Penetration	-0.09	0.10	0.35	--	--	--
Vaginal Penetration	0.15	0.06	0.02	0.12	0.05	0.02
Masturbation	0.11	0.09	0.20	--	--	--
Colposcope Exam	0.29	0.22	0.18	--	--	--
Anoscope Exam	0.36	0.09	<0.01	0.30	0.07	<0.01
Alternative Light Source	0.07	0.06	0.26	--	--	--
Follow-Up Exam	0.42	0.06	<0.01	0.44	0.06	<0.01
Hospital / Emergency Care	0.13	0.09	0.18	--	--	--
Infection	-0.10	0.07	0.11	--	--	--
Presence of Non-Genital Injury	0.24	0.09	0.01	0.22	0.05	<0.01
Frequency of Non-Genital Injury	-0.02	0.06	0.79	--	--	--
Expressed	0.10	0.05	0.05	0.10	0.05	0.04
Suspect Identity Known	-0.02	0.08	0.77	--	--	--
Relationship: Friend / Acquaintance	-0.05	0.10	0.63	--	--	--
Relationship: Intimate / Family	-0.11	0.11	0.33	--	--	--

Source of data: *Alaska SANE data*

In our final ordinary least squares regression model of the frequency of genital injury, we included as independent variables all variables that had a significant bivariate association with the frequency of genital injury, at a probability level of 0.10 or less. These control variables include two case characteristics (whether the patient was examined in Anchorage and whether the case was reported prior to 2003), four patient characteristics (the age of the patient, whether the patient engaged in consensual sexual activity within 96 hours prior to the assault, whether the patient engaged in post-assault

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actions, and whether the patient changed her clothing), five assault characteristics (whether the assault included physical force, whether the assault included verbal threats, whether the assault included anal penetration, whether the assault included vaginal penetration, and whether the assault included masturbation), five exam characteristics (whether a colposcope exam was performed, whether an anoscope exam was performed, whether an alternative light source was used, whether a genital follow-up exam was conducted, and whether the patient required hospital or emergency care), four exam findings (whether the patient tested positive for a sexually transmitted infection or another genital infection, the presence of non-genital injury, the frequency of non-genital injury, and whether the patient was expressive), and two suspect characteristics (whether the suspect identity was known and the patient-suspect relationship).

The backward elimination procedure simply eliminated all variables that were non-significant in the full model and kept all variables that were statistically significant. Of the 24 effects in the full model, seven were statistically significant at a probability level of 0.05 or less. These significant effects included one case characteristic (whether the case was reported prior to 2003), one patient characteristic (the patient's age), one assault characteristic (whether the assault included vaginal penetration), two exam characteristics (whether an anoscope exam was performed and whether a genital follow-up exam was required), and two exam findings (the presence of non-genital injury and whether the patient was expressive at any time in the examination / interview process).

Final results show that the average number of genital injuries was significantly higher for cases examined prior to 2003 ($p < 0.01$), was significantly lower for patients between the ages of 18 to 49 (rather than 12 to 17, $p < 0.01$), was significantly higher when the assault included vaginal penetration ($p = 0.02$), was significantly higher when an anoscope examination was performed ($p < 0.01$), was significantly higher when patients required a genital follow-up exam ($p < 0.01$), was significantly higher for patients who also had non-genital injuries ($p < 0.01$), and was significantly higher for patients who were expressive at any time during the interview / examination process ($p = 0.04$). This final reduced model explained 17% of the variation in the frequency of genital injury ($p < 0.01$). These final results are further discussed in the conclusions.

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G. Summary: Predictors of Genital Injury

Contrary to expectations, neither the patient's condition at the time of the assault nor the time elapsed from assault to report had a significant impact on the presence or frequency of genital injury. Additional analyses should nonetheless examine whether the patient's condition at the time of the assault and the time elapsed from assault to report impact the different types of genital injuries and the different sites for genital injuries. In the analyses presented here, all types and sites of genital injuries were combined into two general indices (i.e., the presence of genital injury and the frequency of genital injury). Although patient condition at the time of the assault and time elapsed from the assault to the report did not significantly impact these overall measures of genital injury, they may still significantly impact the specific types of genital injuries or genital injuries to specific sites. Additional research should examine these potential effects.

Several control variables were significantly associated with both the presence and frequency of genital injury. More specifically, these included whether the case was reported prior to 2003, whether the assault included vaginal penetration, whether an anoscope exam was performed, whether the patient required a genital follow-up exam, whether the patient also had non-genital injuries, and whether the patient was expressive at any time during the interview / examination process. Patients who reported prior to 2003 were more likely to have genital injury and had more genital injuries than patients who reported in 2003 or later. Patients were more likely to have genital injury and had a greater number of genital injuries if the assault included vaginal penetration. Similarly, patients were more likely to have genital injury and had a greater number of genital injuries if an anoscope exam was performed, a genital follow-up exam was received, non-genital injuries were present, or the patients were expressive at any time during the interview / examination process.

Three additional factors were associated with the presence of genital injury (i.e., whether the patient engaged in consensual sexual activity within 96 hours of the assault, whether ejaculation occurred during the assault, and whether an alternative light source was used). Patients who engaged in consensual sexual activity within 96 hours of the assault were less likely to have genital injuries. Patients were also less likely to have genital injuries if ejaculation had occurred during the assault. Finally, patients who were examined with an alternative light source were more likely to have genital injuries. One additional factor was associated with the frequency of genital injury (i.e., age). On average, patients who were between the ages of 18 to 49 had fewer genital injuries than patients who were between the ages of 12 to 17. All results are interpreted in further detail in the conclusions.

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H. Multivariate Results: Referring a Case for Prosecution

1. Main Effects: Referring a Case for Prosecution

Having a greater understanding of the factors that are associated with genital injury (both the presence and frequency of genital injury), we now focus on the factors that are associated with referring a case for prosecution. First, we examine a logistic regression model of referring a case for prosecution on the presence and frequency of genital injury. These results are shown in Table 65. Not surprisingly, given the previous bivariate results, neither the presence nor the frequency of genital injury significantly impacted the decision to refer a case for prosecution (p = 0.87 and 0.40, respectively). Similar results were obtained when the decision to refer a case for prosecution was regressed on the presence and frequency of genital injury independently (p = 0.24 and 0.15 respectively, results not shown).

Table 65. Regression of Referral on Genital Injury

	Referring a Case for Prosecution		
Variables	B	St. Err.	*p*
Presence of Genital Injury	-0.05	0.31	0.87
Frequency of Genital Injury	0.18	0.22	0.40

Source of data: *Alaska SANE data*

2. Control Variables: Referring a Case for Prosecution

Before presenting a final multivariate model of the decision to refer cases for prosecution, we again select potential control variables by examining which ones had statistically significant bivariate associations with referring cases for prosecution. These detailed results are shown in Tables 66 through 71. In these models, the patient's condition at the time of the assault was added as a patient characteristic (with sober as the reference category) and time from assault to report was added as a case characteristic.

Table 66. Bivariate Regressions of Referral on Case Characteristics

	Referring a Case for Prosecution		
Variables	B	St. Err.	*p*
Examined in Anchorage	-0.91	0.21	< 0.01
Referred by State Trooper	1.07	0.23	< 0.01
Reported Prior to 2003	-0.17	0.15	0.26
Time Elapsed (24+ hours)	-0.38	0.19	0.05

Source of data: *Alaska SANE data*

Three case characteristics were significantly associated with the likelihood that cases would be referred for prosecution. More specifically, cases examined in Anchorage were significantly less likely to be referred for prosecution and cases that were referred to the sexual assault nurse examiner by Alaska State Troopers were significantly more likely to be referred for prosecution. Again, we caution the reader that these effects

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capture unmeasured differences between cases and that these effects should not be used to evaluate the effectiveness of Sexual Assault Nurse Examiner programs or local and state police agencies. Finally, cases that were reported within 24 hours were significantly more likely to be referred for prosecution than cases that were not reported within 24 hours.

Table 67. Bivariate Regressions of Referral on Patient Characteristics

	Referring a Case for Prosecution		
Variables	B	St. Err.	*p*
Patient Race: Native	0.26	0.17	0.12
Patient Race: Other	0.02	0.30	0.96
Patient Age: 18-49	-0.24	0.21	0.24
Patient Age: 50-69	0.51	0.39	0.19
Condition at Assault: Intoxicated	-0.05	0.20	0.80
Condition at Assault: Incapacitated	0.00	0.20	0.98
Homeless	-0.28	0.24	0.23
Disabled	-1.13	0.45	0.01
Currently Pregnant	1.45	0.71	0.04
Parity	0.10	0.15	0.51
Currently Menstruating	0.09	0.24	0.71
Pre-Assault Sex	-0.12	0.17	0.49
Post-Assault Sex	0.34	0.53	0.52
Post-Assault Actions	-0.20	0.25	0.43
Removed / Inserted Tampon or Pad	0.21	0.26	0.42
Changed Clothing	-0.25	0.15	0.09
Clean / Intact Clothing	-0.21	0.16	0.18

Source of data: *Alaska SANE data*

Only three of the 14 patient characteristics were significantly associated with the likelihood that a case would be referred for prosecution; two at a probability level of 0.05 (disabled and currently pregnant) and one at a probability level of 0.10 (changed clothing).

Table 68. Bivariate Regressions of Referral on Assault Characteristics

	Referring a Case for Prosecution		
Variables	B	St. Err.	*p*
Initiated in Private Residence	0.23	0.15	0.13
Occurred in Private Residence	0.31	0.16	0.05
Physical Force	0.12	0.15	0.41
Verbal Threats	0.20	0.19	0.29
Supine Position	0.30	0.17	0.07
Kissing, Licking, Biting, Scratching	0.00	0.15	1.00
Touching, Fondling	0.09	0.15	0.54
Oral Copulation	-0.21	0.18	0.24
Anal Penetration	-0.31	0.24	0.18
Vaginal Penetration	0.15	0.18	0.39
Masturbation	-0.03	0.28	0.92
Lubricants and Condoms	-0.56	0.27	0.04
Ejaculation	-0.31	0.18	0.08

Source of data: *Alaska SANE data*

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On average, cases were significantly less likely to be referred for prosecution if the patient was disabled ($p = 0.01$), but were significantly more likely to be referred for prosecution if the patient was currently pregnant ($p = 0.04$). Cases were less likely to be referred for prosecution if the patient had changed her clothing prior to the examination ($p = 0.09$).

Few assault characteristics were significantly associated with the odds that a case would be referred for prosecution. Only two of the 13 assault characteristics had effects that were statistically significant at a probability level of 0.05 or less. More precisely, cases were significantly more likely to be referred for prosecution when the assault occurred in a private residence. On the other hand, cases were significantly less likely to be referred for prosecution when lubricants and condoms had been used. Two additional exam characteristics were selected for potential inclusion into the final model because their effects were statistically significant at a probability level of 0.10 or less. These included whether the patient was assaulted in the supine position and whether ejaculation had occurred during the assault. On average, cases were more likely to be referred for prosecution if patients were assaulted in the supine position, but were less likely to be referred for prosecution if ejaculation had occurred during the assault.

Table 69. Bivariate Regressions of Referral on Exam Characteristics

	Referring a Case for Prosecution		
Variables	B	St. Err.	*p*
Evidence Collection Kit	1.35	1.06	0.20
Speculum Exam	0.08	0.43	0.86
Colposcope Exam	0.37	0.67	0.59
Anoscope Exam	-0.22	0.22	0.31
Alternative Light Source	0.59	0.18	< 0.01
Follow-Up Exam	0.30	0.19	0.12
Hospital / Emergency Care	0.23	0.26	0.37

Source of data: *Alaska SANE data*

Only one exam characteristic was significantly associated with the odds of referring a case for prosecution. On average, cases whose examinations included an alternative light source were significantly more likely to be referred for prosecution than cases whose examinations did not include an alternative light source.

Table 70. Bivariate Regressions of Referral on Exam Findings

	Referring a Case for Prosecution		
Variables	B	St. Err.	*p*
Fluorescence	0.35	0.16	0.03
Spermatozoa	0.21	0.28	0.45
Motile Spermatozoa	-0.36	0.82	0.66
Infection	-0.44	0.21	0.04
Presence of Non-Genital Injury	0.21	0.15	0.18
Frequency of Non-Genital Injury	0.25	0.09	0.01
Controlled	-0.01	0.32	0.97
Expressed	0.17	0.16	0.26

Source of data: *Alaska SANE data*

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Results in Table 70 show that the likelihood of referring cases for prosecution was associated with three exam findings. Cases were significantly more likely to be referred for prosecution if fluorescence was found, but were significantly less likely to be referred for prosecution if the patient tested positive for a sexually transmitted infection or another genital infection. In addition, the frequency of non-genital injury significantly increased the odds of referring a case for prosecution. As the number of non-genital injuries increased, so did the likelihood that cases would be referred for prosecution.

Finally, most suspect characteristics were significantly associated with referring cases for prosecution (at $p < 0.05$). Not surprisingly, the odds of referring a case for prosecution were significantly greater in cases where the suspect identity was known. The odds of referring a case for prosecution were also significantly greater in cases between friends and acquaintances than in cases between strangers, and in cases between intimate partners and family members than in cases between strangers. This occurs partly because suspect identity is less likely to be known in stranger cases. Inter-racial assaults were significantly less likely to be referred for prosecution than intra-racial assaults. Suspect alcohol and drug use was not statistically significant at a probability level of 0.05, but was included in the final model ($p = 0.06$). Finally, cases were more likely to be referred for prosecution if the suspect had used alcohol or drugs.

Table 71. Bivariate Regressions of Referral on Suspect Characteristics

	Referring a Case for Prosecution		
Variables	B	St. Err.	*p*
Suspect Identity Known	1.18	0.21	<0.01
Suspect Alcohol / Drug Use	0.31	0.16	0.06
Inter-Racial Assault	-0.60	0.16	<0.01
Relationship: Friend / Acquaintance	0.80	0.27	<0.01
Relationship: Intimate / Family	1.50	0.30	<0.01

Source of data: *Alaska SANE data*

3. Final Model: Referring a Case for Prosecution

In our final model for referring a case for prosecution, we include all variables with a bivariate association that was statistically significant at a probability level of 0.10 or less. This includes three case characteristics (whether the patient was examined in Anchorage, whether the case was referred by Alaska State Troopers, and whether the case was reported 24 hours or more after the assault), three patient characteristics (whether the patient was disabled, whether the patient was currently pregnant, and whether the patient had changed her clothing), four assault characteristics (whether the assault occurred in a private residence, whether the patient was assaulted in the supine position, whether lubricants or condoms had been used during the assault, and whether ejaculation occurred during the assault), one exam characteristic (whether an alternative light source was used), three exam findings (whether fluorescence was found, whether the patient tested positive for a sexually transmitted infection or another genital infection, and the frequency of non-genital injury), and four suspect characteristics (whether the suspect identity was known, whether the suspect had used alcohol or drugs, whether the

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assault was inter-racial, and the patient-suspect relationship). These final results are presented in the following table.

There were eight significant effects in the full model (out of 19). After the backward elimination procedure, four of these effects remained significant. In addition, one effect that was not quite statistically significant in the full model ($p = 0.06$) became significant after the backward elimination procedure ($p < 0.01$). The four effects that were significant in the full model but not in the reduced model included whether the patient was currently pregnant, whether the patient was assaulted in the supine position, whether lubricants or condoms were used during the assault, and whether the patient tested positive for a sexually transmitted infection or another genital infection. In the reduced model, the odds of referring a case for prosecution were associated with whether the case was referred from the Alaska State Troopers, whether the patient was disabled, whether an alternative light source was used during the examination, the frequency of non-genital injury, and whether the suspect's identity was known. Many of these effects were quite large.

Table 72. Multivariate Regression Models for Referring a Case for Prosecution

	Full Model				Reduced Model			
Variables	B	St. Err.	*p*	Exp (B)	B	St. Err.	*p*	Exp (B)
Constant	-1.68	0.50	<0.01	0.19	-2.57	0.28	<0.01	0.08
Examined in Anchorage	-0.42	0.29	0.15	0.66	--	--	--	--
Referred by State Trooper	0.84	0.30	0.01	2.31	0.91	0.24	<0.01	2.49
Time Elapsed (24+ hours)	-0.25	0.25	0.32	0.78	--	--	--	--
Disabled	-1.28	0.56	0.02	0.28	-0.94	0.46	0.04	0.39
Currently Pregnant	1.89	0.95	0.05	6.59	--	--	--	--
Changed Clothing	-0.14	0.20	0.47	0.87	--	--	--	--
Occurred in a Private Residence	-0.04	0.19	0.83	0.96	--	--	--	--
Supine Position	0.40	0.20	0.04	1.49	--	--	--	--
Lubricants and Condoms	-0.56	0.29	0.05	0.57	--	--	--	--
Ejaculation	-0.34	0.20	0.09	0.71	--	--	--	--
Alternative Light Source	0.45	0.24	0.06	1.57	0.73	0.19	<0.01	2.08
Fluorescence	0.30	0.20	0.14	1.35	--	--	--	--
Infection	-0.55	0.24	0.02	0.58	--	--	--	--
Frequency of Non-Genital Injury	0.26	0.11	0.01	1.30	0.29	0.10	<0.01	1.33
Suspect Identity Known	1.05	0.31	<0.01	2.84	1.26	0.22	<0.01	3.52
Suspect Alcohol / Drug Use	-0.10	0.21	0.63	0.91	--	--	--	--
Inter-Racial Assault	-0.17	0.19	0.35	0.84	--	--	--	--
Relationship: Friend / Acquaintance	-0.05	0.41	0.90	0.95	--	--	--	--
Relationship: Intimate / Family	0.45	0.46	0.33	1.57	--	--	--	--

Source of data: *Alaska SANE data*

More specifically, the odds of referring a case for prosecution were on average 2.49 times larger if the case was referred by Alaska State Troopers ($p < 0.01$), 0.39 times smaller if the patient was disabled ($p = 0.04$), 2.08 times larger if an alternative light source was used during the examination ($p < 0.01$), and 3.52 times larger if the suspect identity was known ($p < 0.01$). In addition, the odds of referring a case for prosecution increased as the number of non-genital injuries increased ($p < 0.01$). Additional interpretations of the results are provided in the conclusions.

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I. Multivariate Results: Accepting a Case for Prosecution

1. Main Effects: Accepting a Case for Prosecution

We now focus on the 263 cases that were referred for prosecution and examine the factors that were associated with whether cases were accepted for prosecution. We begin with a logistic regression model of accepting a case for prosecution on the presence and frequency of genital injury. Similar to previous bivariate results, neither the presence nor the frequency of genital injury significantly affected the odds that a case would be accepted for prosecution, once referred (p = 0.21 and 0.08, respectively). Similar results were obtained when the presence and frequency of genital injury were included independently in the logistic regression models (p = 0.46 and 0.15 respectively, results not shown). Because the effect for frequency of genital injury was statistically significant at a probability level of 0.10 or less, it was included as a potential predictor of accepting a case for prosecution in the final models.

Table 73. Regression of Accepting on Genital Injury

	Accepting a Case for Prosecution		
Variables	B	St. Err.	*p*
Presence of Genital Injury	-0.73	0.58	0.21
Frequency of Genital Injury	0.73	0.42	0.08

Source of data: *Alaska SANE data*

2. Control Variables: Accepting a Case for Prosecution

Before presenting a final multivariate model of the decision to accept cases for prosecution, we again select potential control variables by examining which ones had bivariate associations that were statistically significant at a probability level of 0.10 or less. Again, patient condition at the time of the assault was now included as a patient characteristic (with sober as the reference category) and time from assault to report was included as a case characteristic. All models predicting whether cases were accepted for prosecution were estimated on the sub-sample of cases that were referred for prosecution.

Table 74. Bivariate Regressions of Accepting on Case Characteristics

	Accepting a Case for Prosecution		
Variables	B	St. Err.	*p*
Examined in Anchorage	0.23	0.31	0.47
Referred by State Trooper	0.31	0.35	0.36
Reported Prior to 2003	0.01	0.26	0.96
Time Elapsed (24+ hours)	-0.43	0.33	0.19

Source of data: *Alaska SANE data*

None of the case characteristics were significantly associated with the odds that a referred case would be accepted for prosecution. Although the odds of referring a case for prosecution were on average 2.49 times larger if the case was referred by Alaska State

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Troopers (see Table 72), no case characteristic was associated with the odds of accepting a case for prosecution, once the case was referred.

Table 75. Bivariate Regressions of Accepting on Patient Characteristics

	Accepting a Case for Prosecution		
Variables	B	St. Err.	*p*
Patient Race: Native	0.03	0.29	0.93
Patient Race: Other	-0.29	0.52	0.58
Patient Age: 18-49	-0.76	0.39	0.05
Patient Age: 50-69	0.76	0.83	0.36
Condition at Assault: Intoxicated	-0.80	0.36	0.03
Condition at Assault: Incapacitated	-0.10	0.38	0.79
Homeless	0.26	0.44	0.56
Disabled	-0.71	0.83	0.39
Currently Pregnant	0.01	0.88	1.00
Parity	0.41	0.26	0.12
Currently Menstruating	-0.10	0.40	0.80
Pre-Assault Sex	0.35	0.31	0.26
Post-Assault Sex	-1.42	0.88	0.11
Post-Assault Actions	-0.62	0.48	0.20
Removed / Inserted Tampon or Pad	-0.06	0.44	0.90
Changed Clothing	-0.10	0.26	0.69
Clean / Intact Clothing	0.14	0.28	0.62

Source of data: *Alaska SANE data*

Only two patient characteristics were significantly associated with the odds that a case would be referred for prosecution (patient condition at the time of the assault and age). More specifically, cases with intoxicated patients were less likely to be accepted than cases with sober patients (but cases with incapacitated patients were as likely to be accepted as cases with sober patients) and cases with patients between the ages of 18 to 49 were less likely to be accepted than cases with patients between the ages of 12 to 17 (but cases with patients between the ages of 50 to 69 were as likely to be accepted as cases with patients between the ages of 12 to 17).

Table 76. Bivariate Regressions of Accepting on Assault Characteristics

	Accepting a Case for Prosecution		
Variables	B	St. Err.	*p*
Initiated in Private Residence	0.45	0.26	0.09
Occurred in Private Residence	0.17	0.28	0.53
Physical Force	0.17	0.26	0.51
Verbal Threats	0.54	0.34	0.11
Supine Position	0.39	0.29	0.18
Kissing, Licking, Biting, Scratching	-0.11	0.27	0.69
Touching, Fondling	-0.15	0.26	0.57
Oral Copulation	0.46	0.33	0.17
Anal Penetration	0.07	0.43	0.88
Vaginal Penetration	0.24	0.30	0.42
Masturbation	-0.86	0.46	0.06
Lubricants and Condoms	-0.31	0.48	0.52
Ejaculation	-0.18	0.31	0.55

Source of data: *Alaska SANE data*

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None of the effects of assault characteristics were statistically significant at a probability level of 0.05, but two were statistically significant at a probability level of 0.10. These two included whether the assault initiated in a private residence and whether the assault included masturbation. On average, cases with assaults that initiated in a private residence were more likely to be accepted whereas cases with masturbation were less likely to be accepted.

The effects of obtaining an evidence collection kit and of performing a speculum exam could not be reliably estimated. An evidence collection kit was obtained in all but nine of the cases that were referred for prosecution (and only one of those nine was accepted for prosecution). A speculum exam was performed in all but 26 of the cases that were referred for prosecution (and only eight of those 26 were accepted for prosecution). On average, cases with a genital follow-up examination were significantly more likely to be accepted for prosecution, once they had been referred for prosecution. No other exam characteristic was significantly associated with the odds that a referred case would be accepted for prosecution.

Table 77. Bivariate Regressions of Accepting on Exam Characteristics

	Accepting a Case for Prosecution		
Variables	B	St. Err.	*p*
Evidence Collection Kit	---	---	---
Speculum Exam	---	---	---
Colposcope Exam	-0.01	1.23	1.00
Anoscope Exam	0.38	0.41	0.36
Alternative Light Source	-0.08	0.32	0.81
Follow-Up Exam	0.89	0.37	0.02
Hospital / Emergency Care	0.34	0.46	0.46

Source of data: *Alaska SANE data*

The effect of one exam finding (testing positive for a sexually transmitted infection or another genital infection) was statistically significant at a probability level of 0.10 or less (but none were statistically significant at a probability level of 0.05). On average, cases with patients who tested positive for a sexually transmitted infection or another genital infection were less likely to be accepted for prosecution.

Table 78. Bivariate Regressions of Accepting on Exam Findings

	Accepting a Case for Prosecution		
Variables	B	St. Err.	*p*
Fluorescence	-0.04	0.27	0.88
Spermatozoa	-0.22	0.47	0.64
Motile Spermatozoa	-0.69	1.42	0.63
Infection	-0.43	0.25	0.09
Presence of Non-Genital Injury	0.13	0.26	0.62
Frequency of Non-Genital Injury	0.24	0.16	0.12
Controlled	-0.34	0.60	0.57
Expressed	-0.26	0.28	0.35

Source of data: *Alaska SANE data*

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Finally, only one of the suspect characteristics was significantly associated with the likelihood that cases would be accepted for prosecution. On average, cases with inter-racial assaults were less likely to be accepted than cases with intra-racial assaults. No other suspect characteristic was significantly associated with the likelihood that cases would be accepted for prosecution.

Table 79. Bivariate Regressions of Accepting on Suspect Characteristics

	Accepting a Case for Prosecution		
Variables	B	St. Err.	*p*
Suspect Identity Known	-0.06	0.41	0.88
Suspect Alcohol / Drug Use	-0.09	0.29	0.76
Inter-Racial Assault	-0.74	0.19	<0.01
Relationship: Friend / Acquaintance	-0.95	0.58	0.11
Relationship: Intimate / Family	0.05	0.64	0.94

Source of data: *Alaska SANE data*

3. Final Model: Accepting a Case for Prosecution

Fewer variables were found to be significantly associated with the decision to accept a case for prosecution than the decision to refer a case for prosecution. In part, this may be due to a decrease in power. In our final model for accepting a case for prosecution, we include the frequency of genital injury and seven control variables (age, condition at time of assault, whether the assault initiated in a private residence, whether the assault included masturbation, whether the patient received a genital follow-up exam, whether the patient tested positive for a sexually transmitted infection or another genital infection, and whether the assault was inter-racial). These final results are presented in the following table.

Table 80. Multivariate Regression Models for Accepting a Case for Prosecution

	Full Model				Reduced Model			
Variables	B	St. Err.	*p*	Exp (B)	B	St. Err.	*p*	Exp (B)
Constant	1.43	0.56	0.01	4.20	1.02	0.32	<0.01	2.76
Frequency of Genital Injury	0.22	0.22	0.31	1.25	–	–	–	–
Age: 18-49	-0.56	0.44	0.20	0.57	–	–	–	–
Age: 50-69	1.13	0.89	0.21	3.09	–	–	–	–
Condition at Assault: Intoxicated	-0.77	0.41	0.06	0.46	-0.89	0.37	0.02	0.41
Condition at Assault: Incapacitated	-0.19	0.42	0.64	0.82	-0.15	0.39	0.70	0.86
Inititated in a Private Residence	0.08	0.30	0.80	1.08	–	–	–	–
Masturbation	-1.30	0.55	0.02	0.27	-0.95	0.49	0.05	0.39
Follow-Up Exam	0.85	0.41	0.04	2.34	1.09	0.38	0.01	2.96
Infection	0.01	0.42	0.98	1.01	–	–	–	–
Inter-Racial Assault	-0.52	0.31	0.10	0.60	–	–	–	–

Source of data: *Alaska SANE data*

In the full model, only two effects were statistically significant at a probability level of 0.05 or less. These included whether the assault included masturbation and whether the patient received a genital follow-up exam. With the backward elimination

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procedure, both effects remained statistically significant. In addition, the effect of patient condition at the time of the assault became significant.

Final results from the reduced model indicate that the odds of referred cases being accepted for prosecution were on average 0.41 times smaller in cases with intoxicated patients than in cases with sober patients ($p = 0.02$) and 0.39 times smaller in cases with masturbation ($p = 0.05$). On the other hand, the odds of referred cases being accepted for prosecution were on average 2.96 times greater if the patient received a genital follow-up exam ($p = 0.01$).

The frequency of genital injury, the patient's age, whether the assault initiated in a private residence, whether the patient tested positive for a sexually transmitted infection or another genital infection, and whether the assault was inter-racial were not significantly associated with the odds that referred cases would be accepted for prosecution, in either the full or reduced models. Additional interpretations are provided in the conclusions.

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J. Multivariate Results: Securing a Conviction

1. Main Effects: Securing a Conviction

We now select the 175 cases that were accepted for prosecution and determine the factors that were associated with whether these cases would result in a conviction. We begin with a logistic regression model of securing a conviction on the presence and frequency of genital injury. Consistent with prior results, neither the presence nor the frequency of genital injury significantly affected the odds that an accepted case would result in a conviction (p = 0.71 and 0.86, respectively). Similar results were again obtained when the presence and frequency of genital injury were included independently in the logistic regression models (p = 0.65 and 0.75 respectively, results not shown).

Table 81. Regression of Conviction on Genital Injury

	Securing a Conviction		
Variables	B	St. Err.	*p*
Presence of Genital Injury	-0.29	0.79	0.71
Frequency of Genital Injury	0.09	0.52	0.86

Source of data: *Alaska SANE data*

2. Control Variables: Securing a Conviction

Potential control variables were again selected for inclusion into the final model if their bivariate association with the odds of securing a conviction were statistically significant at a probability level of 0.10 or less. These bivariate associations are shown in Tables 82 through 87, and the final logistic regression model is shown in Table 88. All logistic regression models were estimated on the sub-sample of cases that were accepted for prosecution.

Table 82. Bivariate Regressions of Conviction on Case Characteristics

	Securing a Conviction		
Variables	B	St. Err.	*p*
Examined in Anchorage	-0.23	0.50	0.64
Referred by State Trooper	0.28	0.49	0.58
Reported Prior to 2003	0.32	0.38	0.40
Time Elapsed (24+ hours)	-0.58	0.47	0.22

Source of data: *Alaska SANE data*

None of the case, patient, assault, or exam characteristics were significantly associated with the odds that an accepted case would result in a conviction at a probability level of 0.05 or less. These results are shown in Tables 82 through 85. The effects of post-assault sex, of obtaining an evidence collection kit, and of performing a colposcope exam could not be reliably estimated (and are therefore not included in the following tables). Only two patients whose cases were accepted for prosecution engaged in consensual sexual activity between the assault and the report. An evidence collection

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kit was not obtained from only one of the cases that were accepted for prosecution and a colposcope exam was not performed from only two.

Table 83. Bivariate Regressions of Conviction on Patient Characteristics

	Securing a Conviction		
Variables	B	St. Err.	*p*
Patient Race: Native	-0.42	0.45	0.35
Patient Race: Other	-0.61	0.77	0.43
Patient Age: 18-49	-0.85	0.57	0.14
Patient Age: 50-69	-0.18	0.93	0.85
Condition at Assault: Intoxicated	-0.03	0.49	0.95
Condition at Assault: Incapacitated	0.10	0.48	0.83
Homeless	-0.33	0.56	0.55
Disabled	-2.13	1.24	0.09
Currently Pregnant	-0.30	1.17	0.80
Parity	0.03	0.39	0.94
Currently Menstruating	0.39	0.66	0.56
Pre-Assault Sex	-0.54	0.40	0.18
Post-Assault Sex	---	---	---
Post-Assault Actions	0.26	0.55	0.64
Removed / Inserted Tampon or Pad	0.17	0.67	0.80
Changed Clothing	0.03	0.38	0.94
Clean / Intact Clothing	0.03	0.40	0.94

Source of data: *Alaska SANE data*

Because the effect of being disabled was statistically significant at a probability level of 0.10, it was selected for inclusion into the final model. On average, cases with disabled patients were less likely to result in a conviction.

Table 84. Bivariate Regressions of Conviction on Assault Characteristics

	Securing a Conviction		
Variables	B	St. Err.	*p*
Initiated in Private Residence	0.12	0.38	0.76
Occurred in Private Residence	0.23	0.40	0.57
Physical Force	-0.54	0.39	0.17
Verbal Threats	-0.08	0.43	0.86
Supine Position	0.48	0.42	0.25
Kissing, Licking, Biting, Scratching	0.18	0.39	0.64
Touching, Fondling	0.26	0.38	0.50
Oral Copulation	0.12	0.45	0.79
Anal Penetration	-0.07	0.60	0.90
Vaginal Penetration	0.08	0.45	0.86
Masturbation	-0.58	0.72	0.42
Lubricants and Condoms	-0.76	0.64	0.24
Ejaculation	-0.28	0.44	0.52

Source of data: *Alaska SANE data*

Only one of the exam findings was significantly associated with securing a conviction in cases that had been accepted for prosecution, at a probability level of 0.05 or less. More specifically, cases with patients who tested positive for a sexually transmitted infection or another genital infection were significantly less likely to result in

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a conviction. One additional exam finding (the frequency of non-genital injury) was statistically significant at a probability level of 0.10. Cases were more likely to result in a conviction as the number of non-genital injuries increased. The effect of whether spermatozoa were still motile could not be reliably estimated and is therefore excluded from the following table. Spermatozoa were still motile in only one case that was accepted for prosecution.

Table 85. Bivariate Regressions of Conviction on Exam Characteristics

	Securing a Conviction		
Variables	B	St. Err.	*p*
Evidence Collection Kit	---	---	---
Speculum Exam	-0.58	1.09	0.59
Colposcope Exam	---	---	---
Anoscope Exam	-0.53	0.49	0.28
Alternative Light Source	0.08	0.45	0.86
Follow-Up Exam	0.40	0.46	0.39
Hospital / Emergency Care	0.61	1.05	0.12

Source of data: *Alaska SANE data*

Table 86. Bivariate Regressions of Conviction on Exam Findings

	Securing a Conviction		
Variables	B	St. Err.	*p*
Fluorescence	-0.31	0.39	0.43
Spermatozoa	1.16	1.06	0.27
Motile Spermatozoa	---	---	---
Infection	-1.45	0.48	<0.01
Presence of Non-Genital Injury	0.23	0.38	0.54
Frequency of Non-Genital Injury	0.38	0.22	0.09
Controlled	-0.13	0.81	0.88
Expressed	0.27	0.38	0.48

Source of data: *Alaska SANE data*

Finally, only one of the suspect characteristics was significantly associated with securing a conviction in cases that had been accepted for prosecution. Cases with inter-racial assaults were less likely to result in a conviction than cases with intra-racial assaults.

Table 87. Bivariate Regressions of Conviction on Suspect Characteristics

	Securing a Conviction		
Variables	B	St. Err.	*p*
Suspect Identity Known	-0.07	0.59	0.91
Suspect Alcohol / Drug Use	-0.17	0.42	0.68
Inter-Racial Assault	-0.91	0.40	0.03
Relationship: Friend / Acquaintance	-0.64	0.80	0.42
Relationship: Intimate / Family	-0.10	0.85	0.91

Source of data: *Alaska SANE data*

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3. Final Model: Securing a Conviction

Only two control variables were significantly associated with the odds that an accepted case would result in a conviction, at a probability level of 0.05. These two variables were whether the patient tested positive for a sexually transmitted infection or another genital infection and whether the assault was inter-racial. Two additional control variables were found to be significantly associated with the odds that an accepted case would result in a conviction, at a probability level of 0.10. These two additional variables were whether the patient was disabled and the frequency of non-genital injury. The associations between these four control variables and securing a conviction are shown in our final models.

Table 88. Multivariate Regression Model for Conviction

	Full Model				Reduced Model			
Variables	B	St. Err.	*p*	Exp (B)	B	St. Err.	*p*	Exp (B)
Constant	1.66	0.33	<0.01	5.25	1.98	0.29	<0.01	7.21
Disabled	-1.39	1.55	0.37	0.25	--	--	--	--
Infection	-1.19	0.53	0.03	0.31	-1.24	0.52	0.02	0.29
Frequency of Non-Genital Injury	0.47	0.26	0.07	1.61	--	--	--	--
Inter-Racial Assault	-1.06	0.44	0.02	0.35	-0.90	0.41	0.03	0.41

Source of data: *Alaska SANE data*

The effects that were statistically significant in the full model remained statistically significant in the reduced model and those non-significant in the full model remained non-significant in the reduced model. Final results from the reduce model indicate that the odds of an accepted case resulting in a conviction were on average 0.29 times smaller if the patient tested positive for a sexually transmitted infection or another genital infection ($p = 0.02$) and 0.41 times smaller if the assault was inter-racial rather than intra-racial ($p = 0.03$). Additional details are provided in the conclusions.

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K. Summary: Predictors of Legal Resolutions

Contrary to our hypotheses, genital injury never impacted legal resolutions. More specifically, neither the presence nor the frequency of genital injury significantly impacted the likelihood that reported cases would be referred for prosecution, the likelihood that referred cases would be accepted for prosecution, or the likelihood that accepted cases would result in a conviction.

In addition, relatively few control variables were able to significantly predict the various legal resolutions. In the final multivariate models shown in Tables 72, 80, and 88, only 10 effects remained statistically significant. These included five significant predictors of whether reported cases would be referred for prosecution, three significant predictors of whether referred cases would be accepted for prosecution, and two significant predictors of whether accepted cases would result in a conviction.

More specifically, the odds of reported cases being referred for prosecution were expected to be significantly greater when the case was reported to Alaska State Troopers, the patient was not disabled, an alternative light source was used during the examination, the number of non-genital injuries increased, and the suspect's identity was known. The odds of a referred case being accepted for prosecution were expected to be significantly greater when the patient was sober rather than intoxicated, the assault did not include masturbation, and the patient received a genital follow-up exam. Finally, the odds of an accepted case resulting in a conviction were expected to be significantly greater when the patient did not test positive for a sexually transmitted infection or another genital infection and the assault was intra-racial rather than inter-racial. Further discussion is now provided.

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L. Conclusions

The goals of this analysis were to provide a thorough overview of the key factors that impacted genital injury and legal resolutions in the Alaska SANE data. These analyses provide a useful starting point for more detailed analyses. In this first step, we were particularly interested in the effects of patient condition at the time of the assault and of time elapsed from the assault to the report on genital injury and in the effects of genital injury on legal resolutions. More specifically, we had hypothesized that both the presence and frequency of genital injury would be affected by the patient's condition at the time of the assault (i.e., sober, intoxicated, or incapacitated) and by time elapsed from the assault to the report. In addition, we had hypothesized that the likelihood that reported cases would be referred, that referred cases would be accepted, and that accepted cases would result in a conviction would be affected by both the presence and frequency of genital injury. None of these hypotheses were confirmed. Patient condition at the time of the assault did not impact the presence or frequency of genital injury. Time elapsed from the assault to the report did not impact the presence or frequency of genital injury. Finally, neither the presence nor the frequency of genital injury impacted any of the legal resolutions.

We again caution the reader that none of these results should be interpreted to evaluate the effectiveness of Sexual Assault Nurse Examiner programs, local or state police agencies, or the Alaska Department of Law. Instead, these results provide a thorough overview of the factors that were correlated with genital injury and legal resolutions. It is particularly important for readers not to conclude that sexual assault nurse examinations are not valuable. Although the documentation of genital injury did not significantly impact legal resolutions, the documentation of non-genital injury did. It is also important to understand that successful legal resolutions are not the key goals of sexual assault nurse examiners. Instead, the goals of sexual assault nurse examiners are to provide competent and compassionate nursing care that promotes healing of the patient's physical, psychological, social, and spiritual health.

It is also important to emphasize that this analysis provided a first glance at key relationships within the Alaska SANE data. More detailed analyses will need to be conducted to fully explore the veracity of our key hypotheses. For example, it remains important to identify how patient condition at the time of the assault and time elapsed from the assault to the report affect different types of injuries to different sites. For example, some injuries may heal more quickly than others. Although the Alaska SANE data include 60 measures of genital injury (four different types at 15 different sites), only two measures were used for this analysis (presence and frequency of genital injury). Important effects may have been masked by relying only on these two global measures of genital injury. In addition, no interaction effects were explored. This may be particularly important when examining legal resolutions. The effect of genital injury on legal resolutions may vary substantially by the patient's condition at the time of the assault and the time elapsed from the assault to the report. These and other effects were not examined in this first analysis.

In the end, this analysis found nine factors associated with the presence of genital injury, seven factors associated with the frequency of genital injury, five factors associated with whether reported cases were referred for prosecution, three factors

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associated with whether referred cases were accepted for prosecution, and two factors associated with whether accepted cases resulted in a conviction. These 26 associations are now described and interpreted in more detail in the final two sections.

1. Predictors of Genital Injury

Nine factors were associated with the presence of genital injury (i.e., whether the case was reported prior to 2003, whether the patient engaged in consensual sexual activity within 96 hours of the assault, whether the assault included vaginal penetration, whether ejaculation occurred during the assault, whether the examination included an anoscope exam, whether an alternative light source was used, whether the patient required a genital follow-up exam, whether the patient also had non-genital injuries, and whether the patient was expressive at any time during the interview / examination process). More detailed interpretations and implications are now provided.

- Genital injury was 24% more likely in cases reported prior to 2003 than in cases reported in 2003 or later. While 47% of cases reported prior to 2003 had genital injury, 38% of cases reported in 2003 or later had genital injury. The 2003 cutoff was selected simply because 2003 was the median year of report. This significant difference may be related to changes in the Sexual Assault Nurse Examiner programs over time. Additional research should investigate the factors that affected the presence of genital injury over time. Factors that have been noted as important in the previous literature include the use of adjuncts to visualize injuries and the qualifications and experiences of sexual assault nurse examiners (Carter-Snell, 2007).
- Genital injury was 21% more likely when the patient did not engage in consensual sexual activity within 96 hours of the assault. More specifically, while 46% of patients who did not engage in consensual sexual activity within 96 hours of the assault had genital injury, 38% of patients who did engage in consensual sexual activity within 96 hours of the assault had genital injury. The clinical relevance of this finding should be investigated further. It is possible that women who engage in more frequent sexual activity have genital tissue changes that provide some physiological protection from injury. This study was not designed to provide such a nuanced understanding. Nonetheless, this finding does present an important reason for the absence of genital injury. Genital injury is less likely to occur when patients have engaged in consensual sexual activity within 96 hours of the assault.
- Genital injury was 18% more likely when the assault included vaginal penetration. Additional results show that 45% of cases that included vaginal penetration had genital injury while 38% of cases that did not include vaginal penetration had genital injury. Although the presence of genital injury cannot determine lack of consent, it can clearly indicate that vaginal penetration was more likely to have occurred. This is an important finding, particularly for victims who are too intoxicated or incapacitated to know whether vaginal penetration occurred. Although the lack of genital injury cannot indicate that penetration did not occur, patients were significantly more likely to have genital injury if the assault included vaginal penetration.
- Genital injury was 18% more likely when ejaculation had not occurred during the assault. While 38% of cases with ejaculation had genital injury, 45% of cases without ejaculation had genital injury. Suspects who are unable to ejaculate may use more

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force or engage in multiple sex acts during the sexual assault. In cases without ejaculation, the increase in genital injury may be related to these compensatory acts by the suspect (e.g., multiple sex acts, increased force).

- Genital injury was 60% more likely when the examination required an anoscope exam. Among patients who required an anoscope exam, 64% had genital injury. Among patients who did not require an anoscope exam, 40% had genital injury. This result may be an indication of the increased amount of force or violence used during a sexual assault that includes anal penetration. In addition, anoscope exams enhance the sexual assault nurse examiners' ability to identify rectal injuries.
- Genital injury was 24% more likely when an alternative light source was used. While 37% of patients whose exams did not necessitate the use of an alternative light source had genital injury, 46% of patients whose exams necessitated the use of an alternative light source had genital injury. As previously explained, using an alternative light source should have no impact on genital injury because alternative light sources were used to find fluorescence, not injury. This effect is therefore likely to be spurious due to some unknown characteristic. Additional research will need to investigate what factors enhance both the required need to use an alternative light source and the presence of genital injury.
- Genital injury was 79% more likely when the patient received a genital follow-up exam. Among patients who received a genital follow-up exam, 68% had genital injury. Among patients who did not receive a genital follow-up exam, 38% had genital injury. This is not a surprising finding given that genital follow-up exams are performed in part to assess the healing of genital injuries. Patients with genital injuries are therefore more likely to receive a genital follow-up exam.
- Genital injury was 46% more likely when the patient also had non-genital injuries. While 35% of patients with no non-genital injuries had genital injuries, 51% of patients with non-genital injuries also had genital injuries. To the extent that non-genital injuries reflect the severity of the assault, this result indicates that both non-genital and genital injuries increase as the severity of the assault increases. The fact that patients with non-genital injuries are significantly more likely to have genital injuries has important policy implications. These are reviewed in detail in Section 3.
- Genital injury was 33% more likely when the patient was expressive at some point during the interview / examination process. More specifically, 36% of patients who were not expressive at any point during the interview / examination process had genital injury while 48% of patients who were expressive at some point during the interview / examination process had genital injury. This is likely to be a spurious relationship where the patient's behavioral and emotional state during the examination reflects some other unknown characteristic. It is important to note that many patients exhibited a variety of different behavioral and emotional states, at different points in the interview / examination process.

Seven factors were associated with the frequency of genital injury (i.e., whether the case was reported prior to 2003, the patient's age, whether the assault included vaginal penetration, whether the examination included an anoscope exam, whether the patient required a genital follow-up exam, whether the patient also had non-genital injuries, and whether the patient was expressive at any time during the interview / examination process). More detailed interpretations are now provided. These are based

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on the mean (raw) number of genital injuries (rather than the logged number of genital injuries).

- The mean number of genital injuries was 67% higher in cases reported prior to 2003 than in cases reported in 2003 or later. While the mean number of genital injuries was 1.6 (s = 2.7) in cases reported prior to 2003, the mean number of genital injuries was 1.0 (s = 1.8) in cases reported in 2003 or later. The 2003 cutoff was selected simply because 2003 was the median year of report. The meaning of this effect is therefore unclear but may be related to changes in the Sexual Assault Nurse Examiner programs over time.
- The mean number of genital injuries was 55% higher in patients between the ages of 12 to 17 than in patients between the ages of 18 to 49. More specifically, the mean number of genital injuries was 1.9 for patients between the ages of 12 to 17 (s = 2.8) and was 1.2 for patients between the ages of 18 to 49 (s = 2.2). These results further support Carter-Snell's (2007) findings. These differences are most likely due to physiological changes by age. Additional research should more clearly identify these differences (e.g., by site and type of injury).
- The mean number of genital injuries was 55% higher when the assault included vaginal penetration. Additional results show that the mean number of genital injuries was 1.5 in cases that included vaginal penetration (s = 2.5), while the mean number of genital injuries was 1.0 in cases that did not include vaginal penetration (s = 1.8). Both the presence and frequency of genital injury were affected by vaginal penetration. Although genital injury cannot determine lack of consent, it can clearly indicate that vaginal penetration was more likely to have occurred. Patients had a greater number of genital injuries when the assault included vaginal penetration. This is an important result that supports the importance of medical / forensic examinations for sexual assault victims.
- The mean number of genital injuries was 92% higher when the examination required an anoscope exam. Among patients who required an anoscope exam, the mean number of genital injuries was 2.3 (s = 3.4). Among patients who did not require an anoscope exam, the mean number of genital injuries was 1.2 (s = 2.1). This result is not surprising given that anoscope exams enhance the sexual assault nurse examiners' ability to identify anal and rectal injuries. More importantly, this result may be an indication of the increased amount of force or violence used during a sexual assault that includes anal penetration.
- The mean number of genital injuries was 2.5 times greater for patients who received a genital follow-up exam. Among patients who received a genital follow-up exam, the mean number of genital injuries was 2.7 (s = 3.6). Among patients who did not receive a genital follow-up exam, the mean number of genital injuries was 1.1 (s = 1.9). As previously explained, this is not a surprising finding given that genital follow-up exams are performed in part to assess the healing of genital injuries.
- The mean number of genital injuries was 2.0 times greater when the patient also had non-genital injuries. While the mean number of genital injuries was 0.9 (s = 1.6) for patients without non-genital injuries, the mean number of genital injuries was 1.8 (s = 2.8) for patients with non-genital injuries. This may again indicate that both genital and non-genital injuries increase as the severity of the assault increases. The importance of this result is discussed further in Section 3.

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- The mean number of genital injuries was 25% higher when the patient was expressive at some point during the interview / examination process. More specifically, the mean number of genital injuries was 1.2 (s = 2.3) for patients who were not expressive at any point during the interview / examination process. The mean number of genital injuries was 1.5 (s = 2.4) for patients who were expressive at some point during the interview / examination process. It is still unclear how a patient's emotional and behavioral state during the examination may affect genital injury (either its presence or frequency). This is likely a spurious relationship.

Several of the relationships uncovered in this study provide important explanations for the absence of genital injury. Genital injury is less likely to occur when patients engage in consensual sexual activity within 96 hours of the assault and when the suspect ejaculates. In addition, the number of genital injuries decreases with age. More specifically, patients between the ages of 18 to 49 have fewer genital injuries than patients between the ages of 12 to 17. These provide important explanations that sexual assault nurse examiners can use when testifying about the absence or low frequency of genital injury.

Other factors were related to the presence and frequency of genital injury. Although some of these relationships may be unclear, these factors are important because they can identify patients who are more likely to have genital injury. As Carter-Snell (2007:81) concludes, "nurses can use this introductory information to counsel women who refuse physical examinations." In particular, "women should be advised that it is possible that if these circumstances are present they may have injuries present and be unaware" (Carter-Snell, 2007). In turn, this may impact the nurse's examination and the patient's decision to report. Some of the factors we uncovered are obvious. For example, patients who reported vaginal penetration were more likely to have genital injury and had a greater number of genital injuries. Other factors were less obvious. For example, patients that were expressive at some point during the interview / examination process were more likely to have genital injury. The constellation of these risk factors may provide a useful profile of patients most at risk of genital injury. This may then be useful for the provision of law enforcement, medical / forensic, and victim services.

2. Predictors of Legal Resolutions

The five factors that were significantly associated with the likelihood that cases reported to law enforcement would be referred for prosecution included whether the case was reported to Alaska State Troopers, whether the patient was disabled, whether an alternative light source was used during the examination, the number of non-genital injuries, and whether the suspect's identity was known. More detailed interpretations are now provided.

- Cases reported to Alaska State Troopers were 86% more likely to be referred for prosecution than cases reported to local police departments. While 55% of cases reported to Alaska State Troopers were referred for prosecution, 30% of cases reported to local police departments were referred for prosecution (results not shown). There are important (and unmeasured) differences between these cases that affect the likelihood of being able to refer cases for prosecution. Because the cases reported to Alaska State Troopers are not comparable to the cases reported to local police

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departments, it is not possible to compare law enforcement responses. Again, this study did not evaluate the effectiveness of various law enforcement responses. Identifying the characteristics of the Alaska State Trooper cases that make them more likely to be referred to prosecution would be an important goal for future research.

- Cases without disabled patients were 2.4 times more likely to be referred for prosecution than cases with disabled patients. While 33% of cases without disabled patients were referred for prosecution, only 14% of cases with disabled patients were referred for prosecution. Our measure of disability included physical, mental, and psychiatric disabilities. Cases with disabled patients are often significantly more difficult to investigate. This increase in difficulty may decrease the likelihood of being able to refer cases for prosecution. The vulnerability of disabled women has been noted in previous research (e.g., Martin et al., 2006) and calls for addressing these vulnerabilities have already been proposed (see, for example, Wacker, Parish, and Macy, 2008).
- Cases whose examinations included the use of an alternative light source were 50% more likely to be referred for prosecution than cases whose examinations did not include the use of an alternative light source. More specifically, 36% of cases whose examinations included the use of an alternative light source were referred for prosecution while 24% of cases whose examinations did not include the use of an alternative light source were referred for prosecution. The cause of this significant difference remains unknown, particularly since finding fluorescence had no impact on the likelihood to refer cases for prosecution. This effect is likely to be spurious due to some unknown characteristic.
- Cases were more likely to be referred for prosecution as the number of non-genital injuries increased. The mean number of non-genital injuries was 39% higher in cases that were referred than in cases that were not referred. More specifically, the mean number of non-genital injuries was 1.8 (s = 3.0) among cases that were not referred for prosecution, but was 2.5 (s = 3.7) among cases that were referred for prosecution. Though the presence of non-genital injury did not impact the likelihood to refer cases for prosecution, the frequency of non-genital injury did significantly impact the likelihood to refer cases for prosecution. A detailed record of non-genital injury is therefore important. The significance of this result is discussed further in Section 3.
- Cases were 2.4 times more likely to be referred for prosecution if the suspect's identity was known. This is not a surprising result. While 38% of cases where the suspect's identity was known were referred for prosecution, only 16% of cases where the suspect's identity was not known were referred for prosecution. This indicates that cases are less likely to be referred as the difficulty of the investigation increases. Investigations are much easier when the suspect's identity is known and cases are therefore more likely to be referred for prosecution. The factors that lead 16% of cases without a known suspect identity to be referred for prosecution should be investigated further. This may provide important insights for successful investigations.

The three factors that were associated with the likelihood that cases referred to prosecutors would be accepted for prosecution included whether the patient was sober rather than intoxicated, whether the assault included masturbation, and whether a genital follow-up examination was performed. More detailed interpretations are now provided.

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- Cases with sober patients were 32% more likely to be accepted for prosecution than cases with intoxicated patients. More specifically, 75% of referred cases with sober patients were accepted for prosecution while 57% of referred cases with intoxicated patients were accepted for prosecution. Intoxication may enhance the difficulty of an investigation when patients cannot recall the details of the assault. The patients' memory and ability to provide information may be altered due to intoxication, making it difficult to provide details of the assault and suspect. These factors may make it more difficult for law enforcement to investigate the assault and to gather enough information for prosecution. In addition, intoxication may still lead to blame and believability factors. This may further hinder prosecutorial efforts.
- Cases that included masturbation were 28% less likely to be accepted for prosecution than cases that did not include masturbation. More specifically, 65% of referred cases that did not include masturbation were accepted for prosecution while 47% of referred cases that did include masturbation were accepted for prosecution. It is possible that suspects who masturbate during the assault have sexual dysfunctions or difficulties ejaculating. This may decrease the likelihood of obtaining DNA, which may then affect decisions to accept a case for prosecution.
- Cases that received a genital follow-up exam were 34% more likely to be accepted for prosecution than cases that did not receive a genital follow-up exam. While 78% of referred cases with a genital follow-up exam were accepted for prosecution, 58% of referred cases without a genital follow-up exam were accepted for prosecution. The odds of genital injury and the frequency of genital injury were both higher in cases that received a genital follow-up exam. One reason for conducting follow-up exams is to assess the healing of genital injuries. However, neither the presence nor the frequency of genital injury significantly impacted the likelihood that referred cases would be accepted for prosecution. Further research should examine how cases that received genital follow-up exams are different from those that did not, and should examine how these differences affect the likelihood to accept cases for prosecution.

Finally, the two factors that were associated with the likelihood that cases accepted for prosecution would result in a conviction included whether the patient tested positive for a sexually transmitted infection or another genital infection and whether the assault was intra-racial. More detailed interpretations are now provided.

- Cases with patients who did not test positive for a sexually transmitted infection or another genital infection were 37% more likely to result in a conviction than cases with patients who tested positive. More specifically, 60% of accepted cases with patients who tested positive resulted in a conviction while 82% of accepted cases with patients who did not test positive resulted in a conviction. Patients who did not test positive included patients who were not tested and patients who tested negative. Among patients that were not tested, 91% of accepted cases resulted in a conviction (but N = 11). Among patients who tested negative, 81% of accepted cases resulted in a conviction (N = 80). It therefore appears that accepted cases with patients who tested positive were less likely to result in a conviction than accepted cases with patients who were not tested and accepted cases with patients who tested negative. Positive tests for sexually transmitted infections and other genital infections may be perceived as indicators of risky lifestyles. These indicators may lead to blame and believability factors and may lower the ability to secure convictions.

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- Cases with intra-racial assaults were 23% more likely to result in a conviction than cases with inter-racial assaults. Results indicate that 69% of accepted cases with inter-racial assaults resulted in a conviction while 85% of accepted cases with intra-racial assaults resulted in a conviction. The patient's race did not impact the likelihood that accepted cases would result in a conviction. Similarly, the suspect's race did not impact the likelihood that accepted cases would result in a conviction (results not shown).

Overall, an important determinant of legal resolutions was case complexity. More specifically, legal resolutions were more favorable when case complexity was low (e.g., suspect identity was known) and were less favorable when case complexity was high (e.g., patient was disabled or intoxicated). Although these results are not surprising, they do shed light on situations where legal resolutions should be improved. Although improving these legal resolutions is not the responsibility of sexual assault nurse examiners, their documentation of non-genital injury is particularly important.

3. Importance of Non-Genital Injuries

Generally speaking, this research revealed that the documentation of non-genital injuries continues to be more important than the documentation of genital injuries in order to obtain successful legal resolutions. The documentation of non-genital injury had important associations with both genital injury and legal resolutions. More specifically, the presence of non-genital injury was significantly associated with both the presence and frequency of genital injuries. More specific results are shown in the following table.

Table 89. Genital Injury by Non-Genital Injury

	Presence of Genital Injury			Frequency of Genital Injury	
Non-Genital Injury	% with no injury	% with injury	Odds of genital injury	Mean	St. Dev.
Absent	65 %	35 %	0.54	0.40	0.61
Present	49	51	1.04	0.68	0.77
***t* (*p*)**	-4.78 (<0.01)			-5.84 (<0.01)	

Source of data: *Alaska SANE data*

Patients with non-genital injuries were 46% more likely to have genital injuries than patients without non-genital injuries ($p < 0.01$). Over half (51%) of the patients with non-genital injuries also had genital injuries. When patients had non-genital injury, they were as likely to have genital injuries as to not have genital injuries (odds = 1.04). On the other hand, when patients had no non-genital injuries, they were half as likely to have genital injuries as to not have genital injuries (odds = 0.54). The odds of having genital injury were almost twice as high when non-genital injury was present than when non-genital injury was absent. Stated differently, having non-genital injury almost doubled the odds of having genital injury. Furthermore, patients with non-genital injuries had almost one additional genital injury than patients without non-genital injuries. Law enforcement personnel should be aware of these findings as they may impact the decision to refer a sexual assault victim to a sexual assault nurse examiner, particularly beyond the standard time cutoff. Victims with non-genital injuries are more likely to have genital

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injuries and they would therefore benefit from medical / forensic exams (see also Carter-Snell, 2007).

Detailed documentation of non-genital injuries, particularly their frequency, is important because the frequency of non-genital injury was clearly associated with the likelihood to refer cases for prosecution. Non-genital injury is an indicator of the severity of force used during a sexual assault. On average, the odds of referring a case for prosecution increased as the number of non-genital injuries also increased.

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Appendix A – Data Collection Instrument

Examining the Characteristics, Processes, and Outcomes of Sexual Assaults in Alaska

NIJ Grant No. 2004-WB-GX-0003

André Rosay and Tara Henry
Co-Principal Investigators

SECTION 1. BASIC INFORMATION

- UAA Case Number: _____
- SART Location: _____
- Law enforcement agency: _____
- Victim race (Check all that apply): Caucasian Black
  Alaska Native / American Indian Asian Hispanic
  Pacific Islander Other (specify):_____
- Victim sex: Female Male
- Victim age: _____
- Consensual / statutory? Yes No
- Was victim homeless at time of assault? Yes No Unknown
- Was exam completed: Yes No
- If exam was not completed, why not? _____
- Time from assault to report: _____

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SECTION 2. PATIENT MEDICAL HISTORY

- Is the patient pregnant? Yes No

  Para: _____

- Was patient menstruating at time of attack? Yes No

- Within 96 hours prior to assault:
  - Consensual vaginal sex? Yes No If yes, when? _____
  - Consensual anal sex? Yes No If yes, when? _____
  - Consensual oral sex? Yes No If yes, when? _____

- Post assault actions of patient (check all that apply):

Urinated	Defecated	Genital wipe / wash
Bath / shower	Douched	Ate / drank
Brushed teeth	Oral gargle / wash	Changed clothing
Steam		

- Post assault removal / insertion of (check all that apply):

Sponge	Diaphragm	Tampon
Pad		

- Consensual vaginal sex since assault? Yes No
- Consensual anal sex since assault? Yes No
- Consensual oral sex since assault? Yes No

- Is patient's clothing on arrival same as clothing during assault?
  Yes No

- Appearance of patient's clothing on arrival (check all that apply):

Intact	Clean	Dirty
Wet	Bloody	Torn
All missing	Partially missing	Buttons missing

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SECTION 3. INCIDENT DESCRIPTION (PART 1)

- Location of initial contact with suspect (just prior to assault):

Outdoors	Work	Vehicle
Patient's house	Suspect's house	Patient and suspect's house
Other's house	Hotel	Bar
Other indoor location		

- Location of assault:

Outdoors	Work	Vehicle
Patient's house	Suspect's house	Patient and suspect's house
Other's house	Hotel	Bar
Other indoor location		

- Did assault take place within Municipality of Anchorage?

Yes No Unknown

- Methods employed by assailant (check all that apply):

Weapon used

Physical blows by hands / feet

Grabbing / grasping / holding

Physical restraints used

Strangulation

Burns (toxic / chemical)

Verbal threats

- Patient's position during assault:

Supine	Standing	Straddling suspect
Prone	Knee chest	Lying on side
Sitting	Other	

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SECTION 4. INCIDENT DESCRIPTION (PART 2); SEX ACTS REPORTED

- Kissing, licking, biting, scratching:
  Yes No Unsure Attempted

- Touching / fondling with hands of the:
  - Breast Yes No Unsure Attempted
  - Vagina Yes No Unsure Attempted
  - Penis Yes No Unsure Attempted
  - Anus Yes No Unsure Attempted

- Oral copulation of genitals:
  - Of victim by suspect Yes No Unsure Attempted
  - Of suspect by victim Yes No Unsure Attempted

- Oral copulation of anus:
  - Of victim by suspect Yes No Unsure Attempted
  - Of suspect by victim Yes No Unsure Attempted

- Masturbation:
  - Of victim by suspect Yes No Unsure Attempted
  - Of suspect by victim Yes No Unsure Attempted

- Penetration of vagina by:
  - Finger Yes No Unsure Attempted
  - Penis Yes No Unsure Attempted
  - Foreign Object Yes No Unsure Attempted

- Penetration of anus by:
  - Finger Yes No Unsure Attempted
  - Penis Yes No Unsure Attempted
  - Foreign Object Yes No Unsure Attempted

- Did ejaculation occur? Yes No Unsure Attempted

  If yes, specify ejaculation location (check all that apply):

Vagina	Rectum	Mouth	Stomach
Back	Napkin / cloth	Bed	Clothing
Condom	Other		

- Lubricants, condoms, contraceptives:
  - Condom used? Yes No Unsure Attempted
  - Contraceptive foam used? Yes No Unsure Attempted
  - Contraceptive jelly used? Yes No Unsure Attempted
  - Lubricant used? Yes No Unsure Attempted

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SECTION 5. EXAMINATION (PART 1)

- Patient's behavior observed during exam (check all that apply):

Controlled	Quiet	Calm
Expressive	Staring	Sleeping
Cooperative	Stoic	Agitated
Fearful	Tearful	Fidgeting
Tense	Hysterical	Sobbing
Yelling	Listless	Loud
Trembling	Angry	
Other		

- Evidence kit collected: Yes No
- Speculum exam: Yes No
- Colposcope exam: Yes No
- Anoscope exam: Yes No

- Alternative light source? Yes No
- Fluorescence found? Yes No

If yes, indicate where: _____

- Admitted to hospital? Yes No

- Received ER treatment for nongenital injuries: Yes No
- Received ER treatment for genital injuries: Yes No
- Received ER treatment for alcohol level: Yes No
- Received ER treatment for other reason: Yes No

- Victim's use of alcohol: Yes No Unsure

- Victim's use of drugs: Yes No Unsure

- Blood alcohol done: Yes No Alcohol level: _____

- Breathalyzer done: Yes No Alcohol level: _____

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SECTION 6. EXAMINATION (PART 2)

- Urine tox screen done: Yes No

  If done, results: Positive Negative

  If positive, check all that apply:

EtOH	Barbiturates
MDMA	THC
Benzodiazepines	Ketamine
Cocaine	Opiates
GHB	Amphetamines
Other	

- Disabilities (check all that apply):
  - Mental
  - Physical
  - Psychiatric

- Condition at time of assault (check all that apply):

Alcohol intoxicated	Drug intoxicated	Sober
Sleeping	Passed out	Unconscious from trauma

- Infections at exam?
  - Yes
  - No
  - Not tested

  Infections tested positive for (check all that apply):

Bacterial vaginosis	Chlamydia
Genital warts	Gonorrhea
HIV	Herpes
Trichamoniasis	Hepatitis B
Syphilis	Yeast
Hepatitis C	

- Sperm seen on wet prep? Yes No No data Not done

- Sperm motile? Yes No Not seen

- Follow-up done? Yes No

  Time from exam to follow-up: _____

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SECTION 7. NONGENITAL INJURIES

- Nongenital trauma? Yes No If yes, check all that apply:

Head / face:	Bruising	Redness	Abrasions
	Lacerations	Swelling	Fracture
	Bite Mark	Pain	Other
Mouth:	Bruising	Redness	Abrasions
	Lacerations	Swelling	Fracture
	Bite Mark	Pain	Other
Neck:	Bruising	Redness	Abrasions
	Lacerations	Swelling	Fracture
	Bite Mark	Pain	Other
Shoulders:	Bruising	Redness	Abrasions
	Lacerations	Swelling	Fracture
	Bite Mark	Pain	Other
Arms:	Bruising	Redness	Abrasions
	Lacerations	Swelling	Fracture
	Bite Mark	Pain	Other
Hands:	Bruising	Redness	Abrasions
	Lacerations	Swelling	Fracture
	Bite Mark	Pain	Other
Chest:	Bruising	Redness	Abrasions
	Lacerations	Swelling	Fracture
	Bite Mark	Pain	Other
Abdomen:	Bruising	Redness	Abrasions
	Lacerations	Swelling	Fracture
	Bite Mark	Pain	Other
Back:	Bruising	Redness	Abrasions
	Lacerations	Swelling	Fracture
	Bite Mark	Pain	Other
Buttocks / hips:	Bruising	Redness	Abrasions
	Lacerations	Swelling	Fracture
	Bite Mark	Pain	Other
Legs:	Bruising	Redness	Abrasions
	Lacerations	Swelling	Fracture
	Bite Mark	Pain	Other
Feet:	Bruising	Redness	Abrasions
	Lacerations	Swelling	Fracture
	Bite Mark	Pain	Other

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SECTION 8. ANOGENITAL INJURIES

- Anogenital trauma? Yes No If yes, check all that apply:

Mons pubis:	Bruising Lacerations	Abrasions Tenderness
Labia majora:	Bruising Lacerations	Abrasions Tenderness
Labia minora:	Bruising Lacerations	Abrasions Tenderness
Labia maj / min junction:	Bruising Lacerations	Abrasions Tenderness
Clitoral hood:	Bruising Lacerations	Abrasions Tenderness
Clitoris:	Bruising Lacerations	Abrasions Tenderness
Periurethra:	Bruising Lacerations	Abrasions Tenderness
Hymen:	Bruising Lacerations	Abrasions Tenderness
Fossa navicularis:	Bruising Lacerations	Abrasions Tenderness
Posterior fourchette:	Bruising Lacerations	Abrasions Tenderness
Perineum:	Bruising Lacerations	Abrasions Tenderness
Vaginal walls:	Bruising Lacerations	Abrasions Tenderness
Cervix:	Bruising Lacerations	Abrasions Tenderness
Anus:	Bruising Lacerations	Abrasions Tenderness
Rectum:	Bruising Lacerations	Abrasions Tenderness

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SECTION 9. SUSPECT INFORMATION

- Number of suspects: _____

If more than one suspect, please fill out section 9 for each suspect separately.

- Is suspect's identity known? Yes No

- Suspect race (Check all that apply):
  Caucasian
  Black
  Alaska Native / American Indian
  Asian
  Hispanic
  Pacific Islander

- Suspect sex: Female Male

- Estimated suspect age: _____

- Alcohol use by suspect: Yes No Unknown

- Drug use by suspect: Yes No Unknown

- Victim / suspect relationship (from victim's point of view):
  Acquaintance / friend (≥ 24 hours)
  Acquaintance (< 24 hours)
  Acquaintance (<12 hours)
  Current spouse
  Former spouse
  Current partner
  Former partner
  Relative
  Stranger
  Authority figure