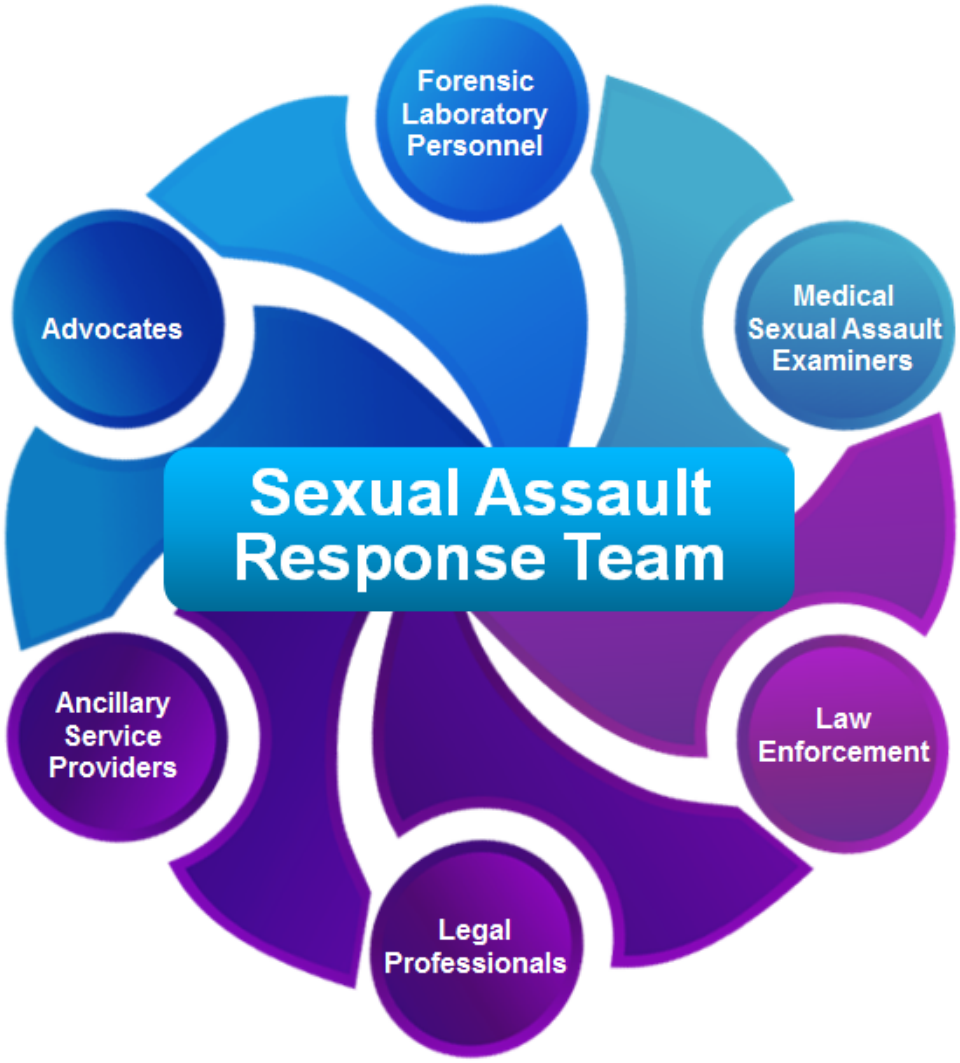
Organizing and Transferring SANE/SAFE/SART Knowledge and Best Practices

FINAL REPORT



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National Institute of Justice
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Forensic Technology Center of Excellence

The Forensic Technology Center of Excellence (FTCoE) is a collaborative partnership of RTI International and its FEPAC [Forensic Science Education Programs Accreditation Commission]–accredited academic partners: Duquesne University, Virginia Commonwealth University, and the University of North Texas Health Science Center. In addition to supporting the National Institute of Justice's (NIJ's) research and development (R&D) programs, the FTCoE provides testing, evaluation, technology transition assistance, and other services for use by crime laboratories, forensic service providers, law enforcement, and other criminal justice agencies whose mission is to combat crime. NIJ funds the FTCoE to transition forensic science and technology to practice (Award Number 2011-DN-BX-K564).

The FTCoE is led by RTI, a global research institute dedicated to improving the human condition by turning knowledge into practice. With a staff of more than 3,700 providing research and technical services to governments and businesses in more than 75 countries, RTI brings a global perspective. The FTCoE builds on RTI's expertise in forensic science, innovation, technology application, economics, data analytics, statistics, program evaluation, public health, and information science.

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The information shared in this report represents the opinions of the individual practitioners and researchers who participated in the technology testing and evaluation, and not the opinions of their agencies, the FTCoE, or the NIJ. In addition, the individual agents were not part of the agency's technology selection process and have not participated in this project to endorse or protest any technology. Finally, no individual involved in the testing and evaluation process received any financial or materials support from the manufacturers of the equipment. For more information or questions about this report, visit www.forensiccoe.org or call Project Director, Jeri Ropero-Miller at 919-485-5685.

EXECUTIVE SUMMARY

At the request of the National Institute of Justice (NIJ), the Forensic Technology Center of Excellence (FTCoE) coordinated a comprehensive Federal effort to organize and transfer knowledge and best practices of sexual assault nurse examiners, sexual assault forensic examiners, and collaborative sexual assault response teams (SANE/SAFE/SART). This FTCoE effort focuses on systemic challenges that impede the investigation of criminal sexual assaults in the United States, with goals that include creating an awareness of resources and ensuring that existing research, information, knowledge, and best practices are available and accessible to SANE/SAFE/SART and other practitioners who contribute to the nation's response to sexual assault. NIJ has an extensive record of successfully coordinating with stakeholders to develop best practices in various facets of sexual assault investigations. Such input from stakeholders has been, and will continue to be, instrumental in addressing the challenges associated with untested sexual assault kits stored as evidence in the United States.

To augment previous federally sponsored efforts, further documentation and compilation of evidence-based practices in sexual assault response are still needed. While standardized protocols, guides, and other resources exist for practitioners, specific requirements, techniques, preferences, and protocols can vary between state, local, and tribal communities. To address the incongruent approaches of forensic sexual assault evidence, this project establishes a system of knowledge transfer and outreach—founded upon collaboration with stakeholders—that addresses strategies for developing more effective sexual assault response practices.

The recommendations and strategies presented in this report were derived from a comprehensive and representative literature review; a Federal stakeholder meeting with the primary objective to discuss and conduct an educational assessment of SANE/SAFE/SART training programs to gather input on identified disparities in knowledge transfer, research, training, and policies; and a sexual assault practitioner stakeholder meeting that brought together sexual assault response researchers, practitioners, and stakeholders from across the nation to develop a landscape analysis of the best practices in sexual assault response and training curricula.

The culmination of these discussions were presented in a policy forum that focused on emerging techniques and developments associated with evidence collection training; evidence analysis utilizing Y-STR capabilities; victim-centric care approaches, including understanding the neurobiology of the victim in sexual assault and the emerging practice of telehealth; and key factors that are essential to policy change.

1. INTRODUCTION

1.1 Project Background

In August 2013, the Forensic Technology Center of Excellence at RTI (FTCoE, Award: 2011-DN-BX-K564) responded to a request from the National Institute of Justice (NIJ) to submit a plan of action for executing a series of tasks that collectively represent a comprehensive federal effort to organize and transfer knowledge and best practices of sexual assault nurse examiners, sexual assault forensic examiners, and collaborative sexual assault response teams (SANE/SAFE/SART[1]) to address systemic challenges that impede the investigation of criminal sexual assaults in the United States.

Recent federally sponsored roundtables and forums have identified gaps in education and policies governing sexual assault response; however, further documentation and compilation of evidence-based best practices in sexual assault response and policy are still needed (U.S. Department of Justice [DOJ], 2010, 2011, 2012; Police Executive Research Forum, 2011). While standardized protocols, guides, and other helpful resources exist for these practitioners, every state, local, and tribal community has specific preferences and requirements (U.S DOJ, 2006, 2013). This disparity sometimes results in unnecessary differences in approaches to the collection of forensic evidence.

The focus of this project was to ensure that existing research, information, knowledge, and best practices are transferred or made broadly accessible to SANE/SAFE/SARTs and other healthcare and criminal justice practitioners. Specifically, the objectives were the following:

- Create awareness of the availability of evidence-based best practices for use as guidelines,
- Supply a system of outreach, education, and knowledge transfer,
- Assist in the development of effective best practices for the collection/processing of sexual assault forensic evidence, and
- Provide outreach and resources for development of policies that will maintain high-quality performance over time.

1.2 Approach

To achieve the project objectives, RTI conducted four key tasks. ***Exhibit 1*** summarizes these tasks, including the timeline for each.

- **Task 1 – Assess the status of SANE/SAFE/SART education and best practices.** To assess the current state of SANE/SAFE/SART education and training, the research team conducted a literature review that, although in-depth, was designed to identify the salient and representative reports and articles focused on the current response to the sexual assault landscape, and not intended to be completely comprehensive. During the literature review, RTI examined current research and training content (including federal agency training and technical assistance) and assessed the gaps in training and education needs. As a result, the

[1] Professionals who perform sexual assault forensic examinations are collectively referred to as sexual assault forensic examiners (SAFEs) or sexual assault examiners (SAEs). These professionals include specialized nurses (sexual assault nurse examiners, SANEs) or other medical professionals (physicians and registered nurses who are not SANE certified). A sexual assault response team (SART) is a group of professionals (e.g., medical, emergency response, law enforcement, crime laboratory, legal, and advocacy) that work collaboratively within a jurisdiction to treat sexual assault victims and investigate and prosecute sexual assault offenders. For the purpose of this report, all of these professionals are collectively referenced as SANE/SAFE/SART programs.

project team, including the consultants, determined that evidence collection, evidence analysis, evidence management, and victim-centric care (including telehealth and neurobiology of the victim) are four emerging topic areas in SANE/SAFE/SART practice that could benefit from further research and knowledge transfer. The literature review document was used as a vehicle for discussion and to present the current status of education and best practices in these four areas during the Federal and practitioner stakeholder meetings. A more detailed discussion of the topic areas is presented in ***Section 2***. The SANE/SAFE/SART literature review document is available in ***Appendix A.***

- **Task 2 – Convene meeting with Federal stakeholders**. This meeting was held on May 14, 2014, in Washington, D.C., at the RTI office. In addition to the RTI project staff and the four consultants, 12 individuals attended the federal stakeholder meeting with representation from the NIJ, U.S. Department of Interior, U.S. Peace Corps, U.S. Air Force, U.S. Department of Justice (DOJ -National Indian Country representative), Office on Violence against Women (OVW), Office for Victims of Crime (OVC), and the Indian Health Service (IHS). These federal stakeholders provided valuable insight on the current state and gaps in SANE/SAFE/SART research, training, and policies for the four focused topic areas. Furthermore, this group discussed special interest projects or initiatives associated with the response to sexual assault currently conducted by the Federal agencies represented at this meeting. Additional agencies such as the Bureau of Justice Assistance, U.S. Attorney's Office, Centers for Disease Control and Prevention, Bureau of Justice Statistics, and Substance Abuse and Mental Health Services Administration (i.e., SAMSHA) were also invited to send representatives to this meeting; however, these agencies declined for various reasons. A more detailed description of the meeting is described in ***Section 2.2.***
- **Task 3 – Convene SANE/SAFE/SART practitioner stakeholder meeting to discuss and identify best practices.** On July 14, 2014, RTI hosted 21 practitioner stakeholders at the RTI headquarters in Research Triangle Park (RTP), NC; three representatives from the NIJ also attended. Prior to the meeting, the stakeholders received a pre-meeting packet that contained the literature review document and other materials to facilitate the discussion. The practitioners discussed their own experiences and current practices, and identified gaps in training and education, as well as the need for best practices pertaining to the identified topic areas. A more detailed synopsis of this meeting is described in ***Section 2.3.***
- **Task 4 – Host, webcast, and archive a Policy and Practices Forum in Washington, D.C.** The final step of this project was to disseminate the project findings gathered from the literature review, Federal stakeholder meeting, and the SANE/SAFE/SART practitioner stakeholder meeting. On September 18, 2014, RTI hosted the *Best Practices for the National Response to Sexual Assault Investigations* policy forum at the Newseum in Washington, D.C. Registration was required for the forum, which included remote (i.e., online) and on-site attendees. The featured speakers represented areas of research, sexual assault response, and law enforcement, and are subject matter experts (SMEs) in emerging DNA technologies, sexual assault response training and evidence collection and victim-centric care approaches such as telemedicine and neurobiology. ***Section 2.4*** highlights the policy forum in more detail.

Exhibit 1. Key Tasks with Timeline

Step	Technical Approach	Timeline/ Date Accomplished
Step 1 – Assess the Status of SANE/SART Education and Best Practices	• Conducted a salient and representative literature review to gather information on SANE/SAFE/SART research, training content, curricula, and educational needs. • Reviewed research conducted on SANE/SAFE/SART, and reviewed federal agency training and technical assistance portfolios. • Developed a *Status of SANE/SAFE/SART Education* presentation/document (pre-meeting resource packet) to the participants in the Practitioners Stakeholders' meeting in preparation for the meeting.	January – May 2014
Step 2 – Convene Meeting with Federal Stakeholders	• Prepared a pre-meeting resource packet on the current status of SANE/SART training and policies governing sexual assault response in the United States and the purpose of the project; which included a PowerPoint presentation that summarized findings of the literature review for each topic area. • Facilitated a meeting of Federal stakeholders from various agencies and gathered input on the current gaps in SANE/SAFE/SART research, training and policies, as well as special initiatives for sexual assault response of participating federal agencies.	May 14, 2014
Step 3 – Convene SANE/SAFE/SART Practitioner Stakeholder Meeting to Identify Best Practices in the Four Topic Areas	• Developed an anonymous and open process for soliciting accurate stakeholder input throughout the project through an onsite meeting of a Practitioner Stakeholder Panel, Think Tank feedback tool, and follow-up email correspondence. • Presented a literature review with identified topic areas of further focus • Identified educational and policy implementation gaps, which determined a sufficient lack of best practices within SANE/SAFE/SART programs. • Identified the areas in need of research to promote evidence-based best practices, which will inform the development of effective training strategies and promote more standardized practices across the United States.	July 14, 2014
Step 4 – Host, webcast, and archive a Policy and Practices Forum in Washington, D.C.	• Held a two-hour Policy and Practices Forum with a national live cast component to convene a panel of experts who discussed successful methods and philosophies identified in the SANE/SAFE/SART knowledge and best practices report and action plan. • Archived the Policy and Practice Forum for continued dissemination.	September18, 2014

1.3 Project Team

SMEs were employed on the project as consultants to advise the RTI Team on existing research and training needs and best practices for SANE/SAFE/SART professionals. The SMEs were also tasked with providing support and assistance with the development of the content for the practitioner stakeholder meeting, including facilitating the discussion, and to provide input for the recommendations outlined in this report. ***Exhibit 2*** presents a list of the consultants, their professional affiliations, and their areas of expertise.

The consultants (i.e., SMEs) were chosen not only for their subject matter expertise, but also for their direct involvement in research and education for SANEs and other ancillary professionals. **Dr. Patricia Speck** is an internationally recognized family nurse practitioner expert who consults with a number of government and nonprofit organizations addressing sexual assault. **Ms. Eileen Allen** is the SANE program coordinator for the Monmouth County, New Jersey, prosecutor's office and is an adjunct faculty member at Monmouth University. **Ms. Diana Faugno** is a founding Board Director of End Violence Against Women International (EVAWI) and is extensively published in areas of sexual assault. **Dr. L. Kathleen Sekula**, is the Director of the Forensic Graduate Program School and a Professor at Duquesne University School of Nursing extensively involved in forensic nurse education. The full biographies for all four consultants are provided in ***Appendix B***.

Exhibit 2. Project Consultants

Consultant	Professional Affiliation	Areas of Expertise
Patricia Speck, , DNSc, APRN, FNP-BC, DF-IAFN, FAAFS, FAAN	University of Alabama-Birmingham, School of Nursing in the Department of Family, Community and Health-Systems	Sexual Assault Nurse Examiner Forensic nursing Violence and trauma
Eileen Allen, MSN, RN, FN-CSA, SANE-A, SANE-P	Office of the Monmouth County (NJ) Prosecutor, SANE Program Coordination	Sexual Assault Nurse Examiner Forensic nursing Interpersonal violence
Diana Faugno MSN, RN, CPN, SANE-A, SANE-P, FAAFS, DF-IAFN	Eisenhower Medical Center, and Barbara Sinatra Children's Center	Sexual Assault Nurse Examiner Forensic nursing Adolescent and adult sexual assault
L. Kathleen Sekula, PhD	Duquesne University	Forensic nursing Psychiatry

The RTI Team consists of **Dr. Jeri Ropero-Miller**, **Dr. Patricia Melton**, **Ms. Crystal Daye**, and **Ms. Olivia Rice**. Dr. Ropero-Miller is the Director of the FTCoE and, along with Dr. Melton and Ms. Daye, has extensive experience in leading, managing, and facilitating projects related to sexual assault and violence. ***Exhibit 3*** presents the members of the RTI Team, their professional affiliations, and their areas of expertise.

Exhibit 3. RTI Project Staff

Consultant	Professional Affiliation	Areas of Expertise
Jeri Ropero Miller, PhD, F-ABFT	RTI Center for Forensic Sciences	• FTCoE director • Project Director for sexual assault and SANE/SAFE/SART training and knowledge transfer projects • Conversant in drug facilitated sexual assault
Patricia Melton, PhD	RTI Center for Forensic Sciences	• Forensic DNA analysis, including experience in sexual assault casework • Courtroom testimony experience in sexual assault casework • Previous DNA laboratory liaison for SART team
Crystal Daye, MPA	RTI Center for Justice Safety and Resilience	• SANE/SAFE/SART and Law Enforcement training (including web-based and live events) • Project coordination for sexual assault and violence prevention projects • Outreach and dissemination
Olivia Rice	RTI's Education and Workforce Development Group	• Project management • Marketing • Event and logistics coordination • Training

2. FINDINGS

2.1 Literature Review

In order to meet the proposed objectives of this project, the project team conducted a literature review of current trends and practices within the SANE/SAFE/SART community when conducting sexual assault investigations. Although the review was very comprehensive, it was not intended to be exhaustive; rather, the objective of the literature review was to identify key emerging technologies, techniques, and trends.

After conducting the literature review and vetting the key findings with the project's four consultants, the following four focus areas were identified as the most emerging topics with training and knowledge transfer gaps:

- Evidence Collection
- Evidence Analysis
- Evidence Management
- Victim-Centric Care (including telehealth and neurobiology of the victim).

The literature review document is organized by these four focus areas. Each focus area presents a summary of the key findings, followed by a list of the relevant reports and articles, including citations and the key findings for each article/report. The literature review document also contains referenced research material beyond these four specific discussion areas, which are associated with evidence collection, evidence analysis, evidence management, and victim-centric care. Hence, reviewing the document and references within may lead to the identification of additional areas or subareas that could be revisited for knowledge promotion and dissemination. The full literature review is provided in ***Appendix A***. Throughout this report, many references were identified to form the content within several areas. These peer reviewed artciles and key reports, although not directly referenced within the report, are all located within the literature review.

2.1.1 Evidence Collection

Conducting the sexual assault examination is the key step for obtaining sexual assault evidence. Common clinical techniques and technologies used to document the presence of forensic evidence during a sexual assault exam are the swabbing of pertinent areas, the application of toluidine blue dye (TD) for the detection of injury/lesions, and the use of lubricants for insertion of the speculum. Although several other components and techniques are utilized to collect forensic evidence during the examination process, these three became the focal point for additional research and knowledge dissemination for the Evidence Collection focus area due to the conflicting or incomplete information available in the literature. Often, the common practices used in evidence collection for sexual assault cases are a result of decisions made with little to no research or proof beyond anecdotal reporting. Sometimes, regional policies are implemented and continue without challenge or improvement once newer advancements in practice are provided in the literature.

Swabbing Techniques

As indicated from the literature review document (see ***Appendix A***), there is a need for empirical-based evidence to decipher the area to swab within the vaginal cavity and the number of swabs to be collected. The few empirical studies that exist on this topic indicate that swabbing closer to

the cervix versus lower in the vaginal vault results in better sample collection. The traditional method of collecting multiple swabs, (i.e., some from the cervical area, some from the lower vaginal area) needs to be re-evaluated and updated with results from empirical research studies. In addition, as DNA analysis techniques have vastly changed and improved over time, the collection of multiple swabs may be detrimental to the analysis process. In situations where little evidentiary material has been left in the vaginal cavity, swabbing with multiple swabs may result in actually spreading the evidentiary material too thin across the swabs, resulting in poor DNA yields for analysis. The concept of "touch DNA evidence"[2] should also be clearly addressed during the sexual assault exam so that potential areas of additional evidence are not missed, such as in strangulation cases.

Toluidine Blue Dye Techniques

Toluidine blue dye (TD) is an effective tool in documenting the presence of anogenital injuries (e.g., abrasions and tears) that may not otherwise be detected. Lacerations expose deeper dermis, allowing the TD to bond to the tissue, thus making the injury more visible. While TD exposes injury, it should be noted that positive TD tests are not indicative of a sexual assault. Similarly, the educational knowledge and competency of medical practitioners who employ TD is not consistent on a national level. Based on information from the literature review, there appears to be confusion as to the application and effectiveness of using TD for injury documentation during the sexual assault exam.

Use of Lubricants

Lubricants are another factor to consider when conducting sexual assault examinations. Lubricants may be present as a result of the sexual assault (e.g., condom use). In addition, a non-spermicidal lubricant may be used during the forensic exam to remove TD from the anogenital region and to assist medical personnel with inserting a speculum when conducting vaginal exams. Although, saline and warm water are typically suggested to lubricate the speculum due to the potential spermicidal activity of other lubricants, studies listed in the literature review demonstrate that lubricants in general—whether spermicidal or not—have no adverse effect on DNA typing. However, some crime laboratories have directed agencies not to use lubricants during the sexual assault exam, which demonstrates a disconnection between research and practical application, as well as a lack of consideration for providing the best and most compassionate patient care.

There is a need for information dissemination discussing the use of TD and lubricants during the sexual assault exam and the effects on downstream DNA analysis. Furthermore, additional training and awareness is needed for medical and other sexual assault response personnel to clearly understand the purpose of using TD and lubricants during the examination process. The sexual assault response community needs to clearly understand that although both TD and lubricants are used for the documentation and collection of forensic evidence, these agents do not pose a risk for downstream analysis of forensic evidence.

2.1.2 Evidence Analysis

Current practice for some jurisdictions preclude collection of sexual assauly kits after 24 or 48 hours because the expection is that the DNA is unrecoverable after this time. A key finding from the literature review addressing innovating the DNA analysis techniques is the significantly improved results obtained from Y STR DNA analysis. Although Y STR analysis does not have the same statistical power as

[2] Touch DNA involves skin cells on evidence once the item is touched. A minimum number of skin cells from the outermorst layer of the skin is required for DNA analysis. See: http://www.nij.gov/journals/266/Pages/backlogs.aspx.

traditional autosomal STRs, the ability to detect the male-only contribution from the Y chromosome in situations where, previously, no results were obtained is extraordinary. Y STR DNA profiles can be obtained from swabs that were negative for sperm cytology, and Y STR profiles can be obtained from swabs that previously resulted in limited autosomal STR results. Of significant importance is the fact that Y STR profiles can be obtained from swabs that are collected days after the sexual assault. This ability to obtain evidentiary data from an extended collection time frame has vast ramifications on evidence policy, practice, and processing. Additional and continued research on collection time extension, increased sensitivity, and DNA recovery is needed.

Another key finding is the ability to co-isolate RNA and DNA for stain identification through RNA analysis followed by subsequent DNA analysis. The ability to utilize RNA for stain identification would replace the role of serology in the crime lab, where identification of the biological source of the DNA tested is still an important role in criminal investigation. Although still in developmental stages, the use of RNA for biological stain identification requires little additional laboratory equipment, provides accurate results, and streamlines the nucleic acid work flow, which may reduce total processing time for evidence. Continued research into this area would resolve some of the intricacies associated with this change in concept and assist in guidelines which will facilitate incorporation of this change into crime laboratories.

2.1.3 Evidence Management

Evidence management refers to the administration and control of property that may be related to a crime, which can then be used as physical evidence to help support the circumstances of an event. The collection of physical evidence[3] is a critical step in the evidence management process, but maintaining the integrity, and having a system in place to account for evidence through final disposition, is just as important. Systemic failures to properly account for evidence from collection through final disposition reduces the public's confidence in the criminal justice system to produce accurate and reliable testing results. With respect to crimes involving sexual assaults, evidence from sexual assault kits (SAKs)[4] can be utilized to corroborate that a crime occurred, identify or confirm the individual who committed the crime, and ascertain whether the perpetrator was involved in other crimes. In order to perform DNA or other forensic analyses, evidence must be collected from the victim utilizing a SAK.

In recent years, there have been numerous cases of law enforcement agencies discovering large quantities of SAKs that were never submitted to a forensic laboratory for DNA testing. Due to sustained investments in DNA technology over the past several years, laboratories can now perform testing and detect DNA at very low levels and in highly degraded samples, including SAKs that were once collected and pre-dated the advent of DNA testing. In some cases, law enforcement agencies are now finding large quantities of SAKs requiring them to assess and analyze the complex issue of processing and testing previously unsubmitted SAKs[5]. Insufficient controls in the evidence management process will

[3] Physical evidence: An actual, physical object retrieved from a scene that is used to corroborate that a crime was committed. It can include evidence obtained directly on or from an individual (e.g., hairs, fibers, latent fingerprints and biological material) or from the scene environment (e.g., jewelry, condom, clothing, a weapon).

[4] Sexual Assault Kit (SAK): a set of items used by medical personnel for the preservation of physical evidence collected from a person, living or deceased, following an allegation or suspicion of sexual assault.

[5] Unsubmitted SAK: SAKs that have not been submitted to the laboratory forensic laboratory for forensic testing and analysis. This would include SAKs that are being stored in the laboratory, but a request for analysis has not been made.

result in potentially devastating impacts on the criminal justice system. Therefore, a need has been identified to develop best practices to resolve and improve the evidence management process for unsubmitted SAKs as it relates to broader communications between law enforcement agencies, laboratories, and prosecutor offices.

Federally funded efforts aimed at processing untested sexual assault kits (SAKs)[6] have had positive impacts. Some notable examples include using standard, efficient processes and best practice models such as Lean Six Sigma, improved DNA technology, and post-analysis tracking data systems such as the CODIS Hit Outcome Project or "CHOP" (https://ncjrs.gov/pdffiles1/nij/241926.pdf). Some programs that have had initial success include programs for the Los Angeles Police Department, New Orleans Police Department, and Cleveland City Police. Evaluations of these programs have highlighted new leads in sexual assault cases; improved evidence management processes and tools; enacted policy related to the timing and management of sexual assault kit analysis and storage; and advanced emerging DNA analysis technologies. Hence, these innovative methods aimed to increase efficiencies in evidence processing are needed and have been successfully implemented in some jurisdictions, but these are not, yet, national realities.

2.1.4 Victim-Centric Care

In the late 1990s, as a response to the 1994 Violence Against Women Act, the Office of Violence Against Women (U.S. Department of Justice) established a National Protocol to create standards to impart timely services with a systematic focus on the needs and concerns of sexual assault victims in a compassionate, sensitive, and nonjudgmental manner. This "victim-centric care" approach ensures that a victim's wishes, safety, and welfare take priority in all matters and procedures, as indicated in the National Protocol (U.S. DOJ, 2013). Understanding the trauma of sexual assault survivors is an intrinsic part of victim-centric care. First responders, sexual assault examiners, advocates, and others are tasked with providing sexual assault survivors with the best, most thorough and compassionate care. For some remote locations and financially challenged areas, providing victim-centric care can be difficult. As a result, there is a growing interest in using telehealth as a means to necessitate innovative medical care for sexual assault victims. Through telemedicine technologies such as video conferencing, SANE practitioners and/or healthcare personnel who are less experienced in treating victims of sexual assault can gain access to the insights of more experienced SANE practitioners. Telemedicine networks allow the more experienced practitioners to support the forensic examination by overseeing the patient examination and providing second opinions in difficult cases. In addition, telehealth networks can potentially provide continuing medical education, peer review, and case monitoring services.

[6] Untested SAKs: SAKs that have been submitted to a forensic laboratory for forensic testing but have not yet been processed or tested.

Telehealth has been successfully implemented in other medical areas, such as critical care inpatient services, special needs care, and pediatrics. However, although telemedicine supports an overall improvement in patient care, the practice lacks guidelines related to privacy, testimony, and admissibility of evidence. There also needs to be more empirical-based research on the evaluation of 24/7/365 remote access to telemedicine programs and processes (e.g., real-time examinations, training, case review).

Defining Common Terms:

It is sometimes necessary to define terminology before a group discussion occurs to ensure everyone is relating their experience based on a consensus of the defined terms. This was the case for the discussion of telehealth.

The following definitions were shared and discussed further within the SANE/SAFE/SART practitioner meeting July 2014 to ensure a common understanding of terms.

Telemedicine: Health care services performed through telecommunications technology (e.g. video consultations with specialists; remote medical evaluations and diagnoses; the digital transmission of medical imaging).

Telecare: Post-investigation follow-up of patients through telecommunications technology, including telephones, computers and mobile monitoring devices, for continuous remote monitoring of patients and to promote a patient's independent living.

Telehealth: The combination of health information services at a distance (telecare), health care services (telemedicine), and health care education.

Another aspect of victim-centric care is how well first responders, law enforcement, healthcare, legal, and other ancillary personnel understand the neurobiological effect of a sexual assault event. Often, victims of sexual assault experience psychological side effects following the assault. These symptoms may resemble post-traumatic stress disorder (PTSD) and include depression, self-blame, guilt, shame, and an inability to fully recall the incident. There are also physiological responses to this type of trauma, including "tonic mobility," which is a state of paralysis that the victim experiences during an assault. Understanding a body's response to trauma related to sexual assault is critical to the criminal investigation, and failure to understand trauma-induced behaviors may result in case attrition, which often occurs early in the investigation because law enforcement does not understand a victim's neurobiological response. Lack of training and education may also result in secondary-victimization, in which the victim is re-traumatized because of "victim-blaming" or insensitive attitudes, beliefs, and behaviors from social-system personnel.

Understanding the neurobiology of the offender also impacts the sexual assault investigation. Similarly, education and training on general risk factors for sexual predators, various rape typologies, and neurobiological influences that motivate sexual offenders are important to incorporate into criminal justice programs to improve the response to sexual assault crimes.

2.2 Federal Stakeholder Meeting

On May 14, 2014, the FTCoE convened a 3-hour federal stakeholder meeting entitled, "Organizing and Transferring SANE/SAFE/SART Knowledge and Best Practices" at the RTI campus in Washington, D.C. This meeting brought together various individuals from Federal agencies that are dedicated to the development, advancement, and implementation of practices and policies that primarily address the response to sexual assault in the United States. The primary objectives of these discussions were to conduct an educational assessment of

SANE/SAFE/SART training programs to gather input on identified disparities in knowledge transfer, research, training, and policies.

This FTCoE effort focused on systemic challenges that impede the investigation of criminal sexual assaults in the United States, with a goal of creating an awareness of resources and ensuring that existing research, information, knowledge, and best practices are available and accessible to SANE/SAFE/SART and other practitioners who contribute to the nation's response to sexual assault. A critical step to achieving this goal was presenting the identified focus areas addressing evidence collection, evidence analysis, evidence management, and victim-centric care to Federal stakeholders and obtaining critical feedback. The insight and discussion at this meeting among this unique group of stakeholders provided evaluation of the current focus of this project and verified the relevance of the key themes.

Participants at the federal stakeholder meeting included the following:

- **Michelle Arbeit** (NIJ- National Institute of Justice)
- **Hannah Barcus** (NIJ Contractor)
- **Lindsay DePalma** (NIJ Contractor)
- **Danielle Weiss** (NIJ Contractor)
- **Ginger Baran** (OVW- Office on Violence against Women)
- **Charlotte Clark** (Department of Interior)
- **Beverly Cotton** (IHS –Indian Health Services)
- **Kellie Greene** (U.S. Peace Corps)
- **Leslie Hagan** (DOJ- Department of Justice, Executive Office for United States Attorneys)
- **Julie Lecea** (U.S. Air Force)
- **Kristina Rose** (OVC –Office for Victims of Crimes)
- **Marnie Shiels** (OVW –Office on Violence against Women)

Packets containing a list of the meeting attendees and their contact information, and a copy of the presentation, were provided to the meeting participants at the meeting. The four consultants—Ms. Diana Faugno, Ms. Patricia Speck, Ms. Eileen Allen, and Ms. Kathleen Sekula—as well as Ms. Rice and Ms. Daye from RTI, were available for the meeting remotely. The presentation and discussion were led by Drs. Ropero-Miller and Melton from RTI.

The following key themes were derived for this project and discussed at this meeting:

- **Evidence Collection: Conducting the Sexual Assault Examination** — Swabbing for sexual assault evidence, considerations for touch DNA analysis, and the role of TD and lubricants.
- **Evidence Analysis: Innovating DNA Analysis Technologies**— The sensitivity of Y-STR analysis and extension of the collection time for sexual assault evidence.
- **Evidence Management: Eliminating Untested Evidence** — Victim notification and demonstrated successful practices.
- **Victim-Centric Care: Neurobiology** — Trauma-informed care and investigative techniques with a neurobiology focus.

- **Victim-Centric Care: Telemedicine** — The current landscape of utilizing telemedicine.

These key themes were well received and identified as areas that could benefit from the objectives outlined in this project. Although much discussion was spent on the need for the standardization of sexual assault kits (SAKs), this specific topic was not added as an area to address within this project because it is the focal point of another NIJ-led working group (i.e., SAFER ACT). The conclusion of the meeting solidified the foundation of the key topics for the practitioner stakeholder meeting that was convened in July 2014.

In the interim time between the Federal stakeholder meeting (May 2014) and the SANE/SAFE/SART practitioner stakeholder meeting (July 2014), the RTI Team conducted further specific research within the topic areas based on the insight and feedback provided by the Federal stakeholders. This research focused on the objectives and scope of these themes for discussion at the SANE/SAFE/SART practitioner stakeholder meeting.

The notes and the presentation from the Federal stakeholder meeting are available on the FTCoE website at www.forensiccoe.org. The notes are also presented in ***Appendix C*** of this report.

2.3 SANE/SAFE/SART Practitioner Stakeholder Meeting

The SANE/SAFE/SART practitioner stakeholder meeting was held at RTI's main campus, located in RTP, NC, on July 14, 2014, from 8:30 a.m. to 4:00 p.m. This meeting was attended by 24 attendees, including staff from the NIJ, and professionals with backgrounds in sexual assault nurse examination, healthcare, forensic examination, research, law enforcement, and academia. See ***Appendix B*** for a complete list of meeting attendees. Invitees were selected based on recommendations from the project consultants, as well as from the RTI Team. Many of the attendees have established relationships with members of the RTI Team through various projects and professional meetings. It was critical to the success of the practitioner stakeholder meeting to invite practitioners from various professional backgrounds that participate in sexual assault criminal and forensic investigations. By including these professionals, the meeting captured a multidimensional discussion that presented experiences of criminal and forensic sexual assault investigations from several perspectives.

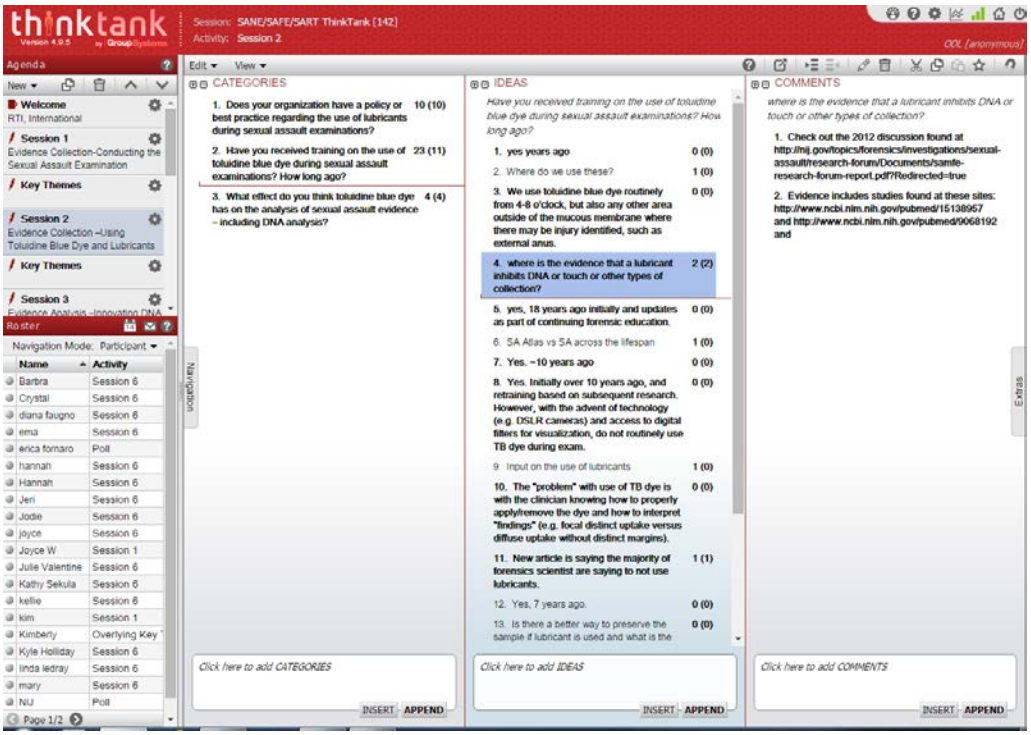
Prior to the meeting, each of the invited participants received a packet of pre-meeting materials to assist in preparation for the upcoming discussion. The pre-meeting packet included a list of attendees (along with a brief biography to demonstrate their interest and experience with the subject matter); the full literature review; the PowerPoint presentation, which outlined the background, goals, and objectives of the project; the four focus areas; and the expectations of the meeting. Leveraging the FTCoE's existing Adobe Connect platform, 5 of the 24 practitioners were able to attend the entire meeting remotely.

Project staff provided a brief introduction of each topic area to the practitioners, which included a description of the topic area and the key findings from the literature review. Because the practitioners had received the detailed literature review document in their pre-meeting packet, the discussion was structured around a practical account of the current state for each topic. Therefore, following the introduction from project staff, a more detailed description about the current practices and research for

each topic area was given by a participant in the meeting with expertise for that given area. For example, Dr. Rebecca Campbell, known for her research in the area of neurobiology, presented information on the latest research on the neurobiology of trauma and the importance of providing training on the subject matter to nurses, law enforcement officers, and anyone part of a SART. Discussions were initiated through the use of the ThinkTank tool, which allows for anonymous posting of comments in response to specific questions. A more detailed description of the ThinkTank tool is described below. This tool was used to "get the ball rolling" for discussion, however; the majority of conversation, which included in-depth commentary, real-life experiences, and sharing of current information from all of the participants, took place in a dynamic, engaged atmosphere outside of the Think Tank tool.

2.3.1 ThinkTank

Once the topic was introduced to the practitioners, RTI used ThinkTank to pose discussion questions and to help practitioners think through and contribute ideas and input regarding a specific subject matter. ThinkTank is a collaboration software tool (see screenshot) that is powered by a patented Collaboration-as-a-Service platform. The secure, web-based tool requires a username and passcode, which project staff provided prior to the initial use of the tool. Participants were presented with questions to answer; participants could also respond anonymously to other participant's posts.



During discussion of each topic, practitioners were given 10 to 15 minutes to respond to pre-determined questions and address comments and questions posed by other meeting participants. The ThinkTank discussion room was left open for 1 week following the meeting, in the event that meeting participants wanted to provide further commentary and/or review some of the discussion. The questions presented to the participants are as follows:

- **Evidence Collection-Conducting the Sexual Assault Examination**
  - What is your policy for the location and number of (vaginal) swabs collected?

  - Do you have a policy that addresses "touch" DNA evidence?

- **Evidence Collection –Using Toluidine Blue Dye and Lubricants**
  - Does your organization have a policy or best practice regarding the use of lubricants during sexual assault examinations?
  - Have you received training on the use of toluidine blue dye during sexual assault examinations? How long ago?
  - What effect do you think toluidine blue dye has on the analysis of sexual assault evidence including DNA analysis?

- **Evidence Analysis –Innovating DNA Analysis Techniques**
  - Does your organization have a policy or best practice that considers the enhanced sensitivity of Y–STR analysis?
  - Does your organization have a policy or best practice that addresses extended collection time for sexual assault kits?

- **Evidence Management**
  - What other technologies/programs/policies are you aware of that have been successful in addressing the issue of untested SAKs sitting in labs for an extended period of time?
  - What are the barriers to evidence management? How can they be (or are they being) addressed?
  - What other considerations are there when a SAK has been tested after a delayed amount of time; for example, victim notification?

- **Victim-Centric Care -Neurobiology**
  - What are the challenges you have experienced interacting with victims post-assault?
  - Do you think the case attrition due to the neurobiological effects of sexual assault is high, average, or negligible in your jurisdiction?
  - Have you been trained in providing victim-centric care services, for example, interviewing techniques?

- **Victim-Centric Care –the growing practice of Telehealth**
  - Do you believe the terms "telehealth," "telecare" and "telemedicine" are interchangeable?
  - What level of Telehealth is actively practiced in your jurisdiction for clinical treatment of sexual assault victims?
  - What are the major challenges for implementing telemedicine for victim-centric care of sexual assault victims?
  - What question will be most important to answer with the evaluation of telemedicine for sexual assault?

The key outcomes from this discussion were formulated into the recommendations presented in ***Section 3*** of this report; several points are worth addressing at this time. First, it was clearly demonstrated through the discussions that a concise best practice for these topics does not exist. Agencies across the country have very different procedures, despite the utilization of the National Protocol (U.S. DOJ, 2013). Most likely, this is because several areas in the National Protocol refer to following the jurisdictional procedure, which varies greatly from region to region. An excellent question that was raised during the discussion was, "Is there something that can be done to make the process of evidence collection easier, better, and more consistent across states?" Additionally, several areas of discussion pertaining to the topics demonstrated a dire need for research, clarification, or policy development, as indicated by the points listed below:

- Vaginal swabbing: How many swabs are being collected and where to swab? Training needed on how to properly swab the area.

- Discussion and clarification of the terminology between external and internal genitalia needed; there is some confusion between what the medical terminology considers external/internal and what the law considers external/internal.
- No specific structured policies to address touch DNA samples. Touch DNA collection may be directed by the history taken from the victim, but no specific policy to address how to collect and address the concerns for prevention of contamination.
- There appears to be no best practice/policy addressing Y STR typing. Currently, the time frame to collect varies from state to state, and policy will need to address that every state is on an expanded collection time and has the resources/education to address the changes associated with this expanded time frame.
- Questions remain for evidence retention; "What are we going to keep?", "How are we going to keep it?", and "Do we need to keep everything or is it just the clothing specimens that come back from the lab, and does everything else get destroyed after a period of time?"
- Consistency in nomenclature and terminology is needed; for example. with telehealth/telemedicine, there was inconsistency in the definition of these terms.

During the entire discussion, one theme that kept emerging was the need for interdisciplinary collaboration among academics, researchers, and practitioners, including all areas of sexual assault response. Open communication across the different agencies—from sexual assault nurses and response teams to law enforcement to the laboratory and, finally, to the legal community—is required in order to meet the needs of the sexual assault victim.

At the conclusion of the meeting, participants received a post-meeting survey to measure the stakeholders' interest in the topic areas and to determine whether they felt the meeting was meaningful. Overall, the participants' response to the practitioner stakeholder meeting was positive, with most rating their interest in the topic of Organizing and Transferring SANE/SAFE/SART Knowledge and Best Practices as "very high" or "high." All of the participants were likely to share the content from this meeting with their colleagues, agency, or other practitioners. Responses to the question, "What was the biggest benefit of attending this meeting?", included

- The recognition that there are a myriad of responses among the states regarding the process of sexual assault examinations.
- The ability to engage in open/honest discussion of the issues.
- The opportunity to contribute and participate in this very important project; learn where there is the greatest/least amount of consensus regarding practice; learn about what others are doing in their geographic region and within their programs (especially the unique research initiatives); and network.

The survey also provided an opportunity to capture training gaps that were not discussed at the meeting but that should be addressed in SANE/SAFE/SART knowledge transfer and best practices.

Responses to this question included the following:

- Best practices for using technology during evidence collection (e.g., digital photography and using the colposcope);
- Best practices for the crime laboratory in evidence analysis; and
- Incorporating the perspective of the patient into sexual assault examination best practices.

Audio and all documents from the SANE/SAFE/SART practitioner stakeholder meeting have been archived and are available on the FTCoE website, www.forensiccoe.org. Interested parties may listen to the audio file, either in its entirety or by specific topic area, or download the PowerPoint or the transcript.

2.4 Best Practices for the National Response to Sexual Assault Investigations Policy Forum

On September 18, the FTCoE held the policy and practice forum, "Best Practices for the National Response to Sexual Assault Investigations" in Washington, D.C., at the Newseum. This forum focused on emerging techniques and developments identified in stakeholder meetings and literature reviews associated with evidence collection training; evidence analysis utilizing Y-STR capabilities; victim-centric care approaches, including understanding the neurobiology of the victim in sexual assault and the emerging practice of telehealth; and key factors that are essential to policy change. This forum was designed to disseminate in volume the results of a comprehensive effort to organize and transfer knowledge and best practices of SANE/SAFE/SART to address systemic challenges that impede the investigation of criminal sexual assaults in the United States. The policy forum presentations discussed the development of best practices for resolving issues related to sexual assault, and showcased emerging technologies associated with the collection and analysis of sexual assault evidence. The policy forum presenters included researchers, practitioners, and stakeholders who are thoroughly involved in the development and implementation of policies that address the current challenges associated with the investigation of sexual assault.

Opening remarks for the policy forum were presented by Mr. Gerry LaPorte from the NIJ. These remarks were followed by an introduction to the significance of this project by the FTCoE Director, Dr. Ropero-Miller. The keynote speaker was Dr. Jack Ballantyne from the University of South Florida. The presentation and topics of the policy forum are shown in ***Exhibit 4***. Full biographies for the presenters are located in ***Appendix D***.

In addition to hosting in-person attendees, RTI also live-streamed the Policy Forum through the FTCoE Adobe Connect platform. On-site registration included nearly 80 attendees, and on-line registration was over 200. The questions taken during the discussion session from both on-site and on-line registrants were relevant to policy development centered on the topics presented. In addition, the chat pod, which was visible to the on-site participants on a large screen, was heavily engaged, with on-line participants from all over the country commenting on current policies, as well as the need for modified polices that address the research presented in the policy forum.

In summary, the policy forum was attended by hundreds of practitioners and stakeholders who are dedicated to addressing the challenges associated with a national response to sexual assault. This method of knowledge dissemination involved a live, real-time, web-based platform that was highly effective and initiated discussion across jurisdictions and the country. The ability to present exceptionally relevant and cutting-edge information from this diverse group of researchers, sexual

assault practitioners, law enforcement, and Federal stakeholders had a powerful impact on the considerations for policy development to improve sexual assault investigation on a national level.

Exhibit 4. "Best Practices for the National Response to Sexual Assault Investigations" Policy & Practice Forum Presenters

Presenter	Professional Affiliation	Forum Presentation and Topic
Jack Ballantyne, PhD	• University of Central Florida • Associate Director of the National Center for Forensic Science in Orlando, Florida	The Recovery of DNA Profiles from the Semen Donor In Extended Interval Post Coital Samples
Kristina Rose	Deputy Director, Office for Victims of Crime	Using Telemedicine to Enhance Care for Sexual Assault Victims
Eileen Allen	Office of the Monmouth County (NJ) Prosecutor, SANE Program Coordinator	Evidence Collection: Challenges from the Training Perspective
Patricia Speck, PhD	University of Alabama-Birmingham School of Nursing in the Department of Family, Community and Health-Systems	Neurobiological Trauma Effects
Shamara Garner	Lieutenant, Houston Police Department	How Houston is Developing Best Practices for its Response to Sexual Assaults

3. RECOMMENDATIONS

The events conducted within the scope of this project, including the discussions in both the Federal stakeholder meeting and the SANE/SAFE/SART practitioner stakeholder meeting, clearly demonstrated that the following specific areas need to be addressed within the SANE/SAFE/SART community to progress in the ability to respond to sexual assault in the nation:

- Create awareness of the availability of evidence-based best practices for use as guidelines;
- Provide a system of communication, collaboration, education, and knowledge transfer;
- Assist in the development of effective best practices for the collection/processing of sexual assault forensic evidence; and
- Provide resources for development of policies that will maintain high-quality performance over time.

Although additional objectives most certainly exist, this report highlights the objectives—now formulated into recommendations—that were determined to be of utmost importance at this time. Undoubtedly, additional needs can be designated under these objectives in the future. Often, recommendations are presented without direction or support to proceed forward. In this report, we have taken that next step by providing suggested strategies that can facilitate the recommendation into action. These suggested strategies are designed to transform therecommendations into actions thereby enhancing the adoption of best practices in the community.

Recommendation 1: Create awareness of the availability of evidence-based best practices for use in guidelines

Through the process of the literature review and the extensive discussions that took place during the stakeholder sessions, very few "best practices" could actually be clearly identified. Although there is an abundance of anecdotal evidence to support the processes that work best with the patient, there is little peer-reviewed published research to provide objective, evidence-based best practices**.**

Strategy: Conduct more research to establish evidence-based best practices for procedures that were traditionally only anecdotally determined. Provide a mechanism for the dissemination and create awareness of these derived best practices. Some example research questions to corroborate best practice within the SANE/SAFE/SART community are included under Recommendation 3.

Recommendation 2: Provide a system of communication, collaboration, education, and knowledge transfer that can be maintained and updated

Although several previous programs have released excellent educational components that, at the time, were effective, no mechanism was implemented for long-term maintenance of these items when location and funding becomes obsolete—both in content and functionality. Therefore, there exists a need for current and relevant educational materials that are available to all practitioners; that are flexible in the format for which they are used; and that have the ability to be updated and modified as appropriate. In order to achieve this objective, we must encourage and assist professional nursing organizations to review and revise core domains and performance measures for forensic nurses. In addition, we need to garner support for the development of a conceptual curriculum in forensic nursing at all education levels. This curriculum should be established around a variety of methods, including case studies and simulation of laboratory exercises. The long-term maintenance of these educational items must include a mechanism for modification and update, as well as dissemination through delivery systems that are easily accessible by practitioners in a wide range of settings. In addition to nursing professionals, there needs to be a system of education and knowledge transfer for law enforcement and

other professionals within the criminal justice community that have a vested interested in the investigation of sexual assault cases. For example, after conducting research among law enforcement professionals, Dr. Campbell identified a training gap in educating these professionals about the neurobiology of trauma in patient practice. This education gap included a lack of understanding of what is actually happening to victims, as well as their behavior and ability to recall events. Once this education gap was identified, Dr. Campbell was able to successfully educate members of the Houston Police Department on victim neurobiology, and the department has since implemented this training into their officer training program.

***Strategy**:* Develop an educational outreach system that is created with input from professional organizations vested in SARTs (e.g., nursing, law enforcement, victim services, legal); is easily accessible to medical, forensic, and criminal justice practitioners on a variety of platforms; and has the fluidity to be updated over time. Training across multiple disciplines on victim-centric care for survivors of sexual assault is critical.

Recommendation 3: Develop evidence-based best practices for the collection and processing of sexual assault forensic evidence.

As discovered in the meeting discussions, the standard operating procedures (SOPs) that exist across the country for the collection of sexual assault evidence by a forensic nurse examiner vary greatly. This lack of consistency is distressing considering that the evidence collection stage is essential to downstream laboratory processing and prosecution of a sexual assault case. The creation of a detailed, standardized, streamlined process for the collection and processing of evidence samples is needed to remove inefficient or non-essential processes that have been left to the determination of local agencies. However, the policies and procedures that replace inadequate SOPs need to be evidence-based and therefore derived from research. An excellent example of a successful change in sample collection based in research is the elimination of the painful and distressing practice of pulling head and pubic hair standards from victims of sexual assault.

Collaborative research conducted by clinicians and laboratory scientists that promotes the validation of procedures and tools is essential to the evolution of best practices and fills a critical need in the community. An agency such as the FTCoE is superbly positioned to coordinate and supervise the dissemination of research to the sexual assault community, further facilitating the derivation of best practices.

The following were identified as several key areas in evidence collection that require additional research:

- Type and number of swabs that should be used for the collection of biological samples
- Use of lubricants during the sexual assault exam
- Application techniques for TD
- Future identification of other chemicals suitable to enhance identification and visualization of injuries
- Use of alternative light sources
- Evaluation of intentional and unintentional injuries.

In addition to these key areas, it was clearly noted that, in many instances, best practices and policies are not in place to account for emerging DNA technologies, such as the increased sensitivity of Y STR analysis and the potential for touch DNA analysis (e.g., for use in strangulation cases).

Strategy: Assist in the development of consensus documents based on peer-reviewed research, with input from practitioners, to derive best practices for evidence collection during the sexual assault examination.

Recommendation 4: Provide outreach and resources for development of policies that will maintain high-quality performance over time.

It was clearly demonstrated in the meeting discussions that a central repository for resources relevant to sexual assault training, education and best practices that focuses on the education and knowledge gaps identified in this report is needed. This repository will be structured to maximize accessibility by practitioners, and the content must be modifiable, fluid and dynamic so as to maintain the most relevant and current information. The repository should be governed by a professional agency dedicated to the national response to sexual assault. This design would ensure that the content meets the standards and requirements of the sexual assault response community and would become a "one-stop" location for all current and relevant information pertaining to the response to sexual assault. In the event that the assigned professional agency would need to relinquish governance to another agency, the repository would be structured for easy relocation and prevention of loss. Overtime, this repository will hold a wealth and variety of information invaluable to the sexual assault community, therefore a long-term secured commitment for establishment is necessary.

An identified gap in knowledge which was heavily discussed throughout the stages of this project was the inconsistency in terminology used by sexual assault practitioners across the different disciplines. The inability to clearly communicate across the multiple disciplines results in substantial barriers for the resolution of sexual assault cases. This report only briefly highlighted one such example; the discussion of the definition and use of telehealth, telemedicine and telecare within a victim centric care approach. It was evident within that discussion that ambiguity exists around those terms even within the SANE/SAFE/SART group, obviously once translated to other forensic sexual assault disciplines, the confusion becomes even greater.

This communication gap can only be resolved through the development of a centralized, multidisciplinary accepted terminology which is available, learned, accepted and utilized by all disciplines involved in the response to sexual assault. The development of common terminology can first be addressed through the establishment of a glossary for collective terms used by forensic practitioners.

Strategy: Initiate the development of this repository by first creating a centralized glossary with a focus on establishing a common terminology for practitioners associated with the response to sexual assault. This would be a pilot project that will lay the foundation for a larger repository containing additional literature, education, training, best practice and policy development resources.

4. SUMMARY

Although recent federally sponsored roundtables and forums have identified gaps in education and policies governing the response to sexual assault, further detailed investigation and documentation is required to elucidate and determine the best practices for the response to sexual assault in the SANE/SAFE/SART community. This project embarked to address the following objectives:

- Create awareness of the availability of evidence-based best practices for use as guidelines
- Supply a system of outreach, education, and knowledge transfer
- Assist in the development of effective best practices for the collection/processing of sexual assault forensic evidence

- Provide outreach and resources for development of policies that will maintain high-quality performance over time.

In order to meet each of these objectives, this project was organized into four key tasks that collectively brought together experts in the fields of research; SANE/SAFE/SART practitioners; law enforcement professionals; and representatives from Federal agencies. This group of stakeholders is heavily invested in improving the national response to sexual assault. Through the discussions conducted at the Federal stakeholder meeting and the SANE/SAFE/SART practitioner stakeholder meeting, definite gaps in policy development and knowledge were identified and discussed. Furthermore, recommendations and strategies to address these shortcomings were derived; thus, the groundwork has been established to push past the current barriers and move forward with the development of resources for best practices and policies for compassionate and effective responses to sexual assault. In addition, the project team felt it important to disseminate the findings of this work quickly and effectively to the largest audience possible. This dissemination was achieved through the live and web-based broadcast of the policy forum, which is also available as a referenced archive at www.forensiccoe.org for additional audiences.

In order to establish the starting point for a continuum of discussion, outreach, and education, the entire process of this project is archived on the FTCoE website (www.forensiccoe.org) so that future endeavors from various groups may reference this project and build from the information presented.

A startling conclusion drawn from the SANE/SAFE/SART practitioner meeting was the level of disconnect and disparity among procedures and the lack of concise best practices for the key topic areas triaged by the RTI project team. Through this process, however, the team was able to identify clear research and policy needs that, once addressed, will shape the national response to sexual assault for the better. As this project initiated a collaborative interaction among key researchers, sexual assault nurse practitioners, and law enforcement, all of the project participants—from the Federal stakeholder meeting, through the SANE/SAFE/SART practitioner stakeholder meeting, and culminating with the policy forum—were excited to engage within this multidisciplinary approach. This project has identified the research and educational needs associated with the national response to sexual assault for derivation of policy development, and furthermore, has initiated strategies to address these needs, thus laying the groundwork for the next steps to build and derive best practices associated with the key topics outlined in this report.

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Appendix A. Literature Review Document

NIJ Forensic Technology Center of Excellence
Award Number 2011-DN-BX-K564

Organizing and Transferring SANE/SAFE/SART Knowledge and Best Practices: Literature Review Summary

July 2014

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Introduction

At the request of the National Institute of Justice (NIJ), the Forensic Technology Center of Excellence (FTCoE, Award: 2011-DN-BX-K564) is executing a series of tasks that will represent a focused federal effort to organize and transfer SANE/SAFE/SART knowledge and best practices to address systemic challenges that impede the investigation of criminal sexual assaults in the United States. Considerable work has been done by the U.S. Department of Justice (DOJ) and other authorities (e.g., Department of Defense, Health and Human Services, etc.) to produce information and knowledge that can be transferred to sexual assault nurse examiners (SANEs), sexual assault forensic examiners (SAFEs) and sexual assault response teams (SARTs) to ensure accessibility to the knowledge and resources necessary to maximize effectiveness during the course of a criminal investigation.

Recent federally sponsored roundtables and forums[1-4] have identified gaps in education and policies governing sexual assault response, however; further documentation and compilation of proven best practices in sexual assault response and policy are still needed. While standardized protocols, guides, and other helpful resources exist for these practitioners, every state, local, and tribal community has specific preferences and requirements. This disparity sometimes results in unnecessary differences in approaches to the collection of forensic evidence.

The focus of this project is to ensure that existing research, information, knowledge, and best practices are transferred or made broadly accessible to SANE/SAFE/SARTs and other healthcare and criminal justice practitioners. Specifically, the objectives are to:

- Create awareness of the availability of proven best practices for use as guidelines
- Supply a system of outreach, education and knowledge transfer
- Assist in the development of effective best practices for the collection/processing of sexual assault forensic evidence
- Provide outreach and resources for development of policies which will maintain high quality performance over time

Recent Roundtables and Forums

1 Eliminating the Rape Kit Backlog: A Roundtable to Explore a Victim-Centered Approach. Washington, DC. May 11 – 12, 2010. http://www.ovw.usdoj.gov/docs/rape-kit-roundtable-summary-10262010.pdf

2 Sexual Violence Research Roundtable. Arlington, Virginia. September 8–9, 2011. http://www.ovw.usdoj.gov/docs/svrr-meeting.pdf.

3 Sexual Assault Medical Forensic Examination Research Forum: Summary of Research Questions Identified. Washington, D.C. March 28-29, 2012. http://www.nij.gov/nij/topics/forensics/investigations/sexual-assault/research-forum/welcome.htm.

4 Critical Issues in Policing Series: Improving the Police Response To Sexual Assault. Washington, D.C. Washington, D.C. September 23, 2011. http://www.policeforum.org/assets/docs/Critical_Issues_Series.pdf

With these objectives in mind, the FTCoE conducted a literature review of current issues and best practices facing the SANE/SAFE/SART community. The literature review was not intended to be exhaustive. The objective of the literature review was to identify *key* emerging technologies, techniques, and trends. The key findings from the literature review have been organized into the following four areas:

- Evidence Collection
- Evidence Analysis
- Evidence Management
- Victim-Centric Care

For the purpose of this literature review, terms are used interchangeably and reflect the authors' choices of language within a particular publication.

I. Evidence Collection

Overview

Empirical-based evidence is needed on where to swab within the vaginal cavity and how many swabs should be collected as very few studies exist. These studies indicate that swabbing closer to the cervix versus lower in the vaginal vault is better. The traditional method of collecting multiple swabs, some from the cervical area, some from the lower vaginal area, needs to be re-evaluated and updated with results from research studies. In addition, as DNA analysis techniques have vastly changed and improved, the collection of multiple swabs may actually be detrimental to the analysis process. In situations where little evidentiary material has been left, multiple swabbings may result in actually spreading the material too thin across the multiple swabs. The concept of "touch DNA evidence" should also be clearly addressed during the exam so that potential areas of additional evidence are not missed, such as in strangulation cases.

Collecting forensic evidence is perhaps the most important component of conducting sexual assault examinations. Among others, swabs, toluidine blue dye, and lubricants are several clinical techniques and technologies used to document the presence of evidence during these examinations. Toluidine blue dye (TD) is an effective tool in documenting the presence of anogenital injuries (e.g., abrasions and tears) that may not otherwise be detected. Lacerations expose deeper dermis, allowing the dye to bond to tissue, thus making the injury more visible. While TD exposes injury, it should be noted that positive TD tests are not indicative of a sexual assault. Lubricants are another factor to consider when conducting sexual assault examinations. Lubricants may be present as a result of the sexual assault (i.e. condom use). In addition, a non-spermicidal lubricant may be used during the forensic exam to remove TD from the anogenital region and to assist medical personnel with inserting a speculum when conducting vaginal exams. Although saline and warm water are suggested to lubricate the speculum due to the potential spermicidal activity of other lubricants, studies show that lubricants in general, whether spermicidal or not, have no adverse effect on DNA typing.

More information sharing is needed on the use of TD on DNA analysis so that crime laboratory personnel are able to clearly understand how TD may impact DNA analysis. More training and awareness is also needed for law enforcement, medical, and other judicial personnel to clearly understand the purpose of using TD and lubricants during the examination. For example, both TD and lubricants agents are used solely for the documentation and collection of forensic evidence and do not pose a risk for contamination of forensic evidence for analysis.

Reference Reports

1. **International Association of Forensic Nurses. (2013). Atlas of Sexual Violence. T. Henry (Ed.). Mosby. ISBN: 978-1-4377-2783-8.**

web-link not available

Description from the Publisher:

The ideal clinical companion for evaluating and documenting sexual violence, Atlas of Sexual Violence reflects the field's most up-to-date research and clinical practice. It reviews current practices for providing patient care to adolescent and adult victims of sexual violence, and uses diverse photographs to show variances related to race and age. Coverage of wound identification and terminology helps in accurate interpretation, documentation, and courtroom testimony. From the International Association of Forensic Nurses (IAFN) and Tara Henry, a nationally known forensic nursing expert, this book is a durable, portable guide suitable for anyone who deals with cases of suspected sexual assault, including health care providers, social workers, attorneys, and law enforcement personnel.

2. **Giardino, A., Datner, E.M., Asher, J.B., Girardin, B.W., Faugno, D.K., and Spencer, M.J. (2003). Sexual Assault: Victimization Across the Life Span. STM Learning, Inc. ISBN-13: 978-1878060624.**

web-link not available

Description from the Publisher:

Sexual Assault: Victimization Across the Life Span is the essential desk reference for anyone treating or investigating sexual assault. New research, case studies, and full-color photos aid in the evaluation, care, and follow-up treatment of sexual assault victims.

3. **Corum, V and Carroll, J. (2014). Forensic Analysts' Perspectives: Sexual Assault Kits Under the Microscope. Journal of Forensic Nursing, 10(1), 50-57. DOI: 10.1097/JFN.0000000000000022.**

web-link not available

Key Findings:

1) The primary purpose of the SANEs forensic medical exam is to "provide comprehensive, compassionate" care. The secondary purpose is to collect and preserve DNA evidence and document a detailed history of the event.
2) Proper collection of DNA evidence during the sexual assault examination, as well as the SANEs documentation of the history of events, has a critical role in the investigation and prosecution of the case.

3) Suggested guidelines for nurses obtaining, preparing, and packaging evidence samples, include:
   (a) Consider secondary and/or potential touch evidence.
      - Areas where perpetrator's saliva may be present: kissed or licked areas; and bite marks
      - Areas of fluorescence seen with alternative light source
   (b) Lubricants used during speculum insertion may
      - prevent swabs from drying thoroughly;
      - promote bacteria growth; and
      - interfere with trace analysis for condom lubricant
   (c) Do not collect too many swabs from one area.
      - Dilutes sample and analysts prefer concentrated sample.
      - If more than one swab from an area is needed document the order in which swabs taken
   (d) When packaging evidence
      - If placing more than one swab in same box, face in same direction
      - Package all swab boxes in separate envelopes, label, and seal.
      - Allow wet items time to dry before packaging.
      - Package clothing items separately to prevent cross-contamination.

4. Roberts, J. (2013). Roberts and Hedges' Clinical Procedures in Emergency Medicine, 6th Edition. Saunders ISBN: 978-1-4557-0606-8.

web-link not available

Key Findings:

1) Obtain standard specimens during inspection of the external genitalia, rectum, vagina, and cervix.
2) Lubricate the speculum with warm water rather than other lubricants because of the potential spermicidal activity of lubricants. However, if lubricants are inadvertently used, the potential for corruption of DNA evidence should be negligible.

5. Brownlow, R.J., Dagnall, K.E., Ames, C.E. (2011). A Comparison of DNA Collection and Retrieval from Two Swab Types (Cotton and Nylon Flocked Swab) when Processed Using Three QIAGEN Extraction Methods. J Forensic Sci., 57(3), 713-717. DOI: 10.1111/j.1556-4029.2011.02022.x

www.ncbi.nlm.nih.gov/pubmed/22211626

Key Findings:

1) Comparison of cotton swabs and nylon flocked swabs.
2) Three different extraction platforms were used in the study.
3) EZ1 robot, QIAcube and QIAamp DNA investigator kit.
4) Cotton swabs with spin column extractions were the best.
5) Nylon swab with EZ1 robot was the worst.

6. **Benschop, C.C., Wiebosch, D.C., Kloosterman, A.D., Sijen, T. (2010). Post-coital vaginal sampling with nylon flocked swabs improves DNA typing. Forensic Sci Int Genet., 4(2), 115-121. DOI: 10.1016/j.fsigen.2009.07.003**
http://www.ncbi.nlm.nih.gov/pubmed/20129470

Key Findings:

1) In this study, nylon flocked swabs provided better DNA yields and retained less cellular material on the swab than cotton swabs.
2) This study was conducted only with a chelex DNA extraction.
3) In additional, nylon flocked swabs which yielded negative results with RSID semen and RSID PSA tests, in approximately half of the cases still yielded male STR data.
4) These results support the use of nylon flocked swabs with chelex DNA extraction.

7. **Anderson, S.L., Parker, B.J., Bourguignon, C.M. (2009). Predictors of genital injury after nonconsensual intercourse. Adv Emerg Nurs J., 31(3), 236-247. DOI: 10.1097/TME.0b013e3181afd306.**
http://www.ncbi.nlm.nih.gov/pubmed/20118876

Key Findings:

1) Toluidine blue dye helps to document sexual assault suvivors injuries that are not visible to the naked eye.
2) In this study, 80 women recieved forensic exams 48 hours following consesual and nonconsensual sex to determine if injury pattern in the genital area are different depending on the type of intercourse.
3) Toluidine blue dye was applied to the external genetalia, as "damaged epithelial cells are more likely to take up toluidine blue dye, which helps distinguish acute injuries or breaks in the skin."
4) The nonconsensual group had more sites of tears, abrasions, and swelling than the consensual group.

8. **Drocton, P., Sachs, C., Chu, L., Wheeler, M. (2008). Validation set correlates of anogenital injury after sexual assault. Acad Emerg Med., 15(3), 231-238. DOI: 10.1111/j.1553-2712.2008.00050.x**
http://www.ncbi.nlm.nih.gov/pubmed/18304053

Key Findings:

1) The use of Toluidine blue dye, among other sexual assault examination tools, was studied to document anogenital injury (e.g., abrasions, tears, or ecchymosis).
2) Approximately 50% of the victims examined, displayd anogenital injury through the use of toluidine blue dye, colposcopy, and/or gross inspection.

3) TD proved to be an effective tool in documenting anoogenital injury that may not otherwise be detected.

9. **Morgan, J.A. (2008). Comparison of cervical os versus vaginal evidentiary findings during sexual assault exam. J Emerg Nurs, 34(2):102-105. DOI: 10.1016/j.jen.2007.04.022**
http://www.ncbi.nlm.nih.gov/pubmed/18358345

Key Findings:

1) Ohio Dept of Health: standardized sexual assault kit, where 4 swabs are obtained, 2 from the vaginal pool fluid and 2 from the cervical area.
2) Comparison was made between cervical os swabs and vaginal pool swabs.
3) Estimated average time between assault and sample collection was 20 hours (36 kits)
4) Samples were collected by a SANE.
5) 44% were positive for semen on both the cervical os and the vaginal pool swabs.
6) 8% were positive for semen ONLY on the cervical os swabs.
7) Indicative that evidence is present in the cervical os longer than the vaginal pool, and therefore can still be obtained.
8) Policies should include collection of cervical os swabs.

10. **Sommers, M.S., Fargo, J.D., Baker, R.B., Fisher, B.S., Buschur, C., Zink, T.M., (2009). Health disparities in the forensic sexual assault examination related to skin color. J Forensic Nurs., 5(4), 191-200. DOI: 10.1111/j.1939-3938.2009.01054.x**
http://www.ncbi.nlm.nih.gov/pubmed/19947958

Key Findings:

1) To determine if anogenital injury prevalance and frequency varied by skin color in women after consenual sex, SAFEs conducted visual exams and used colposcopes and toluidine blue dye to document the number, type and location of the injuries.
2) The study concludes that SAFEs may not be able to detect injuries in darker skinned women vs. lighter skinned women.
3) Because darker skinned women have anogenital injuries that are harder to detect, they are more disadvantaged with medical care following sexual assault.

11. **Hochmeister, M.N., Whelan, M., Borer, U.V., Gehrig, C., Binda, S., Berzianovich, A., Rauch, E., Dirnhofer, R. (1997). Effects of toluidine Blue and Destaining Reagents Used in Sexual Assault Examination on the Ability to Obtain DNA Profiles from Postcoital Vaginal Swabs. J.Forensic Sci., 42(2), 316-319.**
http://www.ncbi.nlm.nih.gov/pubmed/9068192

Key Findings:

1) Toluidine blue dye shows positive to laceration or injury because the lacerations expose deeper dermis, allowing the dye to bond to tissue.
2) Positive toluidine blue tests are not conclusive evidence of sexual assault. Sexual assault examiners should also be aware of other reasons for trauma to the gentalia besides sexual assault.
3) Toluidine blue dye has been found to be spermicidal, but there has been no evidence of possible effects of the reagenst to DNA typing from postcoital swabs.
4) This study determine that the DNA from sperm and nonsperm cells exposed to reagents are still amenable to typing.
5) In addition, different brands of lubricants used during the exam did not interfere with DNA typing.

12. Hampton, H.L. (1995). Care of the Woman Who Has Been Raped. N Engl J Med, 332, 234-237. DOI: 10.1056/NEJM199501263320407

http://www.nejm.org/doi/full/10.1056/NEJM199501263320407

Key Findings:

1) Only saline should be used for lubrication of the speculum.

II. Evidence Analysis

Introduction

A key finding under innovating DNA analysis is the significantly improved results obtained with Y STR DNA analysis. Although Y STR analysis does not have the same statistical power as traditional autosomal STRs, the ability to detect the male only contribution from the Y chromosome in situations where previously no results were obtained is extraordinary. Y STR DNA profiles can be obtained from swabs which were negative for sperm cytology and Y STR profiles can be obtained from swabs which previously resulted in limited autosomal STR results. Of significant importance is the fact that Y STR profiles can be obtained from swabs which are collected days after the sexual assault. This ability to obtain evidentiary data from an extended collection time frame has vast ramifications on evidence policy, practice and processing. Additional and continued research on collection time extension, increased sensitivity and DNA recovery is needed.

Another key finding is the ability to co-isolate RNA and DNA for stain identification through RNA analysis followed by subsequent DNA analysis. The application of using RNA for biological stain identification requires little additional laboratory equipment, provides accurate results and streamlines the nucleic acid work flow which may reduce total processing time for evidence.

Reference Reports

1. Ballantyne, J. (2013, February). DNA Profiling of the Semen Donor in Extended Interval Post-Coital Samples. Prepared for the U.S. Department of Justice.

https://www.ncjrs.gov/pdffiles1/nij/grants/241299.pdf

Key Findings:

1) Developed a 17 locus Y chromosome specific nested PCR amplification protocol.
2) This protocol allows for the specific pre-amplification of the target region of the Y chromosome, which in conjunction with commercial Y STR kits, results in an increase in Y STR signal.
3) The nested primers flank the regions commonly used in all commercially available Y STR kits.
4) The second amplification occurs with the commercial Y STR kit of choice.
5) This procedure can produce Y STR results in situations where very little male DNA is present.
6) This protocol has the potential to produce Y STR results in touch DNA samples and in post coital samples obtained >5 days after intercourse (6-9 days).
7) Significant increase in timeframe for post coital swabs.
8) Protocol includes extract purification and concentration step.
9) Full Y STR profiles obtained from 5-10 pg of male DNA.

2. Ballantyne, J., van Daal, A., Lubenow, H. (2013, February). Improved Detection of Male DNA in Post-Coital Samples. Prepared for the U.S. Department of Justice.

https://www.ncjrs.gov/pdffiles1/nij/grants/241298.pdf

Key Findings:

1) Developmental validation of the 17 locus Y chromosomal specific nested PCR amplification protocol.
2) Full amplification of Y STR profiles with approximately 5 pg of male DNA (roughly 1 diploid cell).
3) Protocol has no interference from female DNA even in large excess.
4) Y STR profiles obtained from touch DNA samples.
5) Y STR profiles obtained from post coital swabs taken >5 days after intercourse.
6) Other methods evaluated, including Whole Genome Amplification (WGA) but nested PCR protocol provided the best results.
7) Protocol also tested against other body fluids and tissue.

3. DeMoors, A., Georgalis, T., Armstrong, G., Modler, J., Fregeau, C.J. (2013). Sperm Hy-LiterTM: An effective tool for the detection of spermatozoa in sexual assault exhibits. Forensic Sci Int Genet., 7(3), 367-379. DOI: 10.1016/j.fsigen.2013.02.011

www.ncbi.nlm.nih.gov/pubmed/23571070

Key Findings:

1) This study describes a protocol to minimization of costs associated with using the Sperm Hy-Liter kit for the detection of sperm from sexual assault swabs.
2) Protocol also describes a method for enhanced sperm counts and simplified examination.
3) Assay is highly specific for human sperm and more sensitive than traditional microscopy.
4) Robustness of the assay and increased ease and sensitivity provide a substantial method for reducing the time spent on sperm searches.

4. Haas, C., Hanson, E., Anjos, M.J., Banemann, R., Berti, A., Borges, E., Carracedo, A., Carvalho, M., Courts, C., De Cock, G., Dotsch, M., Flynn, S., gomes, I., Hollard, C., Hjort, B., Hoff-Olsen, P., Hribikova, K., Lindenbergh, A., Ludes, B., Maronas, O., McCallum, N., Moore, D., Morling, N., Niederstatter, H., Noel, F., Parson, W., Popieiarz, C., Rapone, C., Roeder, A.D., Ruiz, Y., Sauer, E., Schneider, P.M., Sijen, T., Court, D.S., Sviezena, B., Turanska, M., Vidaki, A., Zatkalikova, L., Ballantyne, J. (2013). RNA/DNA co-analysis from human saliva and semen stains--results of a third collaborative EDNAP exercise. Forensic Sci Int Genet., 7(2), 230-239. DOI: 10.1016/j.fsigen.2012.10.011

http://www.ncbi.nlm.nih.gov/pubmed/23165093

Key Findings:

1) Studies conducted by European DNA profiling group (EDNAP).
2) 16/20 different laboratories which used different platforms were able to isolate and detect mRNA in dried biological fluid stains.
3) mRNA markers were used to identify the biological fluid (blood, semen, saliva).
4) DNA was co-extracted from the sample, a full STR profile of the donor was obtained.
5) mRNA stain identification is compatible with current DNA analysis methodologies.
6) Method is reproducible and sensitive, (0.05 µl of liquid stain).

5. Ingemann-Hansen, O., Charles, A.V., (2013). Forensic medical examination of adolescent and adult victims of sexual violence. Best Pract Res Clin Obstet Gynaecol., 27(1), 91-102. DOI: 10.1016/j.bpobgyn.2012.08.014

www.ncbi.nlm.nih.gov/pubmed/23036587

Key Findings:

1) Examination and care of victim must be carried out by a trained examiner in an appropriate setting.
2) Forensic examiner must be objective with specialized skills.
3) Article addresses skill set required and provides recommendations on conducting forensic exams.
4) Consensus on time limitations for forensic evidence collection is lacking.

6. Jakubowska, J. Maciejewska, A., Pawlowski, R., Bielawski, K.P. (2013). mRNA profiling for vaginal fluid and menstrual blood identification. Forensic Sci Int Genet., 7(2), 272-278. DOI: 10.1016/j.fsigen.2012.11.005

www.ncbi.nlm.nih.gov/pubmed/23273817

Key Findings:

1) Develop and evaluate a specific test for vaginal fluid.
2) This study included detection of vaginal mRNAs and Lactobacilli.
3) Markers developed included a marker specific for menstrual blood and one to distinguish between 2 types of lactobacilli.
4) Hexaplex marker system.
5) Detection was successful in stains that were 2 years old stored at RT.
6) Specific among various women and with mixtures of semen and blood.

7. Planty, M., Langton, L., Krebs, C., Berzofsky, M., Smiley-McDonald, H. (2013, March). Female Victims of Sexual Violence, 1994-2010. Prepared for the U.S. Department of Justice, Office of Justice Programs, Bureau of Justice Statistics.

www.bjs.gov/content/pub/pdf/fvsv9410.pdf

Key Findings:

1) Between 1995-2010, the annual rate of sexual assault against females declined 58%.
2) From 2005-2010, 78% sexual assaults were committed by a family member , intimate partner, friend or acquaintance.
3) Approximately 80% of sexually assaulted females receved treatment for injuries in a hospital, doctor's office, or emergency room between 2005-2010.
4) Between 2005-2010, about 23% of rape or sexual assault victims received help or advice from a victim service agency.
5) "The percentage of females who were injured during a rape or sexual assault and received some type of treatment for their injuries increased from 26% in 1994-98 to 35% in 2005-10."
6) In 2010, 35% of female rape and sexual assault victims reported the crime to police, compared to 29% in 1995.

9. Ballantyne, K.N., Keerl, V., Wollstein, A., Choi, Y., Zuniga, S.B., Ralf, A., Vermeulen, M., de Knijff, P., Kayser, M. (2012). A new future of forensic Y-chromosome analysis: Rapidly mutating Y-STRs for differentiating male relatives and paternal lineages. Forensic Sci Int Genet, 6(2), 208-218. DOI: 10.1016/j.fsigen.2011.04.017

web-link not available

Key Findings:

1) The current 9-17 Y STRs used in forensics have adequate resolution to distinguish between different parental lineages, however are inadequate to distinguish individuals within a linage or in populations with low Y chromosome diversity.
2) The inability to distinguish makes within the same paternal lineage with Y STRs, results in the failure to draw forensic conclusions at the individual level.
3) Rapidly Mutating Y STRs (RM T STRs) yield within paternal lineage resolution.
4) Provide a significant increase of male differentiation, powerful enough to separate closely related males (50% of father/sons and 60% brother/brother in study).

10. Garvin, A.M., Fisher, A., Schnee-Griese, J., Jelinski, A., Bottinelli, M., Soldate, G., Tubio, M., Castella, V. Monney, N., Malik, N., Madrid, M. (2012). Isolating DNA from sexual assault cases: a comparison of standard methods with a nuclease-based approach. Investig Genet., 3(25). DOI: 10.1186/2041-2223-3-25

www.investigativegenetics.com/content/3/1/25

Key Findings:

1) In sexual assault swabs, large quantities of the female epithelial cells can interfere with processing the male sperm cells.
2) An alternate process to the traditional differential extraction would be to remove by digestion any residual female DNA remaining after separation of the cell types.
3) This “nuclease” approach has been commercialized in the Erase Sperm Isolation Kit.
4) In all samples types tested, the male fraction treated with the sperm erase kit produced as good or better results than what was obtained with traditional methods.

11. **Haas, C., Hanson, E., Anjos, M.J., Bar, W., Banemann, R., Berti, A., Borges, E., Bouakaze, C., Carracedo, A., Carvalho, M., Castella, V., Choma, A., De Cock, G., Dotsch, M., Hoff-Olsen, P., Johansen, P., Kohlmeier, F., Lindenbergh, P.A., Ludes, B., Maronas, O., Moore, D., Morerod, M.L., Morling, N., Niederstatter, H., Noel, F., Parson, W., Patel, G., Popielarz, C., Salata, E., Schneider, P.M., Sigjen, T., SvieZena, B., Turanska, M., Zatkalikova, L., Ballantyne, J.(2012). RNA/DNA co-analysis from blood stains--results of a second collaborative EDNAP exercise. Forensic Sci Int Genet., 6(1), 70-80. DOI: 10.1016/j.fsigen.2011.02.004**
www.ncbi.nlm.nih.gov/pubmed/21459062

Key Findings:

1) Studies conducted by European DNA profiling group (EDNAP).
2) Blood stains tested were human and mock casework samples human and nonhuman.
3) 18/20 laboratories were able to identify the stains as blood using mRNA markers.
4) 13/20 laboratories co-isolated DNA and RNA, were able to obtain full STR profiles after identification of the biological stain as blood.
5) mRNA stain identification is compatible with current DNA analysis methodologies.
6) Method is reproducible and sensitive.

12. **Hudlow, W.R., Buoncristiani, M.R. (2012). Development of a rapid, 96-well alkaline based differential DNA extraction method for sexual assault evidence. Forensic Sci Int Genet., 6(1), 1-16. DOI: 10.1016/j.fsigen.2010.12.015**
www.ncbi.nlm.nih.gov/pubmed/21288791

Key Findings:

1) Alternative method for obtaining DNA profiles from sexual assault samples.
2) Method utilizes a 96 well plate format, which can be easily automated.
3) Sodium hydroxide based differential extraction method developed, which provides extracts from a 96 well plate in 4 hours, significant reduction in time for extraction.
4) Current procedure with reduction in time does not require automation.
5) A modification of the procedure is utilized to obtain residual sperm material from previously extracted swabs.

14. **Jakovski, Z., Jankova, R., Nikolava, K., Spasevska, L., Jovanovic, R., Janeska, B. (2011). Forensic DNA expertise of incest in early period of pregnancy. J Forensic Leg Med., 18(1), 34-37. DOI: 10.1016/j.jflm.2010.11.012**
www.ncbi.nlm.nih.gov/pubmed/21216379

Key Findings:

1) Use of products of conception or aborted tissue as forensic evidence for incest cases.
2) The important factor is the morphological discrimination of the tissue to separate mother and fetal cells, followed by STR analysis.

15. **Kondili, A., Miniati, P. (2011). Prenatal samples used as DNA evidence in rape cases. Forensic Science International: Genetics Supplement Series, 3(1), e548-e549. DOI: 10.1016/j.fsigss.2011.10.016**
www.sciencedirect.com/science/article/pii/S1875176811002733

Key Findings:

1) Prenatal samples can be used as DNA evidence once paternal origin is established.
2) This article covers two cases of sexual abuse which use amniotic fluid of the product of conception as forensic evidence.

16. **Romero, M.L., Martinez, R.H., Perez, M.A., Arguello, G.R. (2011). Relationship of spermatoscopy, prostatic acid phosphatase activity and prostate-specific antigen p30) assays with further DNA typing in forensic samples from rape cases. Forensic Sci Int., 206(1-3), 111-118. DOI: 10.1016/j.forsciint.2010.07.012**
www.ncbi.nlm.nih.gov/pubmed/20692115

Key Findings:

1) The use of sperm cytology (SC), acid phosphatase activity (APA) and Prostrate specific antigen (PSA) to detect seminal markers on sexual assault swabs as a predictor of Y STR success.
2) Study conducted in non US countries, indicates that SC and APA were the best predictors of success for Y STR typing.
3) The difference observed among the laboratories may well be a result of different testing techniques used to detect SC, APA and PSA.

18. National Intimate Partner and Sexual Violence Survey - 2010 Summary Report

www.cdc.gov/violencePrevention/NISVS/index.html

Key Findings:

1) Strategies must be developed which effectively prevent first time perpetration of sexual violence, stalking and intimate partner violence.
2) What are the social and economic conditions that increase risk?
3) Research on how to best disseminate and implement prevention strategies must also be considered.

19. Taylor, T. (2010). Extending the Time to Collect DNA in Sexual Assault Cases. Prepared for the NIJ Journal No. 267.

http://www.nij.gov/journals/267/Pages/extending.aspx

Key Findings:

1) Current STR autosomal DNA strategies require the sexual assault sample to be obtained within 3 days.
2) Although the preferred method for DNA profiling is autosomal STRs, in situations where a autosomal STR result cannot be obtained, a different technology is required, Y STR analysis.
3) Although not as statistical powerful as autosomal STRs, Y STR can provide a result from male DNA in situations of: few or fragile sperm, mixtures of male and female body fluids other than semen (e.g. saliva/saliva) or when there is more than one male donor.
4) Law enforcement should not strictly adhere to a "3 day collection" rule as Y STR technology can provide valuable probative information beyond 3 days.
5) In addition, techniques developed to increase Y STR signal may be evaluated against autosomal STR analysis, perhaps increasing the timeframe to obtain a result.
6) These new technologies will impact sexual assault policy greatly.

20. Mayntz-Press, K.A., Sims, L. M., Hall, A., Ballantyne, J. (2008). Y-STR Profiling in Extended Interval (≥3 days) Postcoital Cervicovaginal Samples. J Forensic Sci, 53(2), 342-348. DOI: 10.1111/j.1556-4029.2008.00666.x

www.blackwell-synergy.com

Key Findings:

1) Full Y STR profiles obtained routinely at 3-4 days postcoitus.
2) Partial Y STR profiles obtained at 5-6 days postcoitus.
3) Evaluated 2 DNA extraction methods; differential lysis was superior.
4) Detection of an 8 locus Y STR profile at 7 days postcoitus, indicative of potential to sample beyond the previously accepted limit of 7 days.
5) Evaluated a post PCR purification step; improved Y STR signal.
6) Evaluation of the commercially available Y STR kits of 2008.
7) NOTE: precedes 2013 articles.

21. Ballantyne, K.N., van Oorschot, R.A., Mitchell, R.J. (2007). Comparison of two whole genome amplification methods for STR genotyping of LCN and degraded DNA samples. Forensic Sci Int., 166(1), 35-41.

www.ncbi.nlm.nih.gov/pubmed/16687226

Key Findings:

1) Evaluation of two commercial WGA kits, GenomePlex and GenomiPhi on LCN and degraded samples.
2) Both kits increased the number of genomes available.
3) Low level limit was 10pg, full STR profiles were obtained.
4) Degraded DNA was generated via restriction enzymes, WGA was applied, STR typing results had increased stutter alleles and amplification bias.
5) WGA has the potential to improve obtaining STR profiles from degraded and LCN forensic samples.

22. Saners, C.T., Sanchez, N., Ballantyne, J., Peterson, D.A. (2006). Laser microdissection separation of pure spermatozoa from epithelial cells for short tandem repeat analysis. J Forensic Sci., 51(4), 748-757.

www.ncbi.nlm.nih.gov/pubmed/16882215

Key Findings:

1) Laser microdissection has the ability to selectively remove sperm cells from a mixed sample consisting of both female epithelial cells and male sperm cells.
2) Laser microdissection is available in few forensic science laboratories.
3) This study evaluated various histological stains, to determine a stain which performed best and did not impact downstream DNA analysis.
4) Different DNA extraction methods were evaluated on the isolated sperm cells.
5) Clear single source male STR profiles were obtained from the DNA extracted from the isolated cells.

23. Hanson, E.K., Ballantyne, J. (2005). Whole genome ampliWcation strategy for forensic genetic analysis using single or few cell equivalents of genomic DNA. Analytical Biochemistry, 346(2), 246–257. DOI: 10.1016/j.ab.2005.08.017

http://www.sciencedirect.com/science/article/pii/S0003269705005932

Key Findings:

1) Low copy number samples (<100pg of genomic DNA) often fall below detectable sensitivity limits.
2) In theory, if the number of starting genomes could be increased prior to STR analysis data may be obtained.
3) WGA (whole genome amplification) was applied in this study.
4) A successful method which employs “improved primer extension preamplification PCR” (mIPEP) was developed resulting in complete autosomal STR and Y STR profiles with 5 pg of template DNA.
5) If the mIPEP step is omitted profiles are not obtained.

24. Elliott, K., Hill, D.S., Lambert, C., Burroughes, T.R., Gill, P. (2004). Use of laser microdissection greatly improves the recovery of DNA from sperm on microscope slides International Congress Series, 1261,45-47.

www.ncbi.nlm.nih.gov/pubmed/14550610

Key Findings:

1) Laser microdissection is available in a few labs, some of which are commercial.
2) Laser Capture Microdissection can isolate individual sperm cells from a slide.
3) Technique is ideally used on slides which contain very few sperm.
4) Allows for DNA extraction of the sperm cells without complications from the female cells.
5) NOTE: precedes 2006 article.

25. A Victim-Centric Approach

http://www.ncbi.nlm.nih.gov/pubmed/11909666

Key Findings:

1) For sexual assault cases which resulted in negative cytology for sperm, DNA profiles were still obtained from the male perpetrator using Y STR analysis.
2) Approximately in 30% of the cases tested with negative cytology yielded Y STR data.
3) In the subset of cases in which the exam was conducted >48 hours after the assault, approximately 30% yielded Y STR data.
4) Failure to detect sperm via cytological means does not exclude the presence of non-sperm cells from the perpetrator.

26. Cloutier, S., Martin, S., Poole, C. (2002). Sexual assault among North Carolina women: prevalence and health risk factors. J Epidemiol Community Health, 56(4), 265-271. DOI: 10.1136/jech.56.4.265

www.ncbi.nlm.nih.gov/pmc/articles/PMC1732116/

Key Findings:

1) Lifetime prevalence of sexual assault was 19%, 73% of these victims experienced or were threatened with forced sexual intercourse.
2) These victims were more likely to perceive their general health as being poor.
3) They were also more likely to have suffered poor physical and mental health within the last month.
4) These victims were more likely to smoke cigarettes, have hypertension, high cholesterol or be obese.
5) Conclusion: there is an association between sexual victimization and health risk factors.

III. Evidence Management

Introduction

Evidence management refers to the administration and control of property that may be related to a crime, which can then be used as physical evidence to help support the circumstances of an event. The collection of physical evidence is a critical step in the evidence management process, but maintaining the integrity, and having a system in place to account for evidence through final disposition, is just as important. Systemic failures to properly account for evidence from collection through final disposition reduces the public's confidence in the criminal justice system to produce accurate and reliable testing results. With respect to crimes involving sexual assaults, evidence from sexual assault kits (SAKs) can be utilized to corroborate that a crime occurred, identify or confirm the individual who committed the crime, and ascertain whether the perpetrator was involved in other crimes. In order to perform DNA or other forensic analyses, evidence must be collected from the victim utilizing a SAK.

In recent years, there have been numerous cases of law enforcement agencies discovering large quantities of SAKs that were never submitted to a forensic laboratory for DNA testing. Due to sustained investments in DNA technology over the past several years, laboratories can now perform testing and detect DNA at very low levels and in highly degraded samples, including SAKs that were once collected and pre-dated the advent of DNA testing. In some cases, law enforcement agencies are now finding large quantities of SAKs requiring them to assess and analyze the complex issue of processing and testing previously unsubmitted SAKs. Insufficient controls in the evidence management process will result in potentially devastating impacts on the criminal justice system. Therefore, a need has been identified to develop best practices to resolve and improve the evidence management process for unsubmitted SAKs as it relates to broader communications between law enforcement agencies, laboratories, and prosecutor offices.

Federally funded efforts aimed at processing untested sexual assault kits (SAKs) have had positive impacts. Some notable examples include using standard, efficient processes and best practice models such as Lean Six Sigma, improved DNA technology, and post-analysis tracking data systems such as the CODIS Hit Outcome Project or "CHOP" (https://ncjrs.gov/pdffiles1/nij/241926.pdf). Some programs that have had initial success include programs for the Los Angeles Police Department, New Orleans Police Department, and Cleveland City Police. Evaluations of these programs have highlighted new leads in sexual assault cases; improved evidence management processes and tools; enacted policy related to the timing and management of sexual assault kit analysis and storage; and advanced emerging DNA analysis technologies. Hence, these innovative methods aimed to increase efficiencies in evidence processing are needed and have been successfully implemented in some jurisdictions, but these are not, yet, national realities.

Reference Reports

1. Anthony, K. (2014, February). Memphis has largest backlog of untested rape kits in US. Prepared for America Now.

http://www.americanownews.com/story/24705256/memphis-partners-with-national-foundation-to-process-more-than-12000-untested-rape-kits

Key Findings:

1) City of Memphis is joining forces with Joyful Hearts Foundation to process more than 12K untested kits.
2) Joyful Hearts touted Memphis as one of the only cities to actually request a partnership to fix the problem.
3) Joyful Hearts is also launching an investigation to figure out how the backlog problem started.

2. Ericksen, B. (2013, October). Why Test Rape Kits After the Statute of Limitations Has Expired? A Victim-Centric Approach. Prepared for the National Center for Victims of Crime.

http://victimsofcrime.org/docs/sak-backlog-laws/why-test-expired-kits-victim-centric.pdf?sfvrsn=2

Key Findings:

1) Testing kits after statue of limitations can provide the victim with the answers and validation they deserve and prevent further victimization.
2) Victims can also get their day in court and prevent further victimization of others.

3. Swavola, Elizabeth . (2014). Progress Ahead as More States Consider Proactive Rape Kit Reforms. End the Backlog. [www.endthebacklog.org]

http://www.endthebacklog.org/news/progress-ahead-more-states-consider-proactive-rape-kit-reforms

Key Findings:

1) In 2010 Illinois, Texas, and Colorado mandated testing of all rape kits booked into police evidence.
2) To prevent future backlogs, California introduced legislation to amend the "Sexual Assault Victims' DNA Bill of Rights".
3) Tennessee introduced legislation requiring law enforcement agencies to submit an inventory of previously untested kits by 7/1/15.
4) Illinois was first to do what TN has proposed (in 12/13, IL announced their backlog of 4,100 kits had been cleared).
5) One flaw in the law is that there are no defined repercussions for non-compliant agencies.
6) Texas and Colorado also have similar legislation as Illinois.
7) New Jersey and Oklahoma are likely to introduce legislation soon.

4. (2013, October). Should we "test anonymous kits?" Prepared for End Violence Against Women International.

https://www.evawintl.org/images/uploads/TB%20Testing%20FC%20Kits%20FORMATTED%2010-15-13.pdf

Key Findings:

1) "Anonymous Kits" - evidence collected and documented during a medical forensic exam with a victim who has not yet personally reported to law enforcement.
2) Term "anonymous" is therefore used to reflect the assumption that the victim's identity will not be associated with the evidence; however, evidence is not typically anonymous.
3) The VAWA requires jurisdictions to offer sexual assault victims access to medical forensic exam 1) free of charge and 2) regardless of whether or not they decide to participate in the criminal justice process - total anonymity is not required.
4) Alternate term many jurisdictions (including the military) is "restricted reports".
5) Phrase "testing kits" usually refers to submission of evidence to a crime lab with assumption crime lab will 1) examine biological samples, 2) identify foreign DNA profiles, and 3) submit foreign profiles to DNA databank.
6) Important to note that SAKs include other forms of evidence, not just DNA (such as photos, statements, clothing, etc); 1/4 of SAKs ID foreign DNA on the clothes rather than the victim.
7) Evidence from restricted SAKs should not be submitted to crime labs for analysis; and DNA profiles should not be identified or submitted to the databank - for 3 reasons: 1) victims have not consented and if tested before consent, law enforcement may try to coerce victim to move forward; 2) no crime report documented (i.e. not reallly "evidence" until law enforcement declares crime - just "biological samples"); and 3) consensual partners have not been excluded (hits may not be applicable to the assault).
8) SARTs need to confirm that protocol and documentation of consent forms is appropriate and clear... covered in their OnLine Training Institute (OLTI).

5. (May, 2013.) FY 2013 DNA Backlog Reduction Program. Prepared for the National Institute of Justice.

http://www.nij.gov/topics/forensics/lab-operations/evidence-backlogs/Pages/backlog-reduction-program.aspx

Key Findings:

1) 2013 Grant RFP.
2) Expected to award up to $75M under the FY13 program.
3) POP expected to be 10/13-3/15.
4) notes recently-enacted legislation - Katie Sepich Enhanded DNA Collection Act of 2012 - signed into law on Jan 10, 2013 and authorizes the AG to award grants to States to assist with the costs of implementing a "DNA Arrestee Collection Process".

6. Berkowitz, S., (2013, June). High Court's DNA ruling will help catch rapist. Prepared for RAINN for CNN.

www.cnn.com/2013/05/29/opinion/berkowitz-dna-rape-cases

Key Findings:

1) Recent case Maryland vs King reached Supreme Court where they found that collecting DNA of suspects is not a 4th amendment right violation.

7. Culp-Ressler, T., (2013). If we want to take Sexual Assault Seriously, we need to test thousands of Rape Kits. Prepared for Think Progress.

http://thinkprogress.org/health/2013/12/10/3040811/rape-kit-backlog-joyful-heart/

Key Findings:

1) Article talks about backlog problem.
2) Mentions Joyful Hearts (advocacy started by Mariska Hargitay from L&O:SVU).
3) "End the Backlog" is an effort to pressure states and cities to address the estimated 400K rape kits left untested.
4) Talks about 2 places kits get stalled: police storage facilities and crime labs.
5) Notes that few states require tracking of the rape kits that they've received.
6) Highlights initiatives in Cleveland, New York City, Detroit, Ohio, Illinois, Texas, Colorado.
7) 3 goals of End the Backlog: 1) state laws to track, count, and test this evidence, 2) pressure authorities to follow-up, and 3) move toward victim-centered approach.
8) Reasons they site police departments don't submit evidence include cultural factors, focusing on the victim rather than the perp, and subjective judgements.

8. Moldavan, K., (2013, September). Forensic Compliance in Colorado: An Examination of System Response to Sexual Assault. Prepared for the Colorado Coalition Against Sexual Assault, State of Colorado Division of Criminal Justice.

www.ccasa.org/wp-content/uploads/2013/.../FCEP-Rpt-v04-Web.pdf

Key Findings:

1) Evaluation of the implementation of the forensic compliance laws mandated through the federal Violence Against Women Act (VAWA) in 2005.
2) Law states victims can access critical medical services without cost or without having to make an immediate decision regarding participation in the criminal justice system.
3) 3 primary research objectives: 1) examine case outcomes of Colorado's forensic compliance 2008 statutory changes; 2) detect challenges and identify gaps for medical reporting victims in the implementation of the laws among 4 primary responding units (medical, advocacy, law enforecment, and prosecuters); and 3) evaluate the effectiveness and clarity of current CO statues related to the response to adult SA victims.

4) Recommendations in 6 categories: 1) convene a statewide, multidisciplinary committee, 2) statutory changes, 3) policy/protocol development, 4) training needs, 5) outreach/education, and 6) further research.

9. Nelson, M. (2012). Analysis of Untested Sexual Assault Kits in New Orleans. NIJ Journal 272, PDF Report, 1-12.

https://www.ncjrs.gov/pdffiles1/nij/242312.pdf

Key Findings:

1) Final report for a project b/n NIJ, NOPD, the Louisiana State Police Crime Laboratory (LSPCL), and Marshall University Forensic Science Center (MUFSC) that kicked-off Janary 2011.
2) 2 goals for the project: testing the SAKs and entering any resulting profiles in CODIS hits that had not been followed up on.
3) NOPD agreed to supply at least 60 SAKs each month for testing - NOPD established a system to ensure that all evidence from each case was present at the time of submissions, that the case had not been previously adjudicated, that the statute of limitations had not expired, and that the evidence was not from a case that the victim did not want law enforcement to pursue.
4) NOPD created a Cold Case Sex Crimes Unit in Jan 2011 with Detective Francis Jarrott becoming the unit's original member.
5) They tested 1008 SAKs during project with 256 yielding Male DNA loaded into CODIS, and 139 hits (higher than the LA project b/c different jurisdiction, rules, etc), 40 crimes were closed - with 16 by warrant and 24 by arrest, and 6 adjudicated - each resulting with convictions w/ 20+ years.
6) Specialized software known as CHOP (CODIS Hit Outcome Project) tracks CODIS hits so that all stakeholders can locate information and deal with bottlenecks and delays.
7) To help follow-up on other CODIS hits after seeing success, a pilot project was started where detectives were paid overtime to follow-up on CODIS hits (90 cases dispositioned, $5000 in OT); Pilot went well, so now they have JAG grant from BJA to pay overtime to investigate for CODIS hits, as well as training detectives to collect CODIS-hit samples.
8) Recommendations: 1) Expand "CHOP" software to more jurisdictions nationwide - provides accountability for following up on CODIS hits; 2) Implement and install evidence tracking systems - computerized system for the permanent retention of investigators decisions regarding SAK analysis to increase transparency and accountability (also see LA backlog study for more info on this system).

10. Petersen, J., Johnson, D., Herz, D., Graziano, L., Oehler, T. (2012, June). Sexual Assault Kit Backlog Study. Prepared for the U.S. Department of Justice.

http://www.utexas.edu/law/journals/tlr/sources/Volume%2091/Issue%205/Laurin/Laurin.FN172.Peterson.Sexual_Assault_Backlog_Study.pdf

Key Findings:

1) Project funded by NIJ in 2009 to accomplish 4 goals: 1) evaluate the results of scientific tests performed by private labs on backlogged SAKs evidence from the LASD and LAPD crime labs; 2)

review the secual assault case processing literature and the role played by evidence and other factors in solving and prosecuting such cases; 3) determine the criminal justice dispositions of a sample of backlogged and non-backlogged cases before and after kit testing; and 4) identify principal case and evidence characteristics that could be used by forensic labs to evaluate and prioritize sexual assault evidence submitted to crime labs.

2) Backlogged samples were cases historically not thought to benefit from testing, and the present sample includes all kits collected and submitted under current policy (that says all SAKs tested if submitted).
3) 371 backlogged cases and 371 non-backlogged cases tracked (total of 742).
4) Average post-coital interval (PCI) b/n time of assault and victim exam was 23.3 hours.
5) In 20-30% of hits, the suspect was known, arrested, and convicted already, therefore becoming duplicate profiles in CODIS.

11. Anderson, V.J., Thompson, J. (2011, November). Decrease the Number of Contract Laboratory Cases Awaiting Date Review While Improving DNA Analysis Efficiency. Prepared for the U.S. Department of Justice.

https://www.ncjrs.gov/pdffiles1/nij/grants/236693.pdf

Key Findings:

1) Evaluation of a2009 Forensic DNA Unit Efficiency Improvement grant for the LAPD.
2) Highlights testing of new DNA techs/processes (Qiagen Investigator Kit and ABI's Quant Duo).
3) Project objectives were to: 1) Improve DNA analysis efficiency, and 2) Decrease the number of contract laboratory DNA cases awaiting data review.
4) Findings show that backlogs decreased by 52%.

12. Richard, M., Kupferschmid, T.D. (2011, July). Increasing Efficiency of Forensic DNA Casework Using Lean Six Sigma Tools. Prepared for the U.S. Department of Justice.

https://www.ncjrs.gov/pdffiles1/nij/grants/235190.pdf

Key Findings:

1) Final grant report.
2) Grant was used to support the implementation of Lean Six Sigma (LSS) practices with goal of reducing DNA turn around, doubling productivity, reducing backlog and increasing the number of CODIS hits.
3) All grant goals were met.
4) LSS ensures operations are consistent, even in the ever-changing DNA-world.
5) LSS reveals opportunities for improvement, provides for adjustment, and seeks a new goal of excellence.

13. Ritter, N. (2010, June). Untested Evidence: Not Just a Crime Lab Issue. Prepared for the NIJ Journal No. 266.

https://www.ncjrs.gov/app/publications/Abstract.aspx?id=252450

Key Findings:

1) Summary of NIJ funded report by RTI, "2007 Survey of Law Enforcement Forensic Evidence Processing" whic looks at the backlog issue in police property rooms.
2) 2000 police departments surveyed; 18% of open rape cases had unsent evidence (some had valid reasons for this).
3) The most common reason for not submitting evidence for testing was that a suspect had not been identified - raising concern that there is a lack of understanding that testing can aid in developing new leads.
4) Only 44% of departments report having computerized tracking system for evidence.
5) Recommendations include: 1) standardize evidence retention policies; 2) train police in benefits and use of forensic evidence; 3) create (or improve) computer tracking systems; 4) improve storage capacity for evidence; and 5) develop system wide approach to improve coordination amoung police, lab, and prosecuters.

14. Samuels, J., Davies, E., Pope, D., Holand, A. (2012, September). Collecting DNA from Arrestees: Implementation Lessons. Prepared for the NIJ Journal No. 270.

www.nij.gov/journals/270/Pages/arrestee-dna.aspx

Key Findings:

1. Provides overview of state rulings on collecting data from arrestees.
2. 28 states currently allow such practice; first state to pass law was Louisiana in1997.
3. If not convicted, arrestees can have profile in CODIS expunged.
4. Related key questions:
   (a) Which offenses? (in 13 states=any felony, 7 states= felony+some misdemenours, and 3 states= add'l criteria such as immigration, criminal history, and health);
   (b) At what point in case? (2/3 states authorize DNA collection immediately after arrest, 11 states= require arraignment or judicial determination - which poses threat of creating more delays);
   (c) Who is responsible for collection? (17 states= arresting agent);
   (d) What policies govern collection/analysis of duplicate samples? (estimated to be anywhere from 5-50% of total samples); and
   (e) Who initiates expungements? (most states= individual, 7 states= state bears the responsibilities)
5. Lessons learned:
   (a) Mitigate impact of new cases on labs by phasing implementation over course of several months to a year (for ex. in FL where every 2 years law will get more inclusive until all felonies);

(b) Adminstrative headaches for labs caused by vast number of diverse collecting agencies that have high turnover and while labs are responsible for oversight of DNA policy, they rarely have any legal authority in implementation;
(c) Flags in tracking systems for duplicates can save vital resources;
(d) When individuals bear the responsibilities, very few expungements occur - only some states give information to arrestees about process; and
(e) To implement policy in state, data systems may require integration and automation and laboratories will likely need additional resources to hire and train staff, develop training materials and design/distribute new collections kits.

IV. Victim-Centric Care

Understanding the trauma of sexual assault survivors is an intrinsic part of victim-centric care. First responders, sexual assault examiners, advocates and others are tasked with providing sexual assault survivors with the best, most thorough and compassionate care. For some remote locations and financially challenged areas, providing victim-centric care can be difficult. As a result, there is a growing interest in using telemedicine as means to necessitate innovative medical care for sexual assault victims. Through technology such as video conferencing, telemedicine allows new SANE practitioners and/or healthcare personnel less experienced in treating victims of sexual assault, the ability to have access to more experienced SANE practitioners. Telemedicine networks allow more experienced practitioners to support the forensic examination by overseeing the patient examination and by providing second opinions in difficult cases. In addition, telehealth networks can potentially provide continuing medical education, peer review, and case monitoring services. Telemedicine has been successfully implemented in other medical areas such as critical care inpatient services, special needs care and pediatrics. While telemedicine supports an overall improvement in patient care, the practice lacks guidelines related to privacy, testimony, and admissibility of evidence. There also needs to be more empirical-based research on the evaluation of 24/7/365 remote access to telemedicine programs and processes (e.g., real-time examinations, training, case review).

Also part of victim-centric care, first responders, law enforcement, healthcare, legal and other ancillary personnel must understand the neurobiological effect of a sexual assault event. Oftentimes, victims of sexual assault experience many psychological side effects following the assault. These symptoms may resemble post-traumatic stress disorder (PTSD) to include depression, self-blame, guilt, shame and inability to fully recall the incident. There are also physiological responses to this type of trauma, including “tonic mobility”, which is essentially a state of paralysis that the victim experiences during the assault. Understanding the body’s response to trauma related to sexual assault is critical to the criminal investigation. Failure to understand trauma induced behaviors could result in case attrition, which often occurs early in the investigation because law enforcement does not understand the victim’s neurobiological response. Lack of training and education could also result in secondary-victimization, in which the victim is re-traumatized caused by “victim-blaming” or insensitive attitudes, beliefs, and behaviors from social system personnel.

Understanding the neurobiology of the offender also impacts the sexual assault investigation. Similarly, education and training on general risk factors for sexual predators, various rape typologies, and neurobiological influences that motivate sexual offenders are important to incorporate into criminal justice programs to improve the response to sexual assault crimes.

Reference Reports

1. Hassan, K., Rana, M.H., Ali, S. (2010). Biological Markers of Psychological Trauma. Pak Armed forces Med J., 60(2), 289-299.

http://www.pafmj.org/showdetails.php?id=35&t=r

Key Findings:

1) Intense psychological trauma, such as sexual abuse, has a direct link to a change in how the body responds to stress. Following this trauma, the body tends to increas the Corticotropin Releasing Hormone (CRH) and dysregulate the Hypothalamic- Pituitary-Adrenal (HPA) axis, which controls the body's negative feedback inhibition.
2) Dysregulation of cortisol can cause adverse neurological sypmtoms such as inappropriate fear reactions and peristent mild depression.
3) The "anterior cingulate cortex is involved in the extinction of conditioned fear responses and is implicated in the pathophysiology of PTSD. Evidence for anterior cingulate dysfunction in adult PTSD comes from recent positron emission tomography studies. Studies comparing women who had been sexually abused as children and who had PTSD with women with a similar history who did not have PTSD found a lower level of anterior cingulate blood flow during traumatic script-driven imagery and during memories of childhood sexual abuse."

2. Heim, C., Shugart, M., Craighead, W.E., Nemeroff, C.B. (2010). Neurobiological and Psychiatric Consequences of Child Abuse and Neglect. Dev Psycholbiol., 52(7), 671-690. DOE: 10.1002/dev.20494

www.ncbi.nlm.nih.gov/pubmed/20882586

Key Findings:

1) Adverse Childhood Experiences in any category (sexual abuse, physical abuse, etc.) increased the risk of attempted suicide two- to fivefold. The ACE score was positively correlated with attempted suicide during childhood or adolescence and adulthood and exhibited a strong, graded relationship.
2) In a study with 235 outpatients seeking treatment with major depression, childhood sexual abuse was linked to a longer duration of the index depressive episode.
3) It is estimated that approximately one-third of individuals who have experienced sexual abuse will not exhibit adult psychiatric problems.
4) Bremner et al. (2003) reported a relationship between hippocampal volume and function and PTSD associated with early-life sexual abuse.

3. Campbell, R., Dworkin, E., Giannina, C. (2009). An Ecological Model of the Impact of Sexual Assault on Women's Mental Health. Trauma, Violence, & Abuse, 10(3), 225-246. DOI: 10.1177/1524838009334456

www.sagepub.com/upm-data/40603_1.pdf

Key Findings:

1) It is estimated 17% to 65% of women with a lifetime history of sexual assault develop posttraumatic stress disorder.
2) Several factors must be considered when assessing a victim's mental health outcomes after sexual assault:

   (a) Individual level factors (victim and assault characteristics) - There are mixed findings on the impact of sociodemographic variables (i.e, age, race, income, education, employment), assault characteristics (i.e., victim—offender relationship, injury, alcohol use), and biological factors (i.e., cortisol levels) on mental health post-assault. If a victim is in a poorer mental health state pre-assault, is more likely to help predict PTSD among survivors. Further, poorer mental health pre-assault predicts multiple negative outcomes, such as depression and anxiety. Avoidance coping strategies predicts multiple negative outcomes such as longer recovery time, depression, and PTSD. Perceived life threat during assault and perceived dangerousness of assailant predicts negative outcomes such as depression, anxiety, and PTSD symptomatology.

   (b) Microsystem factors - Victims with stronger support systems and who experience more encouraging social reactions from informal providers (e.g., family, friend, significant others) are more likely to experience less mental distress post-assault. Alternatively, those with negative social reactions from informal support providers are likely to experience multiple negative outcomes such as depression, anxiety, and posttraumatic stress.

   (c) Meso/exosystem factors - Legal System: secondary victimization (i.e., victim-blaming, minimal help) predicts higher symptomatology such as PTSD and depression. SANEs, rape crisis centers, and other community mental health programs help mitigate the negative effects of other medical systems (e.g., emergency room) and predict less mental health distress post-assault.

   (d) Macrosystem factors - The rape-prone culture, institutionalized racism, cultural differences in responding to rape, and acceptance of rape myths create a difficult sociocultural context for sexual assault survivors to recover.

   (e) Chronosystem factors - Cumulative trauma and revictimization over the lifetime predicts negative outcomes such as depression, anxiety, and PTSD.

   (f) Self-blame: Multilevel meta construct - Self-blame is associated with PTSD and depression at the individual level. At the micro and meso/exo levels, receiving blame exacerbates self-blame and is associated with PTSD symptomatology. At the macro level, internalized sociocultural beliefs affects victim's self-blame. At the chronosystem, victims of cumulative trauma have been found to have greater self-blame and higher levels of trauma.

4. MacLeod, K.J. Marcin, J.P., Boyle, C., Miyamoto, S., Dimand, R.J., Rogers, K.K. (2009). Using Telemedicine to Improve the Care Delivered to Sexually Abused Children in Rural, Underserved Hospitals, Pediatrics, 123(1), 223-228. DOI: 10.1542/peds.2007-1921

www.ncbi.nlm.nih.gov/pubmed/19117886

Key Findings:

1) Telemedicine/Telehealth networks have potential to provide education, peer review, & forensic examination support. Other successful uses of TM include ped. resuscitations, special needs care, critical care inpatient, & subspeciality.
2) In 2003, the University of California Davis Child and Adolescent Abuse Resource and Evaluation (CAARE) Center partnered with the University of California (UC) Davis Center for Health and Technology in Sacramento to offer live telemedicine consult services to pediatric sexual assault providers in 2 rural California counties. This telemedicine program (live consultations and ongoing videoconference education seminars) would increase the ability of the rural provider to perform a complete pediatric sexual assault examination and accurately interpret the clinical findings.
3) Significant positive changes in patient care and forensic examination when telemedicine network used.

5. Ozer, E.J., Best, S.R>, Lipsey, T.L., Weiss, D.S. (2003). Predictors of Posttraumatic Stress Disorder and Symptoms in Adults: A Meta-Analysis. Psychol Bull., 129(1), 52-73.

www.ncbi.nlm.nih.gov/pubmed/12555794

Key Findings:

1) The term "rape trauma syndrome" was introduced in psycholgical research following research conducted on women who had been sexually assaulted following the Vietnam war.
2) These women exhibited similar patterns and symptoms of psychological trauma post-assault. They were described as avoidant, on guard, easily startled, and flooded with memories and images of the assault that could not be easily dispelled.

6. Chivers-Wilson, K.A., (2006). Sexual assault and posttraumatic stress disorder: A review of the biological, psychological and sociological factors and treatments. Imcgill J Med., 9(2), 111-118.

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2323517/

Key Findings:

1) The lifetime prevalence of PTSD for women who have been sexually assaulted is 50% (10). Moreover, sexual assault is the most frequent cause of PTSD in women, with one study reporting that 94% of women experienced PTSD symptoms during the first two weeks after an assault.

Therefore, intervention is necessary early intervention is critical and should happen immediately after the event.

2) Sexual assault survivors often exhbit dysregulation of the Hypothalamic-Pituitary-Adrenal (HPA) axis, which may cause of the structural and functional abnormalities contributing to PTSD symptoms. HPA dysregulation may also cause infertility; however research indigates fertility may be restored with cognitive behavioural therapy.
3) Postassault, survivors experience rape trauma syndrome (RTS), which affects rape victims, as well as victims of all types of sexual violence. Three phases of RTS =
    (e) Acute Phase- occurs immediately following the assault when the survivor is in crisis and experiences a wide range of emotional reactions
    (f) Outward Adjustment - the survivor focuses less on the assault, often with a high level of denial, and involves themselves in normal daily activities
    (g) Long Term Reorganization - the survivor integrates the assault into their view of themselves and resolves their feelings about the assailant.
4) There are many psychological effects to consider following a sexual assault such as feelings of shame, guilt, anxiety or depression. Lack of support form family, friends, or others may increase these negative feelings.
5) Cognitive factors play a large role in the onset, severity, and outcome of PTSD after sexual assault including: mental defeat and confusion, negative appraisal of emotions and symptoms, avoidance and perceived negative responses from others.
6) Uncontrollable events such as sexual assault are more distressing than controllable events; therefore, survivors of sexual assault, tend to attribute blame to behavioural, dispositional or vicarious causes.
    (a) Behavioural self-blame - promotes the belief that negative outcomes can be avoided in the future.
    (b) Dispositional self-blame - the traumatic event happened b/c of one's personality and there can be no control in the future.
    (c) Vicarious control - perception that someone else or another entity had control over the event; therefore, blame is attributed to past and is associated with poorer outcomes in PTSD.
7) Forensic sexual assault exams can re-traumatize survivors. Research has found that meeting with a rape crisis counselor or viewing a video of what to expect before a forensic sexual assault exam, resulted in decreased levels of stress after the exam in test groups.
8) Group therapy can also be very effective to help survivors focus on the present and share experiences with others in a safe and empathetic environment. According to one study, more than half of the women who experienced sexual assault within the previous five years never told anyone about their trauma. Not discussing the trauma can have a significant impact on the development of PTSD.

7. Noll, J.G. (2005). Does Childhood Sexual Abuse Set in Motion a Cycle of Violence Against Women? What we Know and What We Need to Learn . J Interpers Violence, 20(4), 455-462. DOI: 10.1177/0886260504267756

http://jiv.sagepub.com/content/20/4/455.abstract

Key Findings:

1) Childhood sexual abuse significantly increases the risk of subsequent sexual and physical victimization in adolescence and early adulthood; including sexual abuse or exploitation, physical assault/domestic violence or sexual revictimization, and ultimately places the next generation of females at considerable risk for victimization.
2) Data suggests those sexually assaulted in childhood have lower academic performance, more behavioral problems, higher incidences of depression, more dissociative symptoms, and a greater propensity toward sexual acting-out behaviors than their nonabused peers. They also report lower self-esteem and come from less cohesive families than nonabused girls.
3) Studies also link adults who have been sexullay assaulted as children to have persisting posttraumatic stress disorder (PTSD) and pathological dissociation, psychiatric and substance abuse disorders, early coital initiation, and teen pregnancy.
4) Studies also report increased obesity and poor physiological health, higher rates of subsequent victimization, including physical and sexual assaults as well as self-inflicted harm, and hormone dysregulation.

8. Ward, T., Beech, A., (2006). An integrated theory of sexual offending. Aggression and Violent Behavior, 11(1) 44-63. DOI: 10.1016/j.avb.2005.05.002

www.sciencedirect.com/science/article/pii/S1359178905000200

Key Findings:

1) Several plausible factors are associated with sexual crimes, including - genetic predispositions; adverse developmental experiences, e.g., abuse, rejection, attachment difficulties; psychological dispositions/trait factors, e.g., empathy deficits, attitudes supportive of sexual assault, deviant sexual preferences, emotional skill deficits, and interpersonal problems; social and cultural structures and processes; and contextual factors, such as intoxication and severe stress.
2) Integrated Theory of Sexual Offending (ITSO) - sexual abuse occurs as a consequence of a number of interacting causal variablessuch as, brain development (evolution, genetic variations and neurobiology) and ecological factors (social and cultural environment, personal circumstances, physical environment).
3) Risk factors identified as being involved in any kind of problematic antisocial behavior generally fall into four broad categories: (1) historical factors or static risk factors, such as adverse developmental events and prior history of crime and violence; (2) dispositional factors or dynamic risk factors, such as impulsivity, general level of anti-sociality; (3) contextual antecedents to violence such as

criminogenic needs (risk factors for criminal behavior), deviant social networks, and lack of positive social supports; (4) clinical factors, such as emotional problems and social difficulties.

4) Dynamic risk factors or problematic psychological functioning include four risk ddomains- [deviant] sexual interests (Domain 1 problems), dysfunctional schemas (Domain 2 problems), problematic attachment (Domain 3 problem), and impulsivity/mood problems (Domain 4). Combined, these may result in illegal sexual behaviors under certain circumstances.
5) Finkelhor's precondition theory (1984) - Suggests that four underlying factors have typically been used to explain the occurrence of child sexual abuse, usually in the form of single factor or level II theories. These theories are based on the following claims: sex with children is emotionally satisfying to the offender (emotional congruence); men who offend are sexually aroused by a child (sexual arousal); men have sex with children because they are unable to meet their sexual needs in socially appropriate ways (blockage); and finally, these men become disinhibited and behave in ways contrary to their normal behavior (disinhibition).
6) Other theories highlighted in this article include Hall and Hirschman's (1992) Quadripartite Model of child molestation, Marshall and Barbaree's Integrated Theory (1990), and Ward and Siegert's (2002) pathways model of child sexual abuse. Each explores factors that may cause a sexual offender to abuse children. These factors can include personality deficits, past experiences with adverse events, and other symptoms of dysfunction.

9. Holmberg, U., Christianson, S.A. (2002). Home-based exercise rehabilitation with telemedicine following cardiac surgery. Behav Sci Law., 20(1-2), 31-45.

www.ncbi.nlm.nih.gov/pubmed/11979490

Key Findings:

1) When conducting and investigative interview with murderers and sexual offenders, police officers are more likely to see the suspects display attitudes of dominance or humanity.
2) "Police interviews marked by dominance are mainly associated with a higher proportion of denials whereas an approach marked by humanity is associated with admissions."
3) Sexual offenders often perceive themselves "as being more insulted and condemned by police interviewers than murderers do."
4) The authors surmise that criminal investigators likely have a harder time dealing with sexual offenders than murderers. They conclude that "when suspects feel respected and acknowledged, this probably lends them to gain more confidence and mental space, allowing them to admit criminal behavior." Therefore, it is important for police officers to show respect and recognize suspects as human individuals.

10. Miyamoto, S., Dharmar, M., Boyle, C., Yang, N.H., MacLeod, K., Rogers, K., Nesbitt, T., Marcin, J.P. (2014). Impact of telemedicine on the quality of forensic sexual abuse examinations in rural communities. Child Abuse Negl, DOI: 10.1016/j.chiabu.2014.04.015. [Epub ahead of print]

www.ncbi.nlm.nih.gov/pubmed/24841062

Key Findings:

1) In this study, quality and diagnostic accuracy of child sex abuse forensic exams were compared between rural hospitals with access to telemedicine services and hospitals without telemedicine services.
2) Through an indpendent, expert review of forensic examination reporting forms, photo/video documentation, and medical records, it was found that:
    (a) "Hospitals with telemedicine had significantly higher qualityscores in several domains including the general exam, the genital exam, documentation of examination findings, the overall assessment, and the summed total quality score."
    (b) Photo/video and medical records were also more accurate and higher quality in hospitals with telemedicine services- including photo/video quality, and completeness and accuracy of the exam.

11. Ranson, D. (2010). Research, Forensics, Public Health, Injury Prevention and Policy Development. Health Informatics, 151, 341-359. DOI: 10.3233/978-1-60750-476-4-341

http://ebooks.iospress.nl/publication/12927

Key Findings:

1) Telemedcine is part of the larger health informatics field.
2) One study estimated $28B could be saved in healthcare through the use of telecommunication.
3) Challenges for telemedicine:
    (a) Need for education and training for healthcare practitioners to ensure they're knowledgable about the advantages and limitations of telemedicine.
    (b) While most major medical facilties are well linked into technology, most recipients of these telemedicine services are in remote locations without access to health care information and communication systems.
    (c) There is a lack of universal standards and best practices to govern electronic data interchange in health informatics.
    (d) the ability to "signficantly impair the development of research and healthcare policy is the community and social attitudes to telemedicine and healthcare networking".
    (e) Legal implications to expanding the use of telemedicine regarding medical registration and civial and criminal liability in medical practice.
    (f) Out-of-state licensing

4) Because telemedicine is becoming more widely accepted and practice, the traditional licensing and registration for medical practitioners may need to be adapated to accomodate healthcare that crosses borders.

12. Goran, S.F. (2011). A New View: Tele-Intensive Care Unit Competencies. Crit Care Nurse, 31(5), 17-29. DOI: 10.4037/ccn2011552

http://ccn.aacnjournals.org/content/31/5/17.abstract

Key Findings:

1) In this study, 44 known tele-ICU programs were surveyed to evaluate whether their programs have formal competency assessments for tele-ICU nurses.
2) Tele-ICU nurses use virtual technology to monitor patient status (e.g., vital signs, lab results, physicians' notes, etc.) to identify potential problems and issues and to preven crisis situations for a patient.
3) 85% of survey respondents reported having a formal competency assessment policy for nurses in place.
4) Appraisal and observation are the most common methods for competency evaluation. Peer review and self asessessment are also used.
5) The following are viewed as "high priority" for defining tele-ICU nursing: effective listening, prioritization, collaboration, and effective use of tele-ICU application tools.

13. Quinley, K.E., Gormley, R.H., Ratcliffe, S.J., Shih, T., Szep, Z., Steiner, A., Ramogola-Masire, D., Kovarik, C.L. (2011). Use of mobile telemedicine for cervical cancer screening. J Telemed Telecare, 17(4) 203-209. DOI: 10.1258/jtt.2011.101008

http://jtt.sagepub.com/content/17/4/203.abstract

Key Findings:

1) In this study, remote diagnostic services using expert diagnosis using photographs were compared to in-person visual inpsections of the cervix with application (VIA) of 4% acetone for 95 HIV postive women in Botswana.
2) For the remote examintations, images were taken on mobile phones and transmitted via messaging.
3) It was found that diagnoses from digital camera-based assessments were consistent with the in-person assessments for women in remote locations.
4) An expert gynaecologist made a definitive positive or negative diagnosis of the photgraphic inspection with acetic acid (PIA) patients "64 out of the 95 women whose PIA images were also read by the nurse midwives. The remaining 31 PIA images were deemed insufficient in quality for a reading by the expert gynaecologist. The positive nurse PIA readings were concordant with the positive expert PIA readings in 82% of cases, and the negative PIA readings between the two groups were fully concordant in 89% of cases."

14. Harvey, S., Peterkin, G., Wootton, R. (2010). Eleven years of experience with low-bandwidth telemedicine in a nurse-led rural clinic in Scotland. J Telemed Telecare, 16(8), 417-421. DOI: 10.1258/jtt.2010.100310

http://www.ncbi.nlm.nih.gov/pubmed/20876630

Key Findings:

1) In a rural village of north-east Scotland, tele-consultations with general practitioners were implemented using videoconferencing technology for a trial period.
2) Over an 11 year period, 646 teleconsultations were conducted.
3) Telemedicine was successfully used for post-natal, mental health, physical ailments, and communications with the doctor despite concerns over video quality.
4) The technology was not adopted as a routine service; however they advise that organizations ensure contractual and organizational buy-in be top priority when deciding to implement telemedicine programs.

15. Henderson, C. (2010). Telecare 2025. Journal of Assistive Technologies, 4(3) 47-49.

web-link not available

Key Findings:

1) Telehealth combines health services along with housing and social services.
2) It is difficult to predict the future of telehealth because of so many uncertainties with technology, business and other influences (e.g., political and socioeconomic).
3) Evidence proves that telemedicine can result in "credible savings social and health service delivery, as well as improvements in quality of life."
4) Current economic downturn will cause people to look for more ways of operating more cost-efficiently.
5) Fast changing technologies also have an impact on how we operate telemedicine programs. It's most important for practitioners to understand the range of possibilties.
6) Most importantly, organizations should have a plan in place to create a systematic, effective telehealth program; and to ensure the appropriate technologies are being used.

16. Rantz, M.J., Skubic, M., Alexander, G., Aud, M.A., Wakefield, B.J., Galambos, C., Koopman, R.J., Miller, S.J. (2010). Improving nurse care coordination with technology. Comput Inform Nurs., 28(6), 325-332. DOI: 10.1097/NCN.0b013e3181f69838

http://www.ncbi.nlm.nih.gov/pubmed/20978402

Key Findings:

1) By 2030, the number of people 65 years or older is expected to reach 71.5 million. Paired with a shortage of nurses, primary care physicians, and other geriatric healthcare workers, technology will offer solutions to address remote monitoring and early detection of problems, which will help geriatric patients receive intervention services earlier.
2) This article provides three case studies that looks at patient health status, living conditions (e.g., independent living), and follow up care. A network of sensors were used in some of the patients to monitor activity and motion, video sensors, and behavioral activity. There was also an alert interface built in.
3) An analysis of sensor data found that sensor technology can be used in telemedicine to detect and provide early warnings to healthcare providers to prompt early assessments and interventions to "prevent or delay substantial changes in health status. The sensor network could also be used to monitor recovery after a hospitalization or significant health event."
4) Passive monitoring through advancing telemedicine technologies can potentionally be more effective and reduce the number of hospital stays and healthcare costs.

17. King, A.B., Wolfe, G.S. (2009). Evaluation of a diabetes specialist-guided primary care diabetes treatment program. J Am Acad Nurse Pract., 21(1) 24-30. DOI: 10.1111/j.1745-7599.2008.00370.x

http://www.ncbi.nlm.nih.gov/pubmed/19125892

Key Findings:

1) In an experimental study regarding the Diabetes-focused, Algorithm-directed care, Midlevel practitioner–administered, Electronically coached, Treatment (DAMET-2) clinical program, midlevel practitioners recevied training to provide telephone constultations (2-4 week intervals), bi-monthly visits with diabetes specialists were conducted, treatmant guidance was received within 24 hours from remote diabetes specialists.
2) At the end of 12 months, the program revealed inconsistencies in risk factor reductions.
3) The DAMET-2 program did reveal, however, electronic records and provider notifications, patient adherence, prioritization of provider resources by risk factor level among patients, and access to self-management education were important methodes to address the effectiveness and deficiences in diabetes care.

18. Lorenzo, M., Dale, S.B., Chen, A.Y., Magee, C.A. (2009). Costs to Medicare of the Informatics for Diabetes Education and Telemedicine (IDEATel) Home Telemedicine Demonstration. Diabetes Care, 32(7) 1202-1204. DOI: 10.2337/dc09-0094

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2699734/

Key Findings:

1) The Informatics for Diabetes Education and Telemedicine (IDEATel) was assessed to measure outcomes of using telemedicine for Medicare patients with type 2 diabetes.
2) Using a treatment and control group, this study found that IDEATel, while it did not significantly impact clincial outcomes, was associated with increased costs to the governement when compared to similar intervention services programs.

19. Scalvini, S., Zanelli, E., Comini, L., Tomba, M. D., Troise, G., Giordano, A. (2009). Home-based exercise rehabilitation with telemedicine following cardiac surgery. J Telemed Telecare, 15(6), 297-301.

http://jtt.sagepub.com/content/15/6/297.abstract

Key Findings:

1) In this study, cardiac surgery patients received home-based rehabilitation treatment for 15-25 days.
2) After being properly trained on the process, an electronic health record was created for each patient and each patient received a bicycle ergometer to exercise at home.
3) Telemedicine was used to instruct patients on dressing the surgical wound (daily), for unscheduled contacts to address patient needs (e.g., more information, symptoms), and for physiotherapy.
4) Post-study, patients were provided a 13 item questionnaire to assess the quality of telemedicine services, acceptance of the technology, efficiency of the nurse-tutors, and patient satisifaction.
5) The study demonstrated that the telemedicine allowed patients to recieve the level of care that could be obtained in a rehab facility. Futher, the patients adhered to the program and the telemedicine services provided a means to offer holistic care.

20. Galli, R., Keith, J.C., McKenzie, K., Hall, G.S., Henderson, K. (2008). TelEmergency: a novel system for delivering emergency care to rural hospitals. Ann emerg Med., 51(3), 275-284.

http://www.ncbi.nlm.nih.gov/pubmed/17764784

Key Findings:

1) Although they care for equally ill patients, rural ED's are disadvantaged compared to urban ED's.
2) Attracting skilled medical personnel is more difficult in rural locations.
3) Telemedicine provides a vehicle for practitioners to decrease healthcare disparities, increase fairness and equality of distribution of services becaused of an increased access to healthcare, especially in remote areas.
4) Despite the benefits, progress of telemedicine is limited due to the lack of efficacy data, high equipment and connection costs, and reimbursement, among other factors.
5) This article chronicles the development of the University of Mississippi Medical Center Adult Emergency Department telemergency program. With a high degree of patient and hospital

adminstrator satisfaction, this program has telemergency services were provided to more than 40,000 patients in 11 rural ED's throughout Mississipi between October 2003 and 2008.

21. Foster, P.H., Whitworth, J.M. (2005). The Role of Nurses in Telemedicine and Child Abuse. Comput Inform Nurs.,23(3), 127-131.

http://www.ncbi.nlm.nih.gov/pubmed/15900169

Key Findings:

1) Telemedicine provides an opportunity for expert consulation, rapid evaluation, community response, and an expanded role for nurses.
2) Florida implemented a telemedicine network for rapid examination of alleged victims of child abuse at a major medical center hub.
3) Computers, cameras, colposcopes and videoconferencing facilitated communications between a physician or nurse practitioner at the hub and a RN who conducted the examination off-site.
4) The addition of telemedicine techniques, requried training and adjustments for medical staff to become familiar with technology; but they were able to use their knowledge and training to conduct the examinations.
5) The study concluded that telecommunication did not interfere with the nurse-patient relationship.

22. Hutcherson, Carolyn M. (2001). Legal Considerations for Nurses Practicing in a Telehealth Setting. Online Journal of Issues in Nursing, 6(3).

http://www.nursingworld.org/MainMenuCategories/ANAMarketplace/ANAPeriodicals/OJIN/TableofContents/Volume62001/No3Sept01/LegalConsiderations.html

Key Findings:

1) Advancements in technology have made telemedicine a more widely accepted method of providing healthcare management services.
2) From a regulatory standpoint, "public protection" mandates for state-based licensure structures are being challenged as multistate health services and nursing call centers are increasing in popularity.
3) In telehealth practice, nurses are most intrested in: telephone practice/ telephone triage/ call center nursing; care using two-way interactive video (especially home care); and care using high tech equipment (primarily in military settings).
4) Regulatory questions regarding nursing and telehealth:
   (a) Is providing care electronically over distance, actually the practice of nursing? Providing triage services electronically or via telephone is not "hands on" and some believe it's not actually nursing. Legal definition of nursing typically include use of nursing education, critical thinking, judgment. As such, nurses are engagin in the practice of nursing when providing telehealth services because they are employing these skills.
   (b) Will jurisdiction over telemedicine/ telehealth remain in the domain of traditional State's Rights provisions (as is most traditional health care) with the issues being resolved by the states, or whether the practice will be deemed as interstate commerce? According to the U.S.

Constitution, "interstate commerce is seen as provision of goods and services across state lines and is within the jurisdiction of the federal government ." Therefore, state boudaries are not a factor when matching patients with the right provider.

(c) Where does care occur? "In nursing, the Mutual Recognition Model of licensure, as proposed by the National Council of State Boards of Nursing (1998), calls for each state to adopt an interstate compact that establishes legal authority for nurses to practice at both locations – the location of the patient as well as the location of the provider (www.ncsbn.org). To date, fifteen states have enacted the interstate compact, with legislation being considered in additional states."

5) Need for credientialing and certificationfor telehealth practice: "The health care community seems to have reached consensus that current licensure authorizes the entirety of professional practice and therefore additional licensure is not necessary."

23. Pammer, W., Haney, M., Wood, B.M., Brooks, R.G., Morse, K. Hicks, P., Handle, E.G., Rogers, H., Jennett, P. (2001). Use of Telehealth Technology to Extend Child Protection Team Services. Pediatrics,108, 584-590. DOI: 10.1542/peds.108.3.584

http://pediatrics.aappublications.org/cgi/collection/administration:practice_management_sub?page=98

Key Findings:

1) Florida's Child Protection Teams (CPT) are multidisciplinary teams of medical professionals who assist with suspected child abuse/negelect case assessments.
2) An increase in requests for CPT services led to the use of telemedicine services made avaliable through the Childeren's Medical Services of the FL department of Health.
3) The main objectives of the telemedicine program was to (1) provide expert services from professional, multidisciplinary team to more geographic areas of the state; and (2) to expedite evaluations without transporting children across large distances to recieve services.
4) In this study,
   (a) Privacy and trust issues were not of concern among patients.
   (b) Comfort-level with using the equipment was an issue among ED staff.
   (c) ED staff found the equipment to be "intrusive" and they were hesitant to use this technology.
   (d) There is a need for sensitvity training for ED staff regarding child abuse and neglect, and the psychological effects of working these victims.
5) Overall, use of telehealth technologies was impacted by factors such as, space limitations and availability of examination room. Engaging staff early in the process of implementing telemedicine technologies will help them to be more comfortable with using the technology.

24. Skiba, D.J., Cohen, E. (2000). Case Management and Technology: A Necessary Fit for the Future. Nurs Admin Q., 25(1), 132-141.

http://www.ncbi.nlm.nih.gov/pubmed/18188916

Key Findings:

1) Factors that are changing the delivery of healthcare include: rapidly growing and emerging technologies, trends in managed care, the consumer empowerment movement, evidence based practice, and the desire for cost-effective, high-quality care.
2) Information and communications technologies are growing and more accessible. Mobile phones, advancing web interfaces and smart devicies (e.g., multimodal devices that use speech recongition tools, auido, touch and gesture recognition) are smaller, faster, cheaper, smarter and easier to use.
3) End-users should select technologies that are "seamless and ubiquitous to the clinical process, while supporting patient and family particpation in health decisions." At a bare minium devices should have case management (e.g., access patient records, develop care plans, prescription, communicate/ coordinate between healthcare providers adn care takers, monitor patient conditions, and analyze aggregate data) capabilities.
4) Case planning -
   (a) Now: Clinical decision support tools facilitate clincal pathways for a known problem, using proactive information in the system.
   (b) Future: Clinical decision support tools will be used for data mining clinical repositories and allowing smart agents to offer proacive information.
5) Coordinating Services-
   (a) Now: Case managment systems access relevant databases within their health care system to find services for patiensts.
   (b) Future: Clincial support decision tools will filter online community resources that match patient needs. Patients will also recieve access to these electronic services. Smart agens will continuously review evidence-based practices that can be linked to patient needs.
6) Communication-
   (a) Now: Communication = phone, email, mail, voicemail, and fax. Email is used the least for communication between patients and healthcare providers.
   (b) Future: Collaborative networks that allow synchronous and asynchrounous communciation will be used more.
7) Monitoring-
   (a) Now: Electronic records help with maintaining patient dat and monitoring patient status. Electronic reminders and alerts are used to update records. However, these methods are only used within the resient medical facility; external monitoring usually does not happen.
   (b) Future: Patient's physiolgical data will be monitored using various smart devices or clothing that will automatically update the patient records. For instance, smart devices and clothing can be connected to Body net; which is a wireless enabled personal network that facilitates communication between devices and records data within, as well as outside, the hospital.
8) Analysis and Outcomes Management -
   (a) Now: Data-mining is beginning to appear in healthcare orgnizations to analyze large datasets to find relationships.

(b) Future: Smart agents will be used to analyze data on a dialy basis to study trends and answer clinical and administrative questions.

25. Miller, L. (2014). Rape: Sex crime, act of violence, or naturalistic adaptation? Aggression and Violent Behavior, 19(1), 67-81. DOI: 10.1016/j.avb.2013.11.004

www.sciencedirect.com/science/article/pii/S1359178913001201

Key Findings:

1) General risk factors and characteristics include: male predominance, young adult age, low socioeconomic status, low educational level, unstable employment history at unskilled jobs, prior criminal history, and disproportionately non-European ethnicity.
2) Approximately half of incarcerated rapists are rearrested within three years for a sexual offense or other crime.
3) Similar to other crimes, rape is largely committed by young males - 46% of rapists under age 25, 17% under age 18, and 15% under age 15.
4) Anti-social personality disorder or psychopathy is usually the most common diagnosis in violent sex offenders, such as rapists. Most studies conclude that "rapists have significantly higher rates of psychopathy than nonviolent child molesters, with estimates of psychopathy in the rapist group as high as 40–50% compared with a 10–15% prevalence rate for child molesters."
5) Smallbone and Dadds (1998) note that more "dysfunctional paternal attachments characterized by abuse, violence, and lack of care and sympathy, whereas intrafamilial child molesters reported more dysfunctional maternal attachments, leading the authors to hypothesize that this may lead to an aloof and insensitive interpersonal style in rapists' adult relationships." However, this rape-specificity hypothesis is challenged nonsexual offenders as both paternal and maternal pathological attachment patterns were also found in nonsexual offenders convicted of property crimes.
6) Sexual sadism diagnosis in the paraphilias section of DSM-IV-TR (APA, 2000) – focuses on recurrent experience strong sexual urges and fantasies, and/or committing acts of psychological or physical suffering on others. Symptom must be present for at least 6 months and "produce significant distress or significantly impair the individual's functioning" for an individual to be fall under this diagnosis.
7) Research has shown that rapists diagnosed as sexually sadistic with more variety of parahillias are at a higher risk reoffending post- incarceration and/or treatment.
8) This article includes more in-depth descriptions of the various rape typologies that have been characterized overtime. Similarly, these typologies all seem to track certain commonalities, rape archetypes, that describe the basic motives of: (1) anger, dominance, and/or control; (2) sadistic infliction of pain as eroticized violence; (3) compensatory forceful seduction; and (4) sex conquest of opportunity.
9) This article also explores the theories associated with the neurobiological factors that motivate sexual offenders. In one study, rapists and pedophiles exhibited impairment on "tasks sensitive to verbal skills, attentional control, and behavioral inhibition, suggestive of basal frontotemporal brain

dysfunction, while performing normally on tests of reasoning and visuospatial processing, suggesting preserved posterior parietal lobe functioning." Still, it is unlikely that the desire to rape an individual can be pinned to one part of the brain; rather, "antisocial behavior of all types represents a complex mélange of genetic, neurobiological, hormonal, development, psychological, and cultural forces."

10) Neuropsychological effects of rape victims - Sexual assault may have effects on the brain. Examining neuropsychological functioning among rape survivors with PTSD, Jenkins et al. (2000) "found their performance to be significantly worse than that of other groups on measures of sustained and divided attention. Although the attentional dysfunction reported in this study was mild, the affected women reported that it significantly impaired their handling of day-today tasks."

Appendix B. SANE/SAFE/SART Practitioner Meeting Participant Bios

Participant Bios

Eileen Allen, MSN, RN, FN-CSA, SANE-A, SANE-P

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Eileen Allen is a registered nurse, actively practicing in New Jersey for more than 25 years. She holds a Bachelor's Degree in Nursing from the University of Delaware and a Master of Science in Nursing with a concentration in Forensic Nursing from Monmouth University. She is nationally certified as a Sexual Assault Nurse Examiner of Adolescents and Adults, and of Pediatric patients. She is employed full time as the coordinator of the Monmouth County Sexual Assault Nurse Examiner Program and Sexual Assault Response Team. Additionally she is an adjunct faculty member at Monmouth University in West Long Branch, teaching forensic nursing and forensic pathology courses.

She has lectured extensively on topics related to sexual assault, interpersonal violence and forensic nursing to local and national audiences, has edited several nursing text book chapters and has collaborated on a number of federal level research projects related to sexual assault and elder abuse. In her capacity as a forensic nurse Eileen has testified as both a fact and an expert witness in criminal and civil matters in various jurisdictions in New Jersey and Pennsylvania, and in Federal District Court.

She has served as a Director and is a past President of the Board of the International Associations of Forensic Nurses and is a past Chair of the Congress on Policy and Practice and Board member of the New Jersey State Nurses Association. Eileen currently serves on the Freehold Township Board of Health and is an Executive Board member for the Central Jersey Family Health Consortium.

Barbra A. Bachmeier JD, MSN, NP-C

IU Health-Methodist
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Barbra started her nursing career as a Licensed Practical Nurse in 1982. She completed her BS in Nursing in 1988 through North Dakota State University and completed her masters in Adult Primary Care-Adult Nurse Practitioner in 1994 from IUPUI. Barb went on to complete a post-master's course in Pediatrics and is certified as a Family Nurse Practitioner through the American Academy of Nurse Practitioners. Barb eventually pursued her Juris Doctorate through Thomas M. Cooley Law School in Lansing, Michigan and graduated in 2007. Her primary focus as an advanced practice provider is emergency medicine and forensic nursing. Her focus in law is guardianships for the elderly deemed incompetent by the courts and guardian ad litem for children who have been abused and neglected. Barb completed a 9 month clinical ethics fellowship through the Charles W.

Fairbanks Clinical Ethics Center through IU Health-Methodist in May 2013 and if an affiliate member of IU Health clinical ethics committee.

Barb is currently employed through IU Health-Methodist as a Nurse Practitioner and Forensic Nurse Examiner in the Emergency Department and works as a solo attorney in the areas of guardianships and as a guardian ad litem. Barb is a member of several national, state, and local organizations in nursing as well as in the area of law.

Barb proudly served 29 years in the US Army National Guards and was deployed to the Balkans and Iraq before retiring in December 2009.

Rebecca Campbell, Ph.D.

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Dr. Rebecca Campbell is a Professor of Psychology at Michigan State University. She holds a Ph.D. in community psychology with a concentration in statistics, also from Michigan State University For the past 25 years, she has been conducting community-based, participatory research on violence against women and children, with an emphasis on sexual assault. Dr. Campbell's research examines how contact with the legal and medical systems affects adult, adolescent, and pediatric victims' psychological and physical health. Given that her findings suggest that these experiences are often highly traumatic and re-victimizing, a secondary aim in her work is identifying effective programs and policies to improve the community response to rape. She has published over 90 scientific papers and 2 books on these topics, and has conducted over 200 presentations at state, national, and international conferences. Over her career, she has received external research funding from granting agencies such as the National Institute of Justice, the National Institute of Mental Health, and the Centers for Disease Control and Prevention. She has received numerous research and teaching awards, including the 2008 Early Career Award from the American Psychological Association for Distinguished Contributions to Psychology in the Public Interest and the 2014 William J. Beal Distinguished Professor Award from Michigan State University.

Kim Day, RN, SANE-A, SANE-P

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Mrs. Day provides assistance around the DOJ's National Protocol for sexual assault medical forensic examinations of adults and adolescents. She is dual board certified by IAFN as a SANE-A and SANE-P. Before beginning her current position in 2006, she coordinated a local community hospital SANE program and the county wide SART for 8 years.

Mrs. Day has worked on many national level projects such as: the Prison Rape Elimination Act medical protocol advisory committee, the NSVRC's SANE Sustainability project, the NCCH's PREA standards training for correctional healthcare personnel, the Southwest Center for Law and Policy's SAFESTAR project and the advisory group for the Dartmouth Interactive Media Lab's interactive DVD. She also participated in the OVW's DNA Backlog Roundtable, the White House Roundtable on Sexual Violence, and OVC's Vision 21 project. She is a member of the National Coordination Committee on the American Indian/Alaska Native SANE-SART initiative, the AG's Violence Against Women Federal/Tribal Prosecution Task Force, and the NIJ SAFER Working Group Steering Committee.

Mrs. Day worked with SAFEta project partners to author and present a training called: Creating a Community Protocol. She has also spoken at many conferences and webinars, authored chapters and/or contributed to textbooks, written articles for Sexual Assault Report, Women Police and Forensic Healthcare on Line, and was featured in interviews in Cosmopolitan Magazine and Nursing Spectrum.

Rachell A .Ekroos PhC APRN-BC FN-BC

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Mrs. Ekroos is an ANCC Board Certified family nurse practitioner specializing in forensic nursing. She holds a second Board Certification in Advanced Forensic Nursing. Her areas of expertise include violence across the life span, ethical dimensions of forensic nursing practice, and forensic medical services for vulnerable and/or marginalized populations. Mrs. Ekroos' nursing practice is guided by a philosophy grounded in integrity (personal, professional, and organizational), humility, respect for persons, justice, and ethics. Through CFNE International she provides educational services, consulting services, research collaborations and direct patient care services in a myriad of settings through partnerships with individuals, communities, businesses, governmental and non-governmental organizations. Mrs. Ekroos is a Distinguished Fellow of the International Association of Forensic Nurses, serves as a portfolio reviewer for the ANCC Advanced Forensic Nursing Board Certification program, and is Chair of the IAFN Scope and Standards of Forensic Nursing Practice task force. She is also a published author, national speaker on various forensic nursing topics, and has teaching experience in the roles of adjunct faculty, clinical preceptor, and faculty for forensic nursing courses. Mrs. Ekroos is currently completing a PhD in nursing with a scholarly focus on the ethical dimensions of forensic nursing practice. Her doctoral studies also include research on forensic nursing photodocumentation and digital imaging practices.

Diana Faugno MSN, RN, CPN, SANE-A, SANE-P, FAAFS, DF-IAFN

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A native of Minnesota, Diana Faugno graduated with a degree in Nursing from the University of North Dakota in 1973 and she received her Master's in Nursing from the University of Phoenix. She is a Founding Board Director of End Violence Against Women International as well as a board member of CAPSAC California American Professional Society on the Abuse of Children. She is a fellow in the American Academy of Forensic Science, as well as a Distinguished Fellow in the International Association of Forensic Nurses. She provides trainings across the country to assist teams in development of staff on topics using curriculums and educational standards on various topics relating to sexual assault. She is the nurse examiner at the Barbara Sinatra Childrens Center and a nurse examiner for Eisenhower Medical Center SART team.

Ms. Faugno is also the co-author of Color Atlas of Sexual Assault (Mosby Publications 1997). This was the first book of its kind in the nation. She is also co-author of Sexual Assault across the Life Span, (GW Medical 2003, STM Learning 2014), Adolescent and Adult Sexual Assault Assessment Learning Series workbooks 2012 and numerous other publications.

Jodie A. Flynn, MSN, RN, SANE-A, SANE-P, D-ABMDI

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Mrs. Flynn specializes in sexual assault and death investigation, to include medical-forensic examinations, curriculum development, and professional education. Prior to joining Ashland University, she managed a hospital-based Forensic Nursing program. She has contributed to *A Safer Campus: A Guidebook on Prevention and Response to Sexual and Intimate Partner Violence and Stalking for Ohio Campuses, Ohio Child and Adolescent Sexual Abuse Protocol, Ohio Protocol for Adult/Adolescent Medical and Forensic Sexual Assault Evaluations,* and co-authored *Sexual Assault* in Varcarolis' Foundations of Psychiatric Mental Health Nursing textbook. She has presented on these topics at conferences and conducts pediatric and adult/adolescent SANE trainings, including the Adult/Adolescent SANE Online Training Program at Duquesne University.

A Forensic Nurse Examiner since 2002, Mrs. Flynn is Board Certified as an Adult/Adolescent and Pediatric SANE (SANE-A/SANE-P) and holds Diplomat status as a Medicolegal Death Investigator (D-ABMDI). She received a BS in Nursing from The University of Akron, holds a MS in Nursing degree with a Forensic Nursing focus from Duquesne University, and is currently working towards a PhD in Nursing.

Mrs. Flynn is a Past-President of the Ohio Chapter of the International Association of Forensic Nurses (IAFN) and past Board Member of IAFN. She holds professional memberships in the ANA, NLN, Sigma Theta Tau International Honor Society of Nurses, IAFN, AAFS, and OAESV.

Sally J. Laskey

National Sexual Violence Resource Center

Director of Special Projects
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Sally J. Laskey joined the National Sexual Violence Resource Center in 2001 and currently serves as the Director of Special Projects. For over 20 years, Ms. Laskey has worked for social change at local, state and national levels. Ms. Laskey received her bachelor's in Sociology from the University of New Hampshire, and her master's in Community Psychology and Social Change from Pennsylvania State University. She manages several national technical assistance and training projects related to strengthening sexual assault advocacy and prevention, and building effective and sustainable multidisciplinary responses to sexual assault.

Linda E. Ledray, PhD

SANE-SART Resource Center
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In 1977, Dr. Ledray founded Minnesota-based Sexual Assault Resource Service (SARS), one of the first SANE programs. SARS provides competent forensic-medical services to sexual assault survivors at seven hospital sites. A retired Army Colonel, Dr. Ledray has assisted with the implementation and development of civilian and military SANE-SART programs internationally.

In 1992, she convened the first meeting of SANEs in Minneapolis, resulting in the founding of the International Association of Forensic Nurses (IAFN). She was on the first IAFN Certification Board and was an Editorial Board member for IAFN's Journal of Forensic Nursing through 2013. As the Director of the SANE-SART Resource Service, she continues to serve on national committees for the DOJ/NIJ. Dr. Ledray is the 2012 winner of the National Crime Victim Service Award. She was the SANE section editor for the Journal of Emergency Nursingand the Journal of Forensic Nursing and has served on the editorial review board of Health Care for Women International for the past 12 years. She has published articles and books, such as "Recovering from Rape", "The Sexual Assault Nurse Examiner Development and Operation Guide" and Medical Response to Adult Sexual Assault.

Dr. Ledray received a BS degree in Nursing and a Master's degree in Community/Mental Health Nursing from the University of Washington. She earned a Master's degree in Psychology and a Ph.D. in Clinical Psychology and Personality Research from the University of Minnesota.

Mary Lentschke

Houston Police Department, Special Crimes Division - East Patrol Command
Assistant Chief

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Assistant Chief Mary Lentschke is a 30-year veteran of the Houston Police Department, Houston, Texas. She began her career in 1983 as a police officer and promoted through the ranks, achieving the position of Captain in 2004. During that time she worked in a variety of assignments, including the Crime Scene Unit, Gang Unit, Patrol Operations, Internal Affairs, and the Women's Issues Unit - where she coordinated investigations

involving Title VII issues, gender and discrimination concerns, and matters relating to sexual harassment. As a Captain, Assistant Chief Lentschke served in the Special Operations Division, Training Academy, Westside Patrol Division and the Special Victims Division - where she managed Family Violence and Sex Crimes investigations. In 2013, she was promoted to the rank of Assistant Chief and currently oversees the East Patrol

Command which is responsible for patrol operations for the east side of the city.

Assistant Chief Lentschke attended Sam Houston State University where she earned her bachelor's degree in Law Enforcement and Police Science in 1983 and her Master's Degree in Criminal Justice Administration in 2000. She also attended the FBI National Academy, graduating in December 2000.

Currently, Assistant Chief Lentschke is a member of the multi-disciplinary group that was assembled in response to the Houston Police Department receiving one of two national NIJ action-research grants in 2011. The purpose of the grant is to assess and evaluate the accumulation of untested sexual assault kits and identify what policies and practices could be implemented to keep the accumulation of untested kits from recurring. She presented the findings of that research at the 2013 International Conference on Sexual Assault, Domestic Violence and Stalking, the National Center For Victims of Crime in 2014, and is scheduled to present at the upcoming Pennsylvania Coalition Against Rape Conference in August 2014. Additionally, she routinely participates in conferences sponsored by End Violence Against Women International and the National Association of Women Law Enforcement Executives, as well as the annual Crimes Against Women Conference.

Penelope (Penny) W. McDonald, PhD

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Dr. McDonald has been interested in violence and abuse prevention for most of her career and has been involved with forensic nursing since 2000, when she developed and coordinated the SANE/SART program in Knoxville, Tennessee. In that role she provided SANE/SART education for nurses, as well as law enforcement, and district attorneys in Knoxville and surrounding counties until she moved to New York in 2003. She continued to teach the Basic SANE curriculum for several years in New York and elsewhere until she began her work on her PhD. While her primary work responsibilities are in nursing education, she has maintained an ongoing interest in forensic nursing and violence and abuse prevention for women and all individuals. Her dissertation, completed in 2012, and current research interests are women recovering and recovered from intimate partner violence.

Dr. McDonald currently teaches Senior level clinicals, Health Promotion, and Evidence-Based Practice and Nursing Research. She continues her research in the areas of violence and abuse prevention, identification and intervention. She is a member of ANA and IAFN.

Patricia Metzler, RN, TNS, SANE-A, SANE-P, CPN

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Patty's been a nurse for 36 years, 33 of those have been in the Carle Foundation Hospital Emergency Department in Urbana, IL. She developed the Resource Hospital Manual for her hospital's EMS designation, assisted with the hospital's Level I trauma designation, developed an ED nurse internship program, was a pilot site/coordinates the international program Risk Watch, was a pilot site/coordinates a SANE program, assisted with developing the Champaign County Child Advocacy Center, helped develop an inpatient Child Abuse Safety Team, and works on many local and state programs that intersect with all of the above programs. She also sits on the Regional Child Death Review Team. She lectures on topics of sexual assault, child abuse and neglect, trauma, interpersonal violence, injury prevention, and self-care. She's a subject matter expert for sexual assault, and has served twice overseeing the item writing for the SANE-A and SANE-P exams. She's had the privilege to participate in seven medical missions abroad, and locally volunteers at a Christian free health center. She won the governor's PATH award and also received a Lifetime Achievement Award for pediatric care. She served as the first Illinois IAFN president. She's been a member of Sigma Theta Tau and is a member of the IAFN.

She's been married for 32 years, is a devoted mother and grandmother, is an accomplished pianist, and loves nothing more than feeding a house full of friends and family.

Stacey A. Mitchell, DNP, MBA, RN, SANE-A, SANE-P

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Dr. Mitchell holds a Doctorate in Forensic Nursing from the University of Tennessee Health Science Center in Memphis. Her Master's Degree in Nursing has a focus in trauma and forensic nursing from the University of Virginia in Charlottesville. Dr. Mitchell's bachelor's degree is in Nursing from the Medical College of Virginia. Her nursing career spans over twenty-four years with experience in critical care, emergency nursing, forensic nursing, and risk management.

Dr. Mitchell began her forensic nursing career twenty-one years ago as the coordinator of the Forensic Nurse Examiners of St. Mary's Hospital in Richmond, Virginia. In 2002, she moved to Houston to hold the position of Deputy Chief Forensic Nurse Investigator at the Harris County Medical Examiner's Office. She was instrumental in the development of the largest cadre of forensic nurses to work in a medical examiner or coroner office in the United States.

Currently, she is the Administrative Director of Forensic Nursing Services for Harris Health System. She implemented of a full-service forensic program for the Level I and Level III trauma centers and all community health clinics within the System.

She has served as a Director at Large for two terms, Treasurer, President- Elect and President on the Board of Directors of the International Association of Forensic Nurses (IAFN).

Dr. Mitchell is also the President and CEO of S.A. Mitchell Consulting, Inc.

L. Kathleen Sekula

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Dr. Sekula is a Professor of Nursing at Duquesne University School of Nursing and is a Fellow in the American Academy of Nursing. Her area of expertise is in psychiatry and forensic nursing practice. In her clinical practice she sees patients as a nationally certified (ANCC) Advanced Practice Psychiatric Mental Health clinician and works with various populations, including victims of violence. From 2003 until 2009 she was awarded two HRSA grants during which time she served as the grants Project Director and developed the graduate forensic nursing programs at the Masters, DNP and PhD levels. She developed the first online SANE-A course which has educated over 400 nurses as SANEs in various areas of the country, reaching the rural and underserved.

Current research projects include the exploration of legal outcomes in forensic practice, women in corrections, and the impact of violence on women's health. She served as President of the Board of Directors of the Sexual Assault Response Team of Allegheny County and on the Board of the Cyril H. Wecht Institute of Forensic Science and Law. She served as a member and then as President of the Forensic Nursing Certification Board from 2005 – 2012. In addition, she served on the Editorial Board of the Journal of Forensic Nursing. Dr. Sekula consults throughout the country and internationally regarding the education and practice of forensic nurses.

Valerie Sievers MSN, RN, CNS, CEN, SANE-A, SANE-P

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Prior to her current position, Ms. Sievers worked as Colorado SANE Project Director for 15 years, funded by the Colorado Division of Criminal Justice. She moved the position and funding to UCCS to support an academic and clinical foundation for forensic nursing education. As a Forensic Clinical Nurse Specialist, Val provides advanced education to healthcare professionals regarding the collection of forensic evidence from adult, adolescent and child survivors of sexual and physical abuse, collaborative strategies for communities interested in SANE program development as well as technical support and continuing education.

Val has more than 30 years of experience as a registered nurse with extensive practice in the arena of emergency and trauma services and critical care nursing. Currently she is certified in emergency nursing and as an adult-adolescent and pediatric SANE.

Val's professional affiliations include: The International Association of Forensic Nurses, American Nurses Association, Emergency Nurses Association, American Professional Society on the Abuse of Children, National Association of Clinical Nurse Specialists, Sigma Theta Tau and the American Association of Legal Nurse Consultants.

In 1995, Val and emergency nurse colleagues developed the first SANE program in Colorado at Memorial Hospital in Colorado Springs. Val continues to provide medical- forensic evaluations of children and adolescents at Safe Passage, the Children's Advocacy Center of the Pike's Peak Region.

Patricia Speck DNSc, APRN, FNP-BC, DF-IAFN, FAAFS, FAAN

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Patricia M. Speck is an internationally recognized sexual assault researcher and expert in advanced practice forensic nursing of sexual and domestic assault and abuse in all developmental ages and stages. She is a Fellow in the prestigious American Academy of Nursing, a Distinguished Fellow in the International Association of Forensic Nurses (IAFN) and Fellow in the American Academy of Forensic Sciences (AAFS). She has published professionally, lectures internationally, and honored with over 20 local, national, and International awards. She evaluates programs and provides expert advice to a number of government and nonprofit organizations. She was an invited lecturer at the NIJ Annual Conference (2009) and the DOJ SANE/SAFE/SART Best Practices Webinar (2014). She compiled the research portfolio for the NIJ on telehealth and delivery of sexual assault forensic services (2012), currently serves as a subject matter expert on the SAFER Working Group Steering Committee (2014) and the SAFER Working Group (2015). She is one of three primary authors of the ANA's (2009) Forensic Nursing: Scope and Standards of Practice. Her SANE Program Evaluation Questionnaire (SPEQ ©) has been adapted to support DOJ-IAFN Technical Assistance to SARTs nationally. In addition, she currently serves as a member or officer on the Board of Directors of several local community organizations that prevent and/or respond to interpersonal violence and its aftermath. She has research interest in DNA recovery, the effects of violence and trauma on individuals and populations, practice and policy development, program

evaluation and capacity building, education and violence prevention initiatives**;** and is twice recipient of grant funding from the Department of Justice to study Post Coital DNA Recovery.

Julie L. Valentine MS, RN, CNE, SANE-A

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Julie Valentine MS, RN, CNE, SANE-A, is an Assistant Professor at Brigham Young University College of Nursing. Her clinical specialty and research focus area is forensic nursing. Julie is a certified sexual assault nurse examiner with Salt Lake Sexual Assault Nurse Examiners and Primary Children's Medical Center, Salt Lake City, Utah. She is also a full-time PhD in Nursing student at Duquesne University. Julie is principal investigator in a collaborative research project with the Utah state crime laboratory exploring the impact of new DNA testing methods, specifically Y-STR analysis, on evidence collection following sexual assault. Preliminary findings from the pilot study have resulted in statewide policy changes in evidence collection protocols. Julie has received funding to expand this collaborative database throughout Utah resulting in a robust dataset of sexual assault cases in Utah from 2010 to 2012. Julie is also principal investigator in a collaborative study developing a law enforcement-training program for sexual assault cases with the State of Utah Attorney General's office and a large law enforcement agency in Salt Lake County, Utah. In October 2013, Julie completed the National Institute of Justice sexual assault nurse examiner toolkit on criminal case outcomes in sexual assault cases for Salt Lake County, Utah from 2003 – 2011. The findings from the toolkit have resulted in changes in law enforcement agencies and the district attorney's office.

Joyce Williams, D.N.P., AFN-BC, FAAFS, DF-IAFN

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Dr. Joyce Williams is an Assistant Professor and clinician. Her primary focus is injury prevention that includes: injury assessment on children, analysis and investigation of death related to mass casualty, including natural disasters, terrorist action and armed conflicts; deaths that occur by violence, suicide, suspicious/unusual manner. Her research includes analysis of combat mortality casework and protective armor, deaths from non-medicinal inhalants and disaster victimization.

Dr. Williams earned her Doctor of Nursing Practice from the University of Tennessee and a Masters in Forensic Science Administration from Oklahoma State University. She volunteers her professional expertise for the International Association of Forensic Nurses, the American Academy of Forensic Science, and the World Association for Disaster and Emergency Medicine and partnered with the American Nurses Credentialing Center

for the Advanced Practice Portfolio for forensic nurses. She serves on the Maryland Human Trafficking Task Force designing medical interventions for victims and educating emergency department personnel.

She has been honored with the Distinguished Fellow Award from the International Association of Forensic Nurses in 2011, the Dr. Wilbur B. Payne Memorial Award for Excellence in Analysis Department of the Army, Combat Helmet Study in 2005, and the Governor's Citation State of Maryland for support and contributions to the Safe Place, Washington County Child Advocacy Center in 2006.

Kimberly Womack, DHSc, ARNP-BC, SANE-A

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Director
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Dr. Kimberly Womack has been working in the emergency/trauma department for the last 27 years all over the country. First as an RN and then as an acute care NP for the last 15 years. She served in the USAF for 9 years as a flight nurse. She holds a Doctorate in Health Sciences degree with a concentration in wound healing and the implication to forensic practice.

Dr. Womack is currently the director of Emerald Coast Forensic Services, contracting with the local emergency departments and the military hospitals providing SAFE to respond to victims of sexual violence located in Gulf Breeze Florida. This organization also provides education and training to include the 40 hr Adult/Adolescent SANE course; ER staff education and community outreach. She is the Chair of the two-county SART.

Dr. Womack is the the president-elect of the IAFN 2015, as well as a member of the ANA and American Association of Nurse Practitioners.

Appendix C: Federal Stakeholder Meeting Notes

Meeting Notes: Organizing and Transferring SANE/SART Knowledge and Best Practices for the Federal Practitioners Meeting

May 14, 2014 (9am-Noon)

RTI International
701 13th Street, N.W., Suite 750
Washington, DC 20005-3967

Attendees

RTI - Jeri Ropero Miller, Patricia Melton, Crystal Daye & Olivia Rice

Danielle Weiss (NIJ Contractor) – Committee to implement the SAFER Act, which aims to: 1) Develop of best practices of sexual assault evidence collection/processing of kits; 2) Development of Audit Program for police departments and laboratories to process and assess reporting of all sexual assault kits; 3) Training/Technical Assistance programs for these findings to practitioners in community

Charlotte Clark (Department of Interior) – Victim Assistance Program Manager in the Office of Law Enforcement and Security, which provides technical support, guidance, and policy assistance to the 4,000 officers in the various Bureaus. Example Bureaus which may have an issue with sexual assault include - National Parks Service, where there are concerns of unreported SAs, especially among the concessionaires who live in often tight, small dorm-like conditions; Bureau of Indian Affairs – which is currently there is a huge initiative for SANE/SART in Indian country

Kellie Greene (U.S. Peace Corps) – Director of the Office of Victim Advocacy; Over last 3 years have been working to build sexual assault advocacy programs with Volunteers of Peace Corps; Training and Technical Assistance law enforcement

Julie Lecea (U.S. Air Force)– Special Agent of USAF, Special Crimes Unit; Past 15 years focus on violent crimes and sexual assault in the Air Force; the U.S. military has had the opportunity to improve process and advance the way sexual assaults are investigated; Interested in need to improve processes/programs of SA. Unique processes/procedures compared to other agencies.

Hannah Barcus (NIJ Contractor) – DNA Backlog Reduction Program; background in laboratory working with sexual assault kits

Lindsay DePalma (NIJ Contractor) – Past experience includes NIJ SANE/SART training programs and working with the FBI on project regarding testing sexual assault kits

Michelle Arebeit (NIJ) – SAFER Working Group; Interested in best practices in evidence collection and processing of sexual assault kits

Leslie Hagan (DOJ) – National Indian Country Training Coordinator; Based in Columbia, SC at National Advocacy Center (USC); Focused on training for Indian Country federal responders, law enforcement, tribal training, prosecutors, medical providers; Training mainly focuses on domestic violence and sexual assault because of the crime rates for those situations among the 566 recognized tribes; Former U.S. Prosecuting Attorney; Also does training for other groups, including IAFN training both online and onsite

training; Team approach is important - federal agencies are NOT first responders, so it is important to train and work collaboratively with practitioners, as we approach crime as a team

Ginger Baran (OVW) – Program Specialist; Grant management and policy issues related to sexual assault, specifically untested /backlog sexual assault kits, implementation of the UCR definition of rape; former SANE/SART Coordinator and Maryland Coalition Against Sexual Assault – training for nurses and advocacy

Kristina Rose (OVC) – Deputy Director; in charge of national training, technical assistance and program development; interested in Telemedicine as tool to deliver forensic examination technical assistance and support for medical providers who need the training.

Diana Faugno (Consultant) – Forensic Nurse (California)

Patricia Speck (University of Alabama-Birmingham) – Background in sexual assault and SANE/SART practices and training; globally working with State Department to assist with regional trainings (Caribbean, Central America, and faith-based organizations in South America); also working on the SAFER Committee

Kathleen Sekula (Duquesne University) – Professor and Nurse with a psych/mental health background; online training program to reach nurses (~500) in rural locations

Eileen Allen (Monmouth County, NJ) – Coordinator for the SANE Program; Adjunct faculty at Monmouth University, primary instructor for the Sexual Assault Examination Across the Lifespan Course, which trains most of the nurses across NJ; Also works with IAFN, including serving on the Board and working to establish a regional training with preceptor practical experience to perform forensic examinations

Marnie Shiels (OVAW) – Attorney Advisor; Experience includes working with Kris on the Telemedicine initiative; also worked on the National Protocol for Sexual Assault Medical Forensic Examination

Beverly Cotton (IHS) – Acting Director, Division of Indian Health and SANE/SART Coordinator; national policy development and training for sexual assault and clinical skills training; in 2013, launched the Tribal Forensic Healthcare Initiative in partnership with IAFN to conduct regional/in-person trainings, and launched online training program, which has trained over 270 providers to become sexual assault providers; working to publish work on Clinical Skills Competency and revising IHS national sexual assault policy, which should be established and disseminated in 2014

<u>Topic and Key Questions Discussion</u>

1. **Conducting Sexual Assault Examinations (SAE)**
   a. Swabbing
      - Need evidence-based work on where to swab (in the vaginal wall and anal penetration) and how many swabs to collect
      - Recommendation may be to reduce the number of swabs collected as many laboratories are no longer conducting serology
      - One swab is sufficient for laboratory analysis – need evidence based work to support this

  - Prosecutors perspective: one swab down from four is alarming
  - Pat's presentation at EVAWI: nurses expect to get at least two swabs, one for prosecutor and one for the defense; question still remains – "are two swabs necessary?"
  - Danielle: Have to think from all perspectives, not just the lab, but also trace component, prosecution and the defense. Technology may be more sensitive, but you will exhaust the sample quickly with just one swab; for purposes of prioritization, the first swab maybe goes to the lab?
- Work is being done on what kind of swab is best – communication between lab and SANEs will be important because of the DNA extraction process
  - Nylon swabs: release DNA better than cotton swab
  - Cotton swabs: matrix of fabric tends to hold on to things
  - If lab is using an automated process, the robotics use chemicals and some of the chemicals work better with the nylon swabs vs. cotton
- Important to remember that autosomal STR will identify individuals, Y STR will only get you to the male lineage
- NIJ Post-coital DNA Recovery research study (Pat Speck)- inadvertent finding centered around the 4-swab collection:
  - Combined cervix and posterior fornix swabs together will yield >90% DNA recovery; much less for single swabs from different locations using the enhanced Y-STR methods
  - Huge impact on economics, processes, and dissemination of this information

b. Touch DNA
- Depending on the circumstances of the event, swabs may need to be collected on other parts of the body (e.g., wrists that were grabbed, strangulation, etc.)
- Lab techniques are much more advanced now and the lab is able to pick up more touch DNA from the body

c. Toluidine Blue Dye and Lubricants
- Lab can process swabs with blue dye on them
- Lubricants (on the speculum) will not affect downstream DNA analysis in the lab
  - Lubricants for SA (condoms) may lead to contaminations for trace (what was used in SA) identification

d. Training and Dissemination of New Techniques/Research
- Informed conversation across all disciplines is key and has to happen
- Forensic nurses are writing protocols based on what the literature says, but not all other parties are familiar/comfortable with making changes based on this new information because they don't know the science (e.g., attorney may be familiar with the science of 5 years ago are hesitant to make changes to the kit contents because there is such emphasis on the rationales and emphasis on how things used to be)

2. Innovating DNA Analysis Technologies

a. Y STR Analysis

- Perpetrator DNA can be picked up with a few cells
- Serology may be the background/after testing just for courts and Y STR will be the first line of testing

b. Collection time (recommended 48 hour window) – 9 to 10 days using enhanced Y-STR; there is considerable reduction in DNA detection with Y-STR or STR only
c. Need support and evidence based research for extended collection times and increased sensitivity for detection and DNA recovery

3. Eliminating Untested Evidence

a. Victim Notification
   - OVW – currently working on technical assistance around this issue and can share some of this information

b. Federally funded efforts in Cleveland
   - Processing kits fast, but court ordering victims to testify against their will
   - Law enforcement is not engaged; all under the prosecutor's office
   - Works for the crime lab, but not a model for victim interaction

4. Standardization of Sexual Assault Kits (SAKs)

a. Standardization is key
b. For Criminal Justice purposes, more research needs to be conducted on what makes a SAK effective. Research question: What kind of evidence is most useful for prosecution of the case?
   - Current research being done to determine what evidence is most probative to determine a case
   - Criminal justice outcomes have to be considered - Ted Cross and Megan Alderden (OVW) are also evaluating this issue
   - NIJ has an IAA with FBI to study what is in SAKs and the associated outcomes with processing those kits

c. What should be necessary components for a SAK?
   - Components of SAKs vary across states and are different in tribal locations; therefore, training can be different at local, state, and national levels
   - SAK components may also vary among agencies within the same state
   - Part of the SAFER Committees mission is to standardize SAKs
     - SAKs contents are vendor driven
     - Do we dictate what is included in the kit to drive vendors not to determine SAK contents but adhere to SA circumstances?
     - SAKs can be customized for subcategories, i.e. special populations, certain geographic area, certain case scenarios, etc.
   - From a nursing perspective, it seems that kits are driven by the crime lab, who tells the nurses what they want/do not want

e. Standardized kits could decrease the costs

f. Communication between the SANEs-Legal-lab needs to happen in order to standardize kits

d. Practitioners can customize SAKs with vendors and many people are unaware of this
    - New Jersey (Eileen) has standardized kits; the concept is revisited every 3 or 4 years with input from laboratory and legal personnel (SANEs are prosecution based)
    - People often don't know what to ask for in a SAK
    - Helps to bring vendors in on the conversation – they're not usually familiar with what is needed for science because they are a product vendor

g. Also need to think about standardization of the processing of SAKs
    - Depending on which lab you submit to, the processing not the same (e.g., some do Y STR analysis and some don't)
    - Ability to move the case forward hinges on processing evidence

h. American Society for Testing and Materials (ASTM) has standardized kits since 1995 and revisits about every 5 years

e. Agencies running out of kits is another issue
    - For gov't funded entities – once the budget is gone, there are no funds to purchase additional kits
    - Some providers are saving components of the kit of the end of the year to assemble kits, which is not a problem as long as they are using materials that are packaged in clean/sterile environments
    - The biggest issue is quantity and access to kits
    - There is sometimes a conflict on who purchases the kits – law enforcement, healthcare, or prosecution- which comes down to resources, collaboration/coordinated response
    - FL depending on the jurisdiction has a program that allows for statewide distribution of kits paid for for all victims (some law enforcement agencies are reluctant to pay for kits they do not believe they will need)

f. Kit storage and retention
    - Agencies are looking for guidance on how long kits should be stored, especially in instances where the case does not move forward
    - Urban Institute has just released and NIJ funded study regarding retention to demonstrate informed policy decisions
    - EVAW and OVW have training/technical resources on this as well on their website
    - Varies depending on the volume of cases, how much storage is available, statute of limitations
    - Agencies are not consistent in following storage/retention policies
    - Issue of payment – who is responsible when the victim decides to not move the case forward

5. Neurobiology

a. Starting to see more widespread recognition that victims are behaving in certain ways and reacting in certain ways that directly related to the release of chemicals in the brain during stress events
    - Nurse examiners and healthcare practitioners are benefiting greatly from dissemination of information regarding victim neurobiology and trauma
    - Disseminating this information will make a huge impact on law enforcement's investigative process for SA
    - More dissemination is needed across all disciplines
    - OVW is in the process of working with Dr. Campbell to help disseminate information on neurobiology and trauma intervention
b. Trauma interviewing techniques
    - Evaluation is currently lacking
    - Forensic Experiential Trauma Interview (FETI) - Army trauma interviewing techniques could be used; however, that would require more research before implementation in forensics examinations;
        - Russ Strand presents on this topic, but nothing has been published and no peer review on this yet
        - Reflects techniques of cognitive interviewing but needs more research on neurobiology component
        - Intuitive interview
    - Trauma interviewing should be part of a hospital's accreditation (i.e., JACO) requirements; Only way to mandate across hospitals
c. Trauma informed care
    - SAMHSA concept which has been employed in many organizations; concept born out of pediatrics and drug courts
    - Donna Gaffney (1990s) – Introduced this concept along with biophysiology of trauma
    - Nurses are taught how to provide trauma informed care in basic education as part of their mental health and interviewing skills curriculums
    - This concept is new to forensics and not well researched within the community
        - Parallel science
        - This is/has been used in patients with mental health disabilities
    - Training in neurobiology and trauma informed care needs to reach:
        - SA survivors (helps them to understand the physiological response to the trauma)
        - Survivors support system (family, friends, etc.)
        - Law enforcement
        - Healthcare providers
        - Legal
        - Advocates
    - OVC offers technical assistance for those needing training at no cost
    - Peace Corps has two psychologists who specialize in neurobiology and setup counseling and outreach programs based on neurobiology for one year

- Helps first responders to understand the level of care
- First responders have changed the way the interact with volunteers
- This has helped with victim blaming b/c they now understand more about what is happening when someone is in the state of crises, by getting rid of interview core questions that lead to second victimization changes

- Investigative bias, memory, and other interviewing tools have been very useful in the military; research to support (Fisher).

6. Telemedicine

a. OVC Telemedicine project in Massachusetts
   - Emphasis is on assistance during the real-time examination
   - Protocols have been developed to be able to get victim consent for additional remote medical provider who would be assisting primary medical provider through remote access equipment i.e., computer, monitor, software)
   - Tele-nurses in MA are providing ongoing training to pilot sites so they can continue to build confidence and competency
     - Nurses are saying that they would be comfortable with having someone in the examination room to help ensure they are conducting the exam correctly
   - Also exploring providing teleadvocacy to site that do not have ready access to trained SANEs and/or advocates (e.g., rural, tribal, military, correctional.)
   - The exam is not recorded and there is no photography; everything is written and placed on a diagram, however, the sites can do whatever their protocol dictates
     - Challenges about the capacity about the capacity of the RN to accurately portray what they saw is an issue when nurses do not take pictures
   - Confidentiality and privacy issues have been worked through

b. University and college campuses are another population that could benefit from telemedicine

c. Legal component
   - Do not anticipate MA nurses to testify in these cases; more likely the primary care provider/person writing the report and conducting the exam
   - Anticipate that having an expert SANE in the room will help bolster the case
   - Pat has been consulting on telehealth exams for 20 years without need to testify

d. Does this require investment in technology?
   - Equipment is not expensive
   - It's a cart; videoconferencing that is similar to what people use on iPads, etc.
   - Expense = hub piece
   - Less technology focused compared to training and volume of patients
     - Not having enough patients can be concerning (i.e., rural, tribal, and military sites)
     - If survivors know that this credible technology is available and sites have access to this, then the reporting numbers may increase
   - This is not needed in "high-traffic" areas, because those places are more likely to have access to trained SANEs

e. Guidelines related to privacy, testimony, and admissibility
    - HIPPA can create barriers related to information sharing among practitioners (e.g., law enforcement, hospitals, legal, etc.)
    - HIPPA also creates barriers to getting telemedicine implemented and accepted
f. Other areas where telemedicine is being used
    - Pediatrics and sexual assault
    - Alaska and AMES Laboratory –programs that used telehealth model for forensic exam (e.g., fingerprint exams, tool marks, etc.); technology where the instrumentation would connect to the television monitor to that the remote expert was able to look down the telescope as well
    - Virtual autopsy in medicolegal death investigation
    - DOD uses
        - Crime scene investigation in forensics - Use real time video conferencing to bring assistance and more expertise at the crime scene; the investigator on scene will scan the area with a camera so that those working remotely can help with evidence collection; used as a triage also
        - Cyber Center Defense for Hard Drives for digital evidence and remote multimedia hard-drive; Examiner in one location and investigator on location and examine evidence without having to ship it and it helps to speed up the investigation

7. Other issues?

a. Competing budgets and how this affects relationships between members of the SART
b. More training is needed among the SART members on their roles and responsibilities
c. Offender Evidence Collection
    - Varies across U.S.; some states (i.e., NJ) do not offer offender evidence collection; many programs are setup to only swab victims, so having a location where offender evidence can be collected is also needed
    - Different level of care is required when evaluating offenders
        - When functioning in the role as a RN
        - Level of care for evidence collection for offender is typically low
    - Consent is an issue
        - Bringing offender in under exigent circumstances, reasonable doubt, etc.; warrant can help with consent
        - Myth is non-healthcare provider's opinion about licensed provider's relationship with individuals
        - RNs have the right to refuse to act on a warrant if the patient says no
    - Beyond evidence collection, healthcare is being provided; if a nurse detects something and doesn't make the appropriate referrals, there is a liability
    - Prison system – there is no problem with evidence collection
    - Offender evaluation should be included in training

- It is part of some SANE training programs depending on the jurisdiction
- Specific to evidence collection
- Possibly adjunct training and not part of the 40 hour training

Next Steps and Continued Discussion

1. Practitioner Stakeholder Meeting – July 14, 2014 (9am – 4pm) at RTI headquarters in Research Triangle Park, NC
2. Policy Forum – proposed September 18, 2014 in Washington, DC

Appendix D: Policy and Practice Forum Presenter Bios

Speaker Bios

Jack Ballantyne, PhD
University of Central Florida (UCF) and an Associate Director of the National Center for Forensic Science in
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Jack Ballantyne is a Professor of Chemistry at the University of Central Florida (UCF) and an Associate Director of the National Center for Forensic Science in Orlando, Florida. He possesses a B.Sc. (with Honours) in Biochemistry from the University of Glasgow, Scotland, a M.Sc. in Forensic Science from the University of Strathclyde, Scotland and a PhD in Genetics from the State University of New York at Stony Brook, NY. His current duties include teaching and conducting research in forensic molecular genetics.

Prior to entering academia, he was a casework forensic scientist in Scotland, Hong Kong and New York where he proffered expert testimony in the criminal courts of these jurisdictions. He was the full time DNA technical leader in Suffolk County, New York and then served as a part-time consultant DNA technical leader for the States of Mississippi and Delaware, the City of Dallas and Sedgwick County, Kansas. He is the Chair of the New York State DNA Sub-committee, a regular visiting guest at the Scientific Working Group on DNA Analysis Methods (SWGDAM) and a member of the DoD Quality Assurance Oversight Committee

His research interests can be classified as "getting blood from a stone: more and more probative information from less and less genetic material". Specifically his current projects include the efficient use of Y chromosome markers, RNA profiling for body fluid identification and single cell/low copy number analysis.

Kristina Rose
U.S. Department of Justice, Office for Victims of Crime
Deputy Director
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Ms. Rose joined the Office for Victims of Crime in September, 2013. Prior to this, Ms. Rose was the Deputy Director for the National Institute of Justice (NIJ), the Department of Justice's research and evaluation arm. Ms. Rose also served as NIJ's Acting Director from 2009-2010. Prior to joining NIJ, Ms. Rose was the Chief of Staff at the Department's Office on Violence Against Women.

While with the Department of Justice, Ms. Rose has spearheaded numerous large-scale projects in the area of violence against women, including the first national survey on stalking, the creation of a "virtual practicum" on sexual assault forensic exams, and an action research study on untested sexual assault kits. She is currently engaged in the creation of the Nation's first telemedicine center focused exclusively on providing sexual assault forensic exam assistance to medical providers in underserved areas.

In 2012, Ms. Rose was selected for the Department of Justice's Leadership Excellence and Achievement Program (LEAP) and completed an 8-month developmental assignment as a victim advocate in the Victim/Witness

Assistance Unit at the U.S. Attorney's Office in Washington, DC. Ms. Rose currently serves on the Sexual Assault Advisory Council for the U.S. Peace Corps and the White House Task Force to Protect Students from Sexual Assault. She holds a B.A. in sociology from George Mason University and an M.S. in criminal justice from Northeastern University.

Eileen Allen, MSN, RN, FN-CSA, SANE-A, SANE-P

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Registered Nurse
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Eileen Allen is a registered nurse, actively practicing in New Jersey for more than 25 years. She holds a Bachelor's Degree in Nursing from the University of Delaware and a Master of Science in Nursing with a concentration in Forensic Nursing from Monmouth University. She is nationally certified as a Sexual Assault Nurse Examiner of Adolescents and Adults, and of Pediatric patients. She is employed full time as the coordinator of the Monmouth County Sexual Assault Nurse Examiner Program and Sexual Assault Response Team. Additionally she is an adjunct faculty member at Monmouth University in West Long Branch, teaching forensic nursing and forensic pathology courses.

She has lectured extensively on topics related to sexual assault, interpersonal violence and forensic nursing to local and national audiences, has edited several nursing text book chapters and has collaborated on a number of federal level research projects related to sexual assault and elder abuse. In her capacity as a forensic nurse Eileen has testified as both a fact and an expert witness in criminal and civil matters in various jurisdictions in New Jersey and Pennsylvania, and in Federal District Court.

She has served as a Director and is a past President of the Board of the International Associations of Forensic Nurses and is a past Chair of the Congress on Policy and Practice and Board member of the New Jersey State Nurses Association. Eileen currently serves on the Freehold Township Board of Health and is an Executive Board member for the Central Jersey Family Health Consortium.

Patricia Speck DNSc, APRN-BC, SANE-A, SANE-P, DF-IAFN, FAAFS, FAAN

University of Alabama-Birmingham School of Nursing in the Department of Community Health, Outcomes, and Systems
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Patricia M. Speck is an internationally recognized family nurse practitioner expert in advanced practice forensic nursing of sexual and domestic assault and abuse in all developmental ages and stages. She is a Fellow in the prestigious American Academy of Nursing and is a Distinguished Fellow in the International Association of Forensic Nurses (IAFN) and Fellow in the American Academy of Forensic Sciences (AAFS). She has published professionally, lectures internationally, and honored with over 20 local, national and International awards. She provides expert advice to a number of government and nonprofit organizations and was an invited lecturer at the NIJ Annual Conference (2009), and has compiled the research portfolio for the NIJ on telehealth and delivery

of sexual assault forensic services (2012). She is one of 3 primary authors of the ANA's (2009) Forensic Nursing: Scope and Standards of Practice. Her SANE Program Evaluation Questionnaire (SPEQ ©) has been adapted to support Department of Justice IAFN Technical Assistance to SARTs nationally. In addition she currently serves as a member or officer on the Board of Directors of several local community organizations that prevent and/or respond to interpersonal violence and its aftermath. She has research interest in the effects of violence and trauma on individuals and populations, practice and policy development, program evaluation and capacity building, education and violence prevention initiatives and was awarded an R01 from the Department of Justice to study Post Coital DNA Recovery.

Lt. Shamara Garner
Houston Police Department
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Lieutenant Shamara Garner is a twenty year veteran with the Houston Police Department. She is currently assigned to the Special Victims Division, where she is the lieutenant over the Adult Sex Crimes Unit. Additionally in this role, she has served at the forefront of the multi-disciplinary initiative to address the issues related to previously untested sexual assault kits in Houston. She has been tasked to oversee the investigative response of the previously cold cases of adult sexual assault survivors. Previously, Lieutenant Garner has been assigned to the Juvenile, Homicide and Internal Affairs Divisions. Lieutenant Garner earned a Bachelor of Arts degree in History from the University of Houston. She is currently enrolled at Sam Houston State University, where is she obtaining a Master of Science degree in Leadership and Management.