PennState Ross and Carol Nese College of Nursing | SAFE-T Center

SAFE-T SYSTEMS

The Sexual Assault Forensic Examination Telehealth (SAFE-T) Systems

Program Evaluation to the U.S. Department of Justice Office for Victims of Crime
Final Report (2017-2021)

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Many talented individuals contribute to the development and execution of the vision and mission of the SAFE-T Center at Penn State and SAFE-T Systems™ model of care delivery. We gratefully acknowledge the contributions of those who participated in developing, delivering, and evaluating SAFE-T including our dedicated staff and our incredible teleSANE team who "pay it forward" by sharing their experience with the next generation of SANEs. Our work has been thoughtfully guided and championed by our volunteer advisory boards who generously have given their time and talent to advance solutions to improve the response to sexual assault. We were successful in building a new standard of care for sexual assault in Pennsylvania because of the dedication and meaningful contributions of our partners.

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Dedication

We dedicate this report to the victims of violence we are fortunate to serve and to Kristina Rose, OVC Director, and Ivette Estrada, Grants Program Specialist. Director Rose's vision for novel solutions to improve care for victims of sexual violence provided the resources and the impetus for innovation not previously achieved in forensic nursing. Ms. Estrada has been a dedicated partner in our work, providing sound guidance and trusting us to execute our plan. The field of forensic nursing is closer to actualizing equitable access to quality care for victims of assault because of the vision and advocacy of OVC leadership.

DISCLOSURE

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Executive Summary

The SAFE-T Center™ was launched in 2017 with support from the U.S. Department of Justice (DOJ), Office for Victims of Crime (OVC) Award # 2016-NE-BX-K001 as a solution to enhance access to high quality sexual assault (SA) care in underserved communities. SAFE-T aims to decrease disparities in quality of forensic SA care by providing expert, live, interactive mentoring, quality assurance, and evidence-based training to less experienced nurses via telehealth technology. When a SA examination is performed at one of our partner hospitals, one of SAFE-T Center's expert SANEs (teleSANEs) provides real-time support to both the on-site nurse and the patient, ensuring best practices, proper evidence collection and a supportive environment exist for the patient.

It has been a privilege to have the opportunity to execute our vision to decrease inequities and improve the quality of care for individuals who have experienced sexual assault in rural and underserved communities. We are grateful for the investment in our program to lead and advance telehealth efforts to enhance delivery of training, mentoring and expert consultation to areas where it is needed.

This is the final report following four years of effort on this project. Detailed progress reports were completed on a biannual basis throughout the funding period (2017 to 2021). Given the level of detail in prior progress reports, we do not reiterate outcomes previously reported. Instead, we provide a high-level overview of the project goals, our philosophy and approach to the work undertaken to advance our goals, and key outcomes. Much of our work was novel and required building completely new models of care delivery. A critical part of our effort was to determine if the solutions we envisioned and created would have the positive impact we intended. We take seriously our obligation to share lessons learned to inform the field and to stimulate dialogue about future needs to advance the field of forensic sexual assault care. As such, we focused much of our attention in this report on "Reflections and Lessons Learned" and "Future Considerations and Direction" for each of the deliverables/goals of this award.

In the final section of this report, we offer our perspectives on promising advances and future needs to advance the forensic sexual assault field.

Comprehensive hubs of expertise can increase equitable access to quality SA care in a field with chronic shortages of expertise. Our outcomes demonstrate the effectiveness of the comprehensive SAFE-T Systems telehealth model through successful implementation of the model in eight diverse and unique communities, that community partners value the program, provision of quality SANE-led care in underserved areas where it previously did not exist, high ratings of care quality by survivors of SA, high SANE retention rates, and substantial growth in the SANE-trained workforce in PA.

Adherence to telehealth models that demonstrate evidence of effectiveness. In recent years, there has been an emergence of numerous SA telehealth programs, with differing models. Models may differ in levels of community engagement, training and services offered, type and provision of technology and technology support, training and experience of the telehealth consultant, training and experience of the local clinician, and whether "telehealth" provides telepresence in an exam room on a cart or integrates the ability to see, in real time, detailed views of injuries or evidence that may be on the body. These choices will have an impact on whether programs are effective. For telehealth models of care to gain widespread acceptance, meaningful outcomes need to be explored through rigorous evaluation research of each model and where possible, the ability to compare models to understand what elements drive positive outcomes. It is imperative that funding is available to continue important evaluation research to inform the field about the impact of forensic telehealth models of care.

Disparities and inequities in access and quality of care must be addressed. The disparities and inequities that exist in the quality of sexual assault care are staggering. Every state in the country suffers from a shortage of expertise. Even when promising solutions exist, such as telehealth to bridge gaps in expertise, ready adoption is slow, and clear reimbursement models to sustain these programs do not exist.

If you suffer a stroke or heart attack and live in a rural community, we do not accept that you should get substandard care. While recognizing that not all hospitals are resourced to perform open heart surgery, we treat it like the emergency it is and use technologies like telehealth to consult experts, stabilize patients, and expedite transfer to a partner facility where all lifesaving options are available. In this country, we fail victims of trauma by not demanding those same measures. The implications of not receiving quality care for sexual assault have detrimental effects just as serious as failure to treat chronic disease, and because sexual violence is so pervasive in our society, perhaps even more so. Every victim, regardless of economic status, race, or geographic location, must be assured they will receive high quality, respectful care that helps them and their community better recover from such a traumatic event.

Sustaining solutions that increase access and equity to quality SA care.
Our outcomes show that our model can be successfully implemented and can help solve disparities that exist in SA care quality. The big question is *who* should be responsible for paying to ensure expert hubs like SAFE-T exist as a solution to increase access and equity to quality SA care? While grant funding can often be used to establish or expand programs, it rarely can provide for continuity of programs. Charting an effective sustainability pathway for novel programs requires diverse inputs working in concert toward the solutions we need in every community.

- Grant funding should be used to establish, grow, and evaluate telehealth hubs of expertise so data drives adoption of effective solutions.
- Sustainable business plans can be built by elucidating program value in partnership with hospital leadership.

- Policy and legislative initiatives are needed to establish minimum standards of SA care, to provide incentives and support to ensure hospitals that are not able to offer comprehensive SANE-led care can provide expertise through telehealth programs, and to ensure solutions that increase standards of care are adopted when available.

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Introduction

The Sexual Assault Forensic Examination (SAFE-T) Center and SAFE-T Systems Model of Care

The Sexual Assault Forensic Examination (SAFE-T) Center and SAFE-T Systems model of care was established through two continuous grants from the U.S. Department of Justice, Office for Victims of Crime (OVC) made to The Pennsylvania State University College of Nursing. The grants supported the planning, development, and implementation of a comprehensive program to enhance access to quality sexual assault care for adolescents and adults in rural and underserved communities. While this report is the final in a series of reports on the progress of the SAFE-T Center in achieving grant goals, formal evaluation and dissemination of outcomes will continue well beyond grant funding.

As we reflect on the work completed over the funding period, we are grateful to have been entrusted to steward this substantial investment into novel and sustainable solutions to better serve victims of sexual violence. We are passionate about improving care for victims of assault. We have taken a broad and scoping approach to ensure that the solutions we developed will be sustained. We have benefitted from our community-engaged partnerships and the important lessons learned along the way. Those lessons fueled critical pivots and have provided key insights into what is needed to reduce disparities and advance access to quality care.

Phase 1: Planning Grant

Substantial planning is required to create a comprehensive program to support rural and underserved communities to enhance access and quality of care for victims of sexual assault. Our overarching goal to was to establish the SAFE-T System, a model for the startup and implementation of a statewide telehealth solution to grow, support, and sustain a SANE- prepared workforce to allow adult and adolescent victims of sexual assault to receive high- quality care within their own community. The planning year was essential to ensure that key partnerships, stakeholders, and necessary resources were aligned and in place to allow for a seamless and successful implementation of the program in partner communities.

We commend OVC's foresight to allow for this planning phase. Not only was thoughtful planning critical to our ability to seamlessly implement the program in Phase 2, but it also allowed for input and advice from OVC leadership throughout our planning phase.

Based on achievement of Phase 1 goals and progress, as the planning year neared completion, OVC invited us to apply for Phase 2 implementation funding. In the second phase, we maintained and built on Phase 1 goals and added explicit goals to address workforce development and overall program sustainability.

A Focus on Sustainability from Day One

In Miyamoto's earlier work conducted with colleagues at UC Davis, valuable lessons were learned throughout the 8 years of a successful demonstration of a 24/7 pediatric and adolescent forensic sexual abuse telemedicine program. This program generated the foundational research to demonstrate the efficacy and effectiveness of a telehealth program and demonstrated**,** through experimental design, that telehealth SA programs result in significantly higher quality evaluations, more complete examinations, and more accurate diagnoses when compared to similar rural hospitals without telehealth support[1,2] Despite positive outcomes, the program was not sustained beyond grant funding. Producing research takes time. We failed to communicate to key stakeholders the value of the program prior to research outcomes becoming available. Due to our focus on building a novel remote consultation program and providing service, we did not have program sustainability as a central focus of our work. Given the difficult experience of seeing an impactful program end, we made sustainability planning a central focus. As such, our first aim was to build a robust advisory board—a coalition of stakeholders who care about improving sexual assault care, are influential, and would help guide the development, growth, and sustainability of the Center. At the launch of SAFE-T, program anchors such as robust telehealth platforms and broad sexual assault expertise did not yet exist at Penn State. While this initially felt like a substantial challenge, it also provided the freedom to think about innovative approaches to needed infrastructure.

Goal 1: Develop a statewide coalition of stakeholders to create a shared vision to establish a hub of expertise able to develop, grow, and sustain a stable cadre of well-supported sexual assault nurse examiners (SANE) in areas that lack a comprehensive SANE response.

From the outset of the DOJ-funded SAFE-T program, attention was paid to paving the way for sustainability. Too often approaches to systemic issues fail to recognize the importance of building effective coalitions. We recognized that simply bringing experts together or providing technological support is insufficient for generating sustainable change in the field. In this project, careful attention to coalition-building enhances the likelihood of creating a sustainable impact through use of telehealth technology to enhance forensic SA examinations and to grow and sustain a trained SANE workforce.

Our first objective was to create a dynamic and purpose-driven coalition of stakeholders with expertise and influence across multiple disciplines to form the SAFE-T Advisory Board (SAB). A diverse advisory board provides a venue for identifying and prioritizing needs and developing strategies to address those needs in a manner acceptable to those in the field. Finally, if SANE nurses and the telehealth service that supports them are to be championed and supported in their community, the value must be understood by community partners at the outset.

The 21-member SAFE-T Advisory Board combines the direct experience of the SAFE-T project team, co-investigators, project consultants, and pilot partner site hospital nurse leaders with the broader views of law enforcement, victim advocates, district attorneys, state agency directors, and public policy leaders. The SAFE-T Advisory Board (SAB) meets twice yearly to actively work toward ensuring a sustainable solution to resolve the inequities in SA forensic care among rural and underserved Pennsylvanians.

Key to the early and ongoing success of the SAB was thoughtful preparation and planning for each meeting with support from an organization and management development consultant. The consultant served as a meeting facilitator, which allowed SAFE-T leadership to fully engage in active work with the SAB. At the initial SAB meeting, SAFE-T's mission statement, values, and goals for our work over the subsequent 3 years were created together.

Mission:
To partner with underserved communities in Pennsylvania to enhance compassionate, high-quality care for sexual assault victims

Values:

Person-Centered Care, Evidence-Based Solutions, and Sustainable Partnerships

Advisory Board Goals:

- Goal 1: Establish a robust SAFE-T Program Partnership Model in Pennsylvania
- Goal 2: Achieve recognition of the value of PSU's SAFE-T Program across the Commonwealth
- Goal 3: Sustain SAFE-T Systems at Penn State University
- Goal 4: Assess SAFE-T Program impacts and costs across stakeholder groups

The 7th SAB meeting was held in November 2021. At the November meeting, we shared our successful transition to a hospital partnership model in which pilot hospital partners are now fiscally contributing to ensure seamless SAFE-T program beyond grant funding. This development has resulted in SAFE-T Systems' and our programs being sustained by the end of this grant funding.

Key Outcomes

- Development of robust, committed and continuously engaged multidisciplinary advisory board that will continue beyond grant funding
- Development of a separate business advisory board
- PI Miyamoto awarded Betty Irene Moore Fellowship for Nurse Leaders and Innovators for "SAFE-T Systems: Sustaining and Scaling Nurse-Led Sexual Assault Care" which focuses on the creation of a sustainable business plan and advancing policy to scale the SAFE-T Systems for greater impact.
- Successful execution of contracts with current hospitals to pay for extension of service beyond grant funding (see Goal #8)

Reflections and Lessons Learned

The establishment of a robust advisory board was essential to the success of the SAFE-T Center. We were fortunate to have engaged so many strong advocates for our work. The work of the SAB surpassed our expectations in many ways, and we attribute that success to our approach to working with a board. A value we established at the outset was to use the board's time wisely and ensure meetings and work requests were meaningful for individuals who gave so freely of their time and talent. To ensure we adhered to these values, engaged an expert facilitator who specializes in strategic planning to assist with planning and facilitating all meetings. The SAFE-T team worked with the facilitator months ahead of each meeting to identify the issues we needed our diverse board to actively problem solve with us. We invested substantial time and energy to ensure meeting materials were targeted, rightsized, and facilitated active engagement resulting in output that would advance our mission. These efforts paid off. We have had consistent engagement from each of our hospital site partner leadership and nurse teams at each meeting. More than half of the initial board members remain on the board five years later. A sample of activities conducted on behalf of SAFE-T by board members *outside of board meetings* include:

- Establishing and attending advocacy, law enforcement and district attorney meetings in site communities
- Establishing a meeting between SAFE-T leadership and the PA Secretary of Health
- Creation and delivery of a 1-day, in person Expert Witness Training
- Facilitation of messaging opportunities: Webinars, magazine features, podcasts, presentations at rural hospital association
- Facilitation of access to key evaluation data from advocacy organizations and VOCA claim submissions
- National presentation on the SAFE-T Model at the National Association of Victims of Crime Act Assistance Administrators conference, given by a SAB Board member

Future Considerations and Direction

Our SAB is vital to our ongoing success and growth. We will continue to engage this group well beyond this initial grant funding.

Goal 2: Build and maintain a virtual teleforensic expert team to deliver expert level mentoring, support, and quality assurance to local SANE-trained nurses

The clinical model for delivery of SAFE-T Systems sexual assault telehealth consultation is one of "quality assurance" as opposed to "direct patient care." In this model of care, the local SANE providing the direct patient care is considered the "trained clinician" as they have undergone IAFN approved 41-hour SANE training and education to qualify them as such. Local SANEs have the teleSANE expert's support during the evidentiary examination. The teleSANE expert provides the local SANE with a "quality assurance" document at the end of the examination, confirming all components of the examination and supporting the final findings, evidence, and conclusions. This model of care was successfully used in Miyamoto's prior telehealth sexual abuse program and was supported by legal counsel as well as remote law enforcement and district attorney offices. The "quality assurance" approach has the advantage of supporting and growing local expertise, evidentiary documentation and examiner qualifications as needed for courtroom proceedings.

In the UC Davis telehealth model, expert clinicians working within UC Davis' large referral clinic were available to serve as consultants. However, the SAFE-T Center did not emerge from a robust physical clinic. As such, devising the right clinical response presented challenges, and ultimately, great opportunity. To ensure we could engage enough SANE nurses to meet our high standards of expertise, we opted to hire experienced, International Association of Forensic Nurses (IAFN) board certified SANE-A (adult and adolescent) clinicians and allow them to work remotely rather than staff a physical location with a group of experts. Clinicians were hired in a part-time role to serve on a 24/7 call schedule, responding to partner site consultations from a private office in their home or worksite using secure, encrypted, HIPPA compliant networking solutions. We set baseline experience criteria for individuals hired as teleSANE consultants. They had to have achieved SANE-A certification and a minimum of 3 years of recent experience, seeing at least 30 sexual assault patients per year. They also had to be actively practicing as a forensic examiner to maintain their skill proficiency.

We initially hired SANE-A nurses from Pennsylvania and later expanded to neighboring areas such as Maryland and Washington D.C. A limitation of expanding the geographical area was that training new hires required travel to University Park, PA. To increase cost efficiency, we sought experienced SANEs who lived within driving distance. With the onset of the COVID-19 pandemic, we were forced to pivot and revise our training and onboarding to allow for new teleSANEs to be hired and trained remotely. Over time, and with our virtual processes in place and performing well, we expanded our hiring to encompass more distal states to allow us to gather the most experienced experts across the country.

In the planning period, we were able to hire a team of 12 SANE-A nurses, with a collective 100+

years of SA examination experience and over 5500 SA examinations conducted. We created a 2-day orientation program that covered topics such as how to effectively mentor through telehealth, how to redirect and intervene gracefully, how to coach local SANEs in applying specialized techniques, how the teleSANE role partners with local providers, and how to use the specially designed equipment to perform a secure telehealth consultation. Each teleSANE was issued a SAFE-T Center customized, restricted laptop to be used exclusively for telehealth consultations. Additionally, teleSANEs were issued a standard Zoom background, Uniform Shirt, and Uniform Jacket to create a cohesive, professional, and polished appearance when conducting telehealth consultations.

Key Outcomes

- Successful development and implementation of a novel *virtual* teleSANE team, practicing remotely
    - This is an ideal model to enable care provision and flexibility, especially given the challenges of the COVID-19 pandemic.
    - We can draw from the most experienced SANEs across the country
    - We have created a robust training program that can be delivered virtually, allowing for reduced travel-related expenses
- Recruited, hired, and trained 26 expert nurses over five years as SAFE-T Center tele-SANEs.
    - The current team size consists of eight teleSANEs and one teleSANE Clinical Coordinator.
    - Except for one recent hire, all current team members have served on the SAFE-T Center teleSANE team for over one year and two have been in the teleSANE role for more than three years.
- Establishment of continuous 24/7 service provision to partner sites since initial site launch on 08/29/2018.
    - TeleSANEs utilize paging and scheduling system to self-schedule, taking approximately 48-72 hours per month, with shared weekend and holiday call
- Development of a telehealth consultation quality assurance process to ensure that teleSANE mentorship meets the high standard of support we aim to provide for our partners. Our team has adopted a learning culture in which we all contribute to continuously improving our skills and what we offer to our partners. As team members practice all over the country, they are able to share unique perspectives and clinical wisdom with each other.
    - All teleSANEs are routinely provided constructive feedback on their consultation advice, leadership, and mentorship to hone their skills

Reflections and Lessons Learned

Recording telehealth consultations, with patient and nurse consent, to be reviewed as part of routine quality assurance of SAFE-T Systems teleSANEs, was critical to the program's success. We aimed for each teleSANE to not only be a subject matter expert, but also to demonstrate expertise in mentorship of novice SANEs through telehealth. Additionally, we wanted to ensure that the mentorship and manner of practice was consistent across all teleSANEs performing consultations. The SAFE-T System administered post-consultation feedback surveys to teleSANEs, local SANE-trained nurses, and patients, to capture their experience and perception of the consultation. Reviewing recording telehealth consultations made achieving this high standard of care possible. By having leadership observe consultation recordings, we were able to identify gaps and differences in practice and used these observations to refine our collective practice. These stimulated rich team discussions and influenced future teleSANE trainings. For example, after observing a consultation involving an incarcerated individual, the team reflected on ways in which we could work with correctional guards to better advocate for a less-restrictive (when safe), respectful examination for this special population. We created a training on best practices in caring for this population and disseminated to teleSANEs and local SANEs. We also were able to identify examples of teleSANE excellence and use these exemplars as a tool to train to our philosophy of partnership, mentoring and quality patient care.

The quality assurance process helped to refine our hiring practices. We actively sought and hired individuals interested in being part of a learning culture, who desired to hone their skills, and who were talented mentors. To identify these individuals, we established a 3-step interview process: (1) initial interview and screening, (2) perform an abbreviated mock consultation over telehealth, and (3) final interview to discuss the results of the mock consultation, commitment of the position, and expectations of teleSANE team members.

Future Considerations and Direction

The next steps in the SAFE-T Systems teleSANE team evolution are to:

- Continue to hire and train additional teleSANEs to increase team capacity for consultations
- Recruit SANEs from diverse backgrounds to the team
- Build a team of a pediatric teleSANE experts and expand telehealth services to include children younger than 12 years
- Expand telehealth consultation services to support calls for intimate partner violence and physical assault.
- Evaluate the quality assurance process of teleSANE consultations by testing a new SAFE- T developed quality assurance tool.

There is a pressing need for SAFE-T to develop a comprehensive pediatric program similar to our adolescent/adult program to support our partner hospitals in providing forensic care for pediatric sexual assault cases. Every community where we are currently partnered has stated they are without

options for pediatric sexual assault cases. Most transfer pediatric patients to outside facilities that have pediatric forensic teams, or they schedule children to be seen at regional child advocacy centers days or weeks later, failing to conduct timely examinations and missing the opportunity to collect evidence or document injury.

The development of a quality teleSANE team takes time and resources. Especially for the development of teams that exist outside an established clinic, both funding and time are needed to develop a robust pediatric team. We will continue to look for funding opportunities to plan, develop and expand our model to include pediatric services. The success of our model for adolescent and adult care should bolster support and investment in resources to solve access, quality and equity issues that exist for pediatric victims of sexual abuse.

Finally, rigorous quality assurance evaluation of teleSANE partnership is critically important to ensure that local providers are well-supported to deliver quality care. Pairing an experienced SANE with a local provider alone does not guarantee that better care will be delivered. Mentoring via remote technology is a skill separate from clinical forensic knowledge. We have developed a teleSANE training program geared toward the development of supportive partnership. Regular quality assurance allows us to fully evaluate the quality of care and partnership offered in our program. Recordings for quality assurance purposes are not discoverable and there are secure ways to store these data. We believe this is essential for critical evaluation and hope to see this gain acceptance in the field.

Goal 3: Build and maintain a telehealth information technology infrastructure focused on security, ease of use, low cost, replicable deployment, and sustainable IT support

The Current Forensic Technology Market

During our planning phase, we conducted a thorough analysis of available technology to support telehealth forensic examinations and found it insufficient to meet the necessary quality, security, and fiscal accessibility requirements. There are currently no available market solutions that allow for quality body *and* genital imaging alongside *integrated, secure telehealth capabilities* that allow for real-time expert guidance and review of examination images for SA victims. Security of these images is of paramount importance. Current vendor interfaces for forensic image storage are not made for telehealth, limiting security controls that can be enforced. The impact of these barriers is that programs in rural and underserved locations are not able to access technology for proper documentation of examination findings; the result is that most programs either use inferior hand-held cameras with magnification or forego photo-documentation completely, failing to meet acceptable quality of care standards and failing survivors who entrust their care to health systems during a time of trauma and vulnerability. Additionally, peer review provides quality assurance, improves the accuracy of diagnosis and is the gold standard in forensic SA care. Deviation from this standard of care creates substantial disparities in care quality and accuracy of documentation of findings, which can negatively impact prosecution.

Our research led us to conclude we needed to solve current product shortfalls by creating our own technology. We discussed these shortcomings with our program officer and were grateful to be granted approval to proceed to build a novel telehealth system that would meet our program needs and potentially benefit the field. Early progress toward these goals resulted in our ability to secure additional funds and resources to advance these efforts.[3,4]

Minimum Viable Product (MVP) – Technology Utilized in Pilot Sites

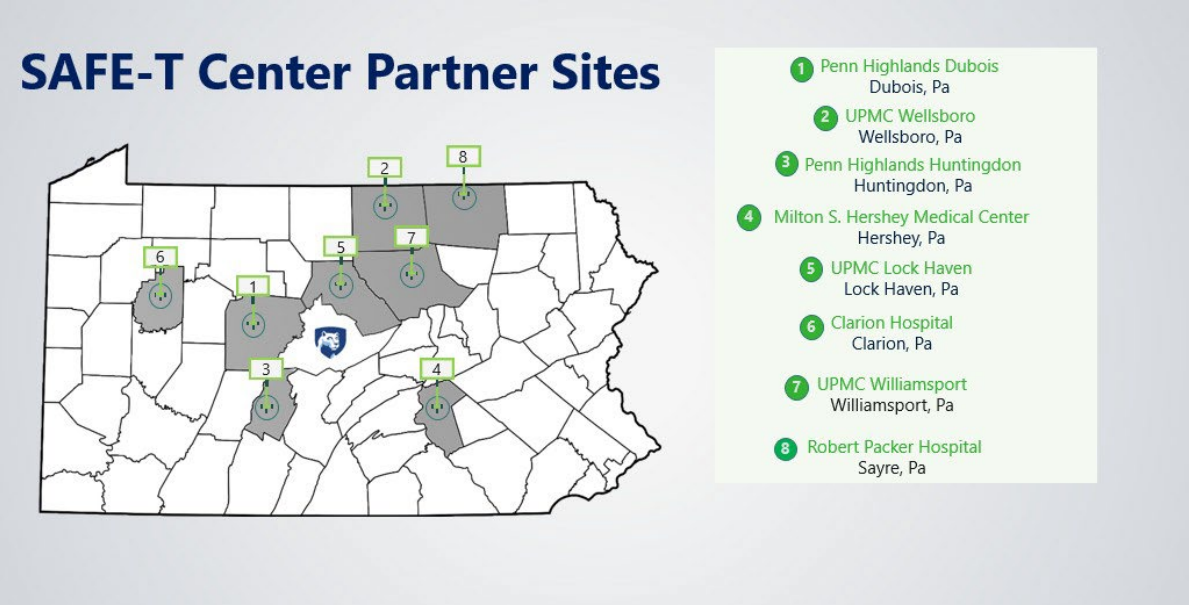
We made rapid and consistent progress in developing the solution for deployment to our pilot site hospitals. In 2017, we created an MVP by pairing off the shelf technology with PSU institutional technology licenses to layer telehealth capabilities onto the device. This MVP was used to deliver live peer review, quality assurance, and teleforensic support to SAFE-T Systems partner sites.

Our solution combines colposcopy (visual magnification), telehealth capabilities, and secure data transfer, storage and image sharing in a mobile device. We purchased the commercially available device that utilizes a magnification lens and articulates with an android phone to capture images. While this device has advantages over traditional colposcopy (cost, mobility, ease of use), it has significant limitations related to quality, security, and ability to readily share information across institutions which is essential for telehealth quality assurance. Further, it does not adequately

capture body images, requiring a second photography device for this purpose. The SAFE-T Systems information technology (IT) and security team improved this system and harnessed PSU technology to layer real-time telehealth capabilities and security safeguards to allow this system to be used in our live expert peer review SA telehealth programs. The ingenuity of our team resulted in the only fully live (real-time) telehealth-enabled forensic device in the field, currently used in eight SAFE-T Systems partner hospital sites in PA.

Proprietary telehealth integrated forensic technology has been deployed to our eight partner hospitals.

Figure 3.1: Solution Deployed at 8 Partner Hospitals



Key Outcomes

- Successful, timely launch of a comprehensive telehealth forensic solution to all partner hospitals
- Provision of 24/7 IT support
    - Limited utilization of IT beyond the first few months indicating that we were able to adapt processes to eliminate technology issues and that we were able to successfully train nurses to utilize the equipment
- Initial funding from OVC to explore the creation of improved, scalable, secure telehealth forensic equipment resulted in innovation development that attracted the attention of Invent Penn State, a university initiative that provides resources and guidance to support the development of scientific discovery to benefit society by bringing solutions to market.

- *SAFE-T Systems* one of six "companies" to participate in Invent Penn State's Startup Leadership Networks Business Advisory Program contracted with an iOS software design

firm to: 1) create a mobile application (app) to enable seamless integration of telehealth video systems; 2) create built-in efficiencies to increase ease of use; 3) vastly improve security by building in immediate, automatic transfer of images from device to cloud storage; and 4) improve how data are siloed, thereby further increasing security.

- Creation of a technological solution specifically designed for SANEs that is easy to use, high-quality, secure, and affordable.

Reflections and Lessons Learned

The limitations of currently available technology are a barrier to adoption of telehealth in sexual assault examination settings. Lack of easy-to-use, secure, and affordable technology has limited the ability of SANEs to do their job to the fullest. Our experience has been that when first meeting many SANE programs, the current SANEs report that they do not take forensic photographs or use a colposcope or colposcope-like device. Reasons cited include statements such as, "I don't know how to use it," "The equipment doesn't work," "I can't get it to focus," and "I did not see any findings (with naked eyes) and so I didn't think it was necessary." Without images, SANEs cannot engage in peer review, the gold standard, and should the case go to trial, there remains only the SANE's written documentation and drawings, which cannot be independently verified. If a SANE does take images, they often struggle to find a way to share these images in a secure, HIPAA- compliant way with a more experienced SANE to obtain a second opinion.

Combining off-the-shelf telehealth solutions with current forensic documentation equipment requires substantial input from IT and security experts. Additionally, it is incredibly costly, limiting sustainability and growth to additional sites. We were able to use Penn State resources, such as institutional technology licenses and security expertise, to layer telehealth capabilities onto commercially available devices without additional overhead. Yet, even with these solutions, we found the technology to be lacking in ease of use and replication. By replication, we mean that when approached by others in the field who were struggling to find equipment that would allow for robust telepresence and the ability to see physical findings in real time, we were unable to provide a solution as our initial solutions relied on many intricate work arounds to arrive at a complete system.

The investment of OVC to solve these obstacles by allowing us to explore the development of a superior system was essential to our success in creating new technology that can be scaled and replicated. These developments can substantially benefit the field if funding can be secured to complete validation testing and refine the product based on user feedback.

Future Considerations and Direction

Despite serious shortfalls of currently available technology, little attention among forensic nurse specialists has been given to advance this pressing need. There is also little funding to support development of technological advances specifically in the field of forensic nursing. This leaves

every group that embarks on supporting SA care through telehealth to go through the same trial and error to find off-the-shelf equipment and try to make it meet clinical telehealth needs. As clinical teams often do not have IT and technical expertise, they open themselves up to serious security issues, great expense, and subpar ability to see and interact efficiently through a virtual environment. The field would benefit if funding were available to move next-generation telehealth discovery to commercial pathways for greater access and adoption.

Goal 4: Establish the SAFE-T training institute to provide comprehensive foundational training, hands-on skills training, continuing education in advanced and specialized topics, and peer networking. Adopt a learning culture to support the retention of SANEs in underserved areas, and advance excellence in SANE-led care.

Education-related Barriers

Accessibility to training has been cited as a barrier in growing the SANE workforce.[13,14] The ability of new SANEs to acquire the skill and experience to deliver care (i.e., experiential learning) to SA victims requires preceptorship/supervision - beyond didactic training – that may be difficult for rural SANEs to acquire in the absence of more experienced SANEs to provide preceptorship and peer review. The lack of certified SANEs in PA and especially the low number practicing in rural areas means that appropriate preceptors (experienced, certified SANE-A and SANE-P) do not exist in rural areas to train and support the growth of the SANE workforce. Moreover, nurse turnover in SA care occurs frequently in the absence of a broader peer support network and this support is often absent for rural SANEs. A map showing the distribution of certified SANEs in Pennsylvania is available through SAFE-T's 2021 publication in the Journal of Rural Health.[39]

The Importance of Current, High-Quality Training

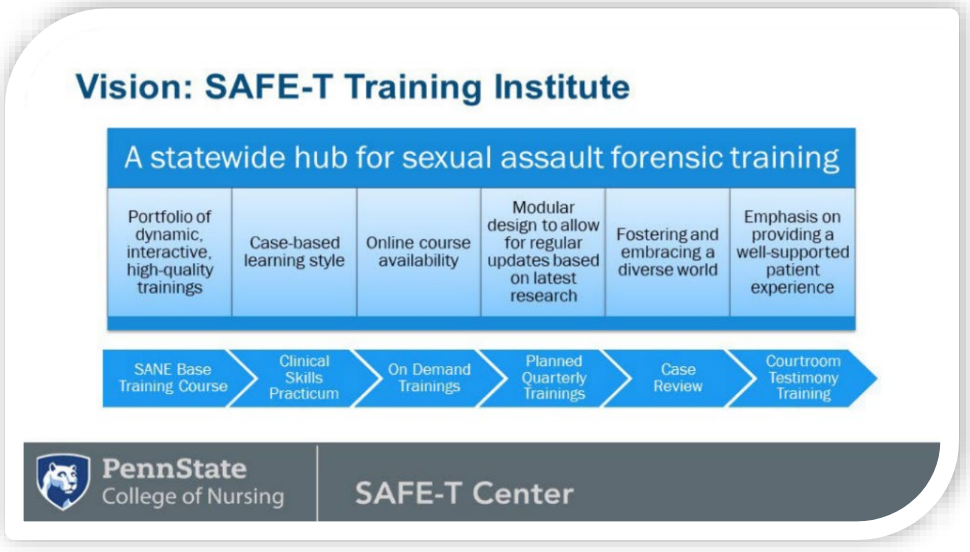
Early in our program, SAFE-T asked hospital partners to pay for their nurses to complete a SANE base training course. Hospitals readily agreed and nurses who had never received prior SANE training were enrolled in an available course. What we discovered, however, was that nurses who had taken their SANE training course more than 5 years prior where not included in the group of nurses to be trained. Yet, nurses trained years ago had forgotten much of what they learned and course quality (i.e., whether it adhered to the current SANE curriculum standards or those set by the IAFN) was unknown. When the SAFE-T Systems program was launched, nurses without recent training struggled far more than the newly trained nurses to accept telehealth support and to adopt best practices that had evolved since they were originally trained. Some of these nurses lost interest and stepped down from the role as a SANE. On the other hand, nurses who completed training just prior to program launch thrived with telehealth support. They were noticeably more confident, were eager to put their knowledge to use, and were prepared to implement best practices. Further, TeleSANEs had an easier time reinforcing best practice standards when they were confident that the local SANE had received up-to-date training prior to the telehealth consultation. When SAFE-T received the Pennsylvania Commission on Crime and Delinquency (PCCD) grant to fund 4 additional hospitals, we incorporated IAFN-approved SANE base training for all team members unless a nurse had completed an IAFN-approved SANE training within the past 3 years. Offering nurses a fresh start in training helped to identify nurses who were truly committed to the role. In

other words, nurses who were serving as SANEs on the team and who had taken training years ago, had to actively choose to stay on the team by re-enrolling in training. This training strategy proved successful and is now part of the standard program implementation plan.

Development of SAFE-T Training Institute

Recognizing how critically important it is to make opportunities for continuing education engaging and convenient for SANEs in rural communities, the SAFE-T Center envisioned the development of a SAFE-T Training Institute. The mission of the institute is to develop the SANE workforce through accessible, quality, evidence-based training. The training institute, along with the SAFE-T Systems model of care, provides a comprehensive SANE Practice Network aimed at empowering and sustaining SANE nurses to be local experts. An aim of this approach is to reducing burnout and workforce turnover. The Institute provides comprehensive SANE-A training and precepting to increase the SANE workforce through the delivery of telehealth-enabled accessible, quality, evidence-based, interactive didactic, clinical training, post-training education, and live telehealth precepting (experiential learning) for all examinations. As we continue to build capacity, the Training Institute will serve as a statewide hub for SANE training, offering a portfolio of dynamic, interactive, high-quality trainings utilizing a case-based learning style and made available online to reduce travel burden for rural community healthcare providers. The SAFE-T Training Institute will offer up-to-date trainings that emphasize best-practices and evidenced- based research and that , focuses on patient-centered care, fosters equity and inclusion, and supports specialized care for diverse populations.

Figure 4.1: Vision for SAFE-T Training Institute



Training Capacity

We have developed a wealth of interdisciplinary partners as well as a cadre of forensic nurse experts who assist in the design and delivery of continuing and advanced educational and networking opportunities for our SANE community. We have nine expert nurse-faculty who teach in our programs, engage in peer review, and develop continuing education topics. Examples of training offerings include virtual photo review, journal club, just-in time trainings, micro-trainings, and trainings in special topics. Training also includes individual mentoring and access to SAFE- T's secure online messaging channel to seek support, ask questions, and interact with the virtual SANE community of colleagues. We have obtained continuing nursing education (CNE) credit hours through the PSU Ross and Carol Nese College of Nursing Outreach and Education unit and through the International Association of Forensic Nurses (IAFN). We award CNEs for the 41-hour core training, the 16-hour hands-on simulation training, and quarterly educational activities. The SAFE-T Training Institute has created and successfully delivered an IAFN-approved 16-hour clinical simulation training for learners following didactic training. We have hosted this 16-hour training on three occasions (November 2019, January 2020, and December 2021), training 27 nurse participants. Our hands-on skills training incorporates live medical models as well as high- fidelity genital models and the use of telehealth technology to facilitate remote precepting and partnership to achieve high quality of care. Members of the SAFE-T Center teleSANE team serve as faculty, along with the SAFE-T Center Clinical Coordinator. The SAFE-T Center had intended to host additional trainings in both 2020 and 2021 but was limited by the COVID-19 pandemic.

SAFE-T 41-Hour SANE Didactic Training

One of the grant deliverables was the creation of an online, comprehensive, interactive, case-based SANE- A didactic training that meets the minimum 40-hour educational requirement outlined by the IAFN. We have successfully completed this goal and obtained IAFN approval in November 2021. The SAFE-T online SANE course features high-quality mock exam video demonstrations, podcast-like interviews with interdisciplinary partners, a comprehensive participate guide with learning engagement activities, and recorded delivery of online modules by members of the SAFE-T expert teleSANE team. The course was designed to allow SAFE-T to track participant activities and provide information to local program leaders on individual participant progress.

16- hour Clinical Skills Lab (immersive hands-on simulation)

Students consistently identified that being able to practice their examination skills on live models (standardized patients) was the most valuable aspect of their training. We held information sessions with the standardized patients prior to training so they would know what to expect and could ask questions about the training. All standardized patients verbalized that it was important for them to be able to help support future SANE examiners in this way. This clinical skills lab provided an important opportunity to introduce live telehealth support during forensic examinations and model how this interaction works in a simulation setting prior to implementation in local communities.

Information Technology and Equipment Training

The SAFE-T IT Director is an essential member of the training team. To ensure that users are comfortable with SAFE-T Systems technology, the IT Director has created multiple end-user training videos to introduce and explain the technology use. Videos are loaded on the telehealth cart iPad for easy reference and access. Additionally, the IT Director is present for every launch and provides hands- on, end-user training. The IT Director orients new teleSANE team members to best practices in IT security and safeguarding their computer technology, as well as how to help Local SANEs navigate technology use during consultations, including troubleshooting the most common user errors.

Expert Witness Training

To address district attorney confidence in the ability of local SANEs to testify in court as expert witnesses, we sought to ensure that these SANEs received the necessary training and education to deliver quality testimony. If we aim to build local expertise where it previously didn't exist, it is important that district attorneys recognize the local SANE expertise available in their own communities. Yet we know that testifying in the courtroom can be a stressful experience and nurses often do not receive training in this area.

To better prepare SANEs for testifying in a court setting, we created an "Expert in the Room" training to demystify the court experience and provide SANE nurses with the fundamentals of expert testimony so they could confidently represent their work in a court of law. We turned to our SAFE-T Advisory Board expertise and engaged two of our members who were former Bucks County Pennsylvania prosecutors to design and deliver this training. Ms. Michelle Henry, the First Deputy Attorney General of Pennsylvania, esq. and Ms. Lindsay Vaughan, , former Executive Director for the Pennsylvania District Attorney's Association graciously volunteered their time to help SANE nurses prepare to testify in court settings as expert witnesses. Both local SANEs and SAFE-T teleSANEs attended this training, providing an opportunity for the two groups to learn together. The training was held in a mock courtroom at the Penn State Dickinson Law School, allowing participants to practice testifying on the witness stand and facing the mock jury to explain findings.

In Pursuit of Justice: Overcoming Obstacles in the Successful Prosecution of Sexual Assault Cases

In response to individual meetings with law enforcement and district attorney partners, we identified a need for training in how to interpret forensic examination findings, how to utilize the knowledge of SANEs to improve prosecutorial success, and how to implement strategies to aid in successful SA prosecution. Again, we enlisted our Advisory Board members, Lindsay Vaughan and Michelle Henry to provide a 2-hour virtual training to law enforcement and district attorney (LE/DA) teams from each of our partner communities.

SANE Network Photo Review

SAFE-T Center has hosted multiple virtual photo review opportunities to increase the experience of SANEs. Both SANEs and teleSANEs are invited to participate in photo review sessions. Not only do the SANEs and teleSANEs learn from the review of photos and cases, but they have an opportunity to interact with one another outside of telehealth consults, increasing their connection to each other as trusted partners. This is a collaborative learning environment that serves an additional purpose by giving nurses who perform few examinations additional opportunity to be exposed to cases and increase their case experience. All photographs are stripped of any identifying information. Photo review sessions are blinded to patient history to reduce any bias. After all photos are reviewed, the group comes to a consensus about any findings. Only then are case circumstances revealed. This method strengthens the skills and independent thinking of SANEs.

Journal Club

Journal Club is a favorite learning and connection moment for both SAFE-T teleSANEs and Local SANEs. Prior to the meeting, participants are asked to read and review discussion questions related to a peer reviewed journal article. The group meets to discuss the article and to consider how the science may impact practice. The discussion is facilitated by a SAFE-T Center teleSANE. This educational offering provides a relaxed, social, and valuable group discussion about SANE practice and working as a team to create change to best practices.

Other Training Offerings

In addition to the trainings named above, the SAFE-T Center has developed and hosted numerous other training events. We created just-in-time trainings to address gaps in care or knowledge. For example, we created and delivered a 5-hour short-course in sexual assault forensic examinations to be delivered to emergency department nurse supervisors so that they would understand the basics of caring for a sexual assault patient and performing evidence collection. The SAFE-T Center has also invited guest presenters to deliver training on special topics such as caring for transgender sexual assault patients, caring for incarcerated patients, understanding Pennsylvania's anonymous reporting forms, and processing sexual assault evidence collection kits by the Pennsylvania State Police crime lab. The SAFE-T Clinical Coordinator works closely with hospital site champions to deliver micro-trainings at monthly SANE team meetings. Monthly meetings are limited in the time, therefore short 5-minute trainings provide the right dose of information while still allowing for other business to be accomplished as planned.

Key Outcomes

- Establishment of the SAFE-T Training Institute
    - Designed and developed more than 15 training courses, including the 41-hour SANE course
    - Provided over 40 training opportunities to practicing nurses
    - Provided 12+ hours of continuing nursing education (CNE) credits for nurses through course offerings

    - Led over 50 hours of training for local SANE-trained nurses
- Development of a brand new IAFN-approved online SANE Adult/Adolescent 41-hour base training course
    - Received official IAFN course approval for the newly built SAFE-T Center 41- hour base SANE Adult/Adolescent online training course (2021)
    - This training is taught by SAFE-T Center expert teleSANE faculty
    - Course is structured in the same way that an actual exam would flow, walking the learner through the entire process from patient arrival at the facility through discharge and follow-up planning
    - Created high-quality video simulations of patient interactions and examination techniques to help the learner visualize and adopt best practice techniques
- Establishment of a 16-hour immersive, hands-on Clinical Skills Lab to precept newly trained SANEs
    - Training is taught by SAFE-T Center expert teleSANE faculty
    - Received official IAFN course approval for a 16-hour immersive Clinical Skills Lab training (2019, 2021)
    - Three trainings have been hosted since November 2019; course offerings were paused during first 18 months of COVID-19 pandemic and have recently restarted
    - 27 SANEs from four partner hospitals have participated in this training to date
    - On post-training feedback surveys, 100% of respondents said that they were "Confident" or "Very Confident" in multiple domains covered during the training including:
        (1) differentiating anatomical structures
        (2) using adjunct techniques
        (3) guiding patient into knee-chest position
        (4) speculum insertion, visualization, and withdrawal.
- Receipt of 2021 HRSA ANE-SANE funding to continue to train and grow the SANE workforce
- Establishment of a SANE Practice Network and that includes opportunities for teleSANEs and Local SANEs to participate together in training and to network with peers using SAFE- T Center private online communication platform
- Disbursement of tuition and travel assistance so that 5 local SANEs at partner hospitals could attend their first ever IAFN Annual Conference (2019)
    - All 5 nurses were newly trained SANEs in 2018
    - All 5 nurses are still working as SANEs for their respective hospitals

Reflections and Lessons Learned

Building a comprehensive, web-based training such as the IAFN 40-hour SANE training course required more time, financial, and human resources than initially realized. Having the right instructional design support, project management experience, and multimedia support is instrumental to develop high-quality trainings efficiently. Early on, we struggled with lack of

experience in building such a comprehensive course. Slow initial progress led us to rethink how we move forward more efficiently and to try other strategies to speed development. Ultimately, it took 18 months to develop comprehensive, quality course content. This was a lengthy process due to limited staff time available to devote to content building and the sheer volume of content needed, as well as research to ensure that the content was current, accurate, and reflective of current best practice recommendations.

To augment participant learning in the 41-hour didactic training course, we hired WPSU Penn State (public media organization) to produce high-quality videos of mock scenarios featuring patient interactions and SANE examination techniques. The ability to incorporate these demonstration videos into the online course content is a powerful tool for learners, especially in a virtual learning environment. We worked with Penn State University's School of Theater to identify and hire actors to play the part of patients. Our expert clinicians (SAFE-T Center Clinical Coordinator & teleSANEs) served as SANEs in the mock scenarios. We also included a victim advocate from the local rape crisis center. It is important that learners view the advocate as a regular member of the patient care team and incorporating an advocate into the scenario helped to establish that foundation. Finally, the advocate served as a source of support should any of the actors experience emotional difficulty from the role play and being "in character" of a sexual assault patient.

Future Considerations and Direction

To continue building the SANE workforce, it is important for SAFE-T and other institutions to continue to provide high-quality, low cost, and easily accessible training opportunities for SANEs. Additionally, the significant shortage of nurses trained to care for pediatric (pre-pubescent) populations could benefit by increased access to SANE pediatric training courses. Finally, by supporting hubs of SANE expertise, those hubs can share their knowledge via telehealth to communities across the nation and help to uphold a newly trained workforce.

Ways in which OVC can support this effort include financial support for:

- Training teleSANEs in mentorship through telehealth
- Development of interactive, case-based pediatric SANE base-training courses
- Financial support for nurses interested in becoming SANE-trained and/or attending SANE trainings
- Innovations in SANE training to increase quality and interactivity of SANE training, including support for live telehealth mentorship, incorporation of novel simulation aids, training videos, and standardized patients, and virtual reality.
- Evaluation of best practices with training effectiveness, learner engagement and knowledge transfer.
- Development of other critical SANE-related trainings to address industry-wide knowledge gaps.

Goal 5: Provide ongoing seamless support and service to partner hospitals with attention to opportunities to expand to additional sites beyond initial four pilot sites

Programmatic Support

The SAFE-T Systems hospital partnership model encompasses a comprehensive package of support services to develop and sustain SANE teams. Support services are designed to create an ideal response to sexual assault and ensure that care delivered is timely and seamless. The SAFE-T Systems model for providing programmatic support is outlined below.

Site Champion Selection

When assessing potential hospital partners for our program, is key to identify a strong nurse leader to serve in the role of the "Site Champion." We request that the Site Champion be given protected time each week (4-6 hours) to devote to SANE program development and telehealth launch preparation.

360 Assessment

Once the Site Champion is identified, we conduct a 360-assessment of current program operations and assist in identifying any additional SANE team members if needed.

Recruit Nurse Teams

Over the course of the project, SAFE-T Center has approached recruitment of nurses through several strategies. This begins at our first meeting at potential partner site hospital. We spend time talking to current SANEs and interested team members about the project to gain their buy-in and build enthusiasm for this new model of care. At each site launch celebration, we introduce local SANE team nurses to honor and recognize their commitment to deliver this critical service in their community. When additional recruitment is needed at sites, SAFE-T teleSANE team members attend hospital-based recruitment meetings to describe what it is like to be a SANE and to discuss the commitment. We encourage sites to not just consider emergency department nurses for the role, but to include other hospital departments and nurses serving in outpatient clinic settings. One of our greatest program success stories is that of a hospital Nursing Educator who attended the SAFE-T launch celebration at her hospital in 2018, became interested in being part of the SANE team at the hospital, and then went on to complete her SANE training. She eventually became the team Site Champion and achieved her SANE-A board certification through the IAFN.

Base SANE Training

SAFE-T enrolls interested nurses in an IAFN-approved SANE training course.

Clinical Skills Training

Once SANE team members have completed didactic SANE training, the SAFE-T Center supports local nurses to receive additional hands-on clinical skills training. At the initial 3 sites, this training was done at the hospital just prior to program launch. However, once the SAFE-T Center developed the 16-hour Immersive Clinical Skills Lab training, newly trained SANEs were invited to attend this training.

Weekly Meetings

The SAFE-T Clinical Coordinator meets weekly with the Site Champion to plan for recruitment of new SANE team members, enrollment of nurses into an IAFN-approved SANE base-training course, and identification of gaps in current response. Additionally, the Clinical Coordinator and Site Champion determine what forensic supplies need to be ordered and policies and procedures are regularly reviewed to ensure they match current best practices and state and national standards. We memorialized this process in a Program Launch Guide to ensure a consistent, standard approach across multiple hospital sites and to help create efficiencies in the process to allow us to expand and onboard new sites more rapidly.

Program Launch Planning

The SAFE-T Team and the Site Champion work together to plan for the launch of the telehealth program. SAFE-T provides project management and planning support to organize a community launch celebration event. This includes working with the site to create the invite list, securing a location for the meeting, planning the agenda, preparing presentation materials, and sending out invitations. Additionally, the SAFE-T Center Clinical Coordinator and IT Director work closely with the Site Champion to plan for the SANE team nurses to receive both clinical and equipment (technical) training in preparation for launch.

24/7/365 Telehealth and IT Support Response

Beginning with the day of launch, and every day thereafter, the SAFE-T Center is poised and ready to respond to hospital site request for support—whether telehealth or IT support. The SAFE-T Clinical Coordinator oversees the telehealth response and manages the call schedule. The IT Director ensures 24/7 coverage for IT support.

Regular Site Check-in Meetings

Once hospitals have launched the SAFE-T telehealth program, they continue to receive on-going programmatic support from the SAFE-T Clinical Coordinator. The Clinical Coordinator and the Site Champion meet regularly to discuss SANE training needs, telehealth cases, SANE team on-call schedule, recruitment of new SANEs, upcoming team meetings, and community engagement.

These check-ins offer ongoing opportunities for engagement with SAFE-T Center, training, and peer networking beyond that of telehealth consultation. They also serve to identify problem areas, such as gaps in call schedules, and troubleshoot solutions.

Site Team Meeting Support

The SAFE-T Clinical Coordinator attends hospital SANE team meetings, via Zoom, to deliver micro-trainings to address knowledge gaps and to support the Site Champion in establishing a collaborative and supportive learning culture for optimal team engagement.

SAFE-T Training Opportunities

Local SANEs are invited to participate in SAFE-T sponsored large group trainings, photo review sessions, and special topics trainings and webinars. We continue to support new nurses who join the team by paying for their SANE base training as we are able. We support SANE nurses on an individual basis to prepare for upcoming court testimony as an expert witness.

Other Events

As opportunities present, the SAFE-T invites SANEs to participate in SAFE-T Center events. Examples include being a panel speaker at a presentation or conference, participation in SAFE-T dissemination efforts (e.g., podcast interviews) and attending SAFE-T Advisory Board meetings.

SANE Practice Network

Local SANEs and teleSANEs are invited to join a private peer networking group channel where they can connect with one another and learn about upcoming training opportunities. Additionally, they can ask questions about SANE practice and gain support from peers. SAFE-T has held meetings for just site champions to connect with one another and share program ideas.

Community Engagement

Our framework and approach are anchored in community engagement, recognizing that community stakeholders not only uniquely understand the issues and barriers to delivery of quality sexual assault (SA) care in their community, but they also hold the key to creating policies and system-level changes to support and sustain SANE teams. Our experience has shown that communities want to deliver quality SA care, yet they often lack the expertise, resources, and know-how to create and sustain a quality SANE team. We recognize the importance of interagency collaboration, both to bring additional training and resources to bear on supporting SANEs, and to ensure that quality care is supported within partner communities. Quality care and a respectful process for individuals who experience SA comes from interagency collaboration and knowledge and respect of each other's roles.

In preparation for SAFE-T launch at the partner hospital, SAFE-T Systems' team meets with the local advocacy organization, law enforcement (LE) agencies, and district attorney (DA) in each community to understand SA response strengths and identified needs, recognizing that coalition

building leads to optimal response and outcomes for victims. On the day that we launch telehealth at individual hospitals, we invite interdisciplinary partners to gather and support their community efforts so that relationships can be formed which are essential to interagency collaboration. This launch event often served as the first time all stakeholders involved in sexual assault care or investigation within a community came together. It also resulted in media coverage that made the community aware that a quality response is available should they need it. Community launch events provide a place for connection, recognition of shared interest, and a call to action to improve care within the community.[15]

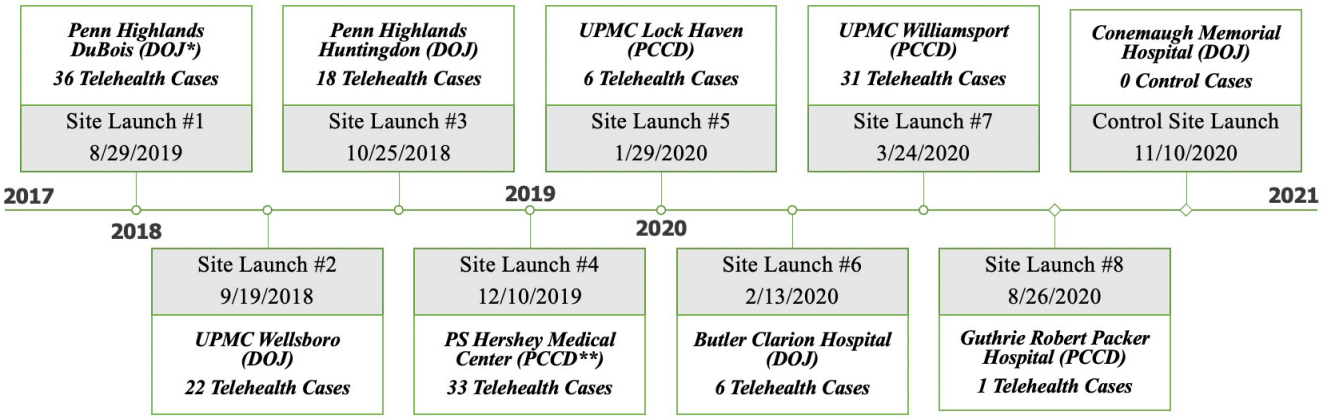
Following the launch event, we continue to engage with interdisciplinary partners within the hospital communities. We invite community partners to attend relevant advisory board meetings, SAFE-T-hosted trainings, conference presentations as panel members, and one-year site celebration events at partner sites. We also offer support to community partners such as helping to prepare local SANEs for testifying as expert witnesses and supporting local grant applications to support local programs. We keep in contact with community partners periodically by email and have lent our support to site champions in maintaining community partner connections. The list below contains examples of SAFE-T efforts to engage community partners:

- Site Launch Celebrations
- 1-Year Post-Launch Celebrations
- 2019 National Sexual Violence Resource Center/PCAR Annual Conference Presentation Panel Speakers
- SAFE-T Semi-Annual Advisory Board Meetings
- Attendance at community Sexual Assault Response Team Meetings
- "Presenting Sexual Assault Cases" training for District Attorneys
- Stakeholder interviews for research and evaluation

Expansion

In keeping with the SAFE-T mission to partner with underserved communities in Pennsylvania to enhance compassionate, high-quality sexual assault care, the SAFE-T Center sought a way to expand beyond the four initial partner hospitals outlined in this DOJ OVC SAFE-T Center grant. To do so, however, required additional financial and staffing resources. In 2018, the SAFE-T Center applied for and was awarded a 2019 Pennsylvania Commission on Crime and Delinquency (PCCD) grant that supported the SAFE-T Center in expanding to an additional four hospitals. We added four additional sites: (1) Penn State Health – Hershey Medical Center, Hershey, PA; (2) University of Pittsburgh Medical Center (UPMC) Williamsport, Williamsport, PA; (3) UPMC Lock Haven, Lock Haven, PA; and (4) Guthrie Robert Packer Hospital, Sayre, PA. During this time, SAFE-T also launched the fourth and final DOJ OVC SAFE-T Site at Butler Clarion Hospital in Clarion, PA (2/13/2020). (Figure 5.1). It is important to note that connections made through the Advisory Board, the Pennsylvania Office of Rural Health, and the large Penn State alumni network play a significant role in helping SAFE-T gain initial introductions to hospitals.

Figure 5.1: SAFE-T Center Site Launch Timeline



*DOJ OVC SAFE-T Grant
**Pennsylvania Commission on Crime and Delinquency (PCCD) Grant

Although we met our goal of hosting 8 partner sites, we continued to look ahead by engaging in conversations with prospective hospitals if funding allowed. Over the past two years, SAFE-T Systems met with numerous interested partners (12+) to discuss the possibility of SAFE-T Systems supporting their SANE programs.

It is important to note that most of these groups struggled to gain necessary buy-in from hospital administrators to enter into formal agreements with the SAFE-T Center. Reasons cited included hospital leadership turnover, financial strain of COVID- 19 pandemic, staffing strain of the COVID-19 pandemic, and health system mergers and the hospital no longer in a position to make independent decisions.

Key Outcomes

- Not only did we launch four pilot sites successfully, but originally proposed partner sites were doubled
- 8 partner hospitals launched over a 2-year period from 8/29/2018 to 8/30/2020
- Developed Launch Planning and Project Management Guides that serve as a roadmap for successful program launch each new site
- Met with more than a dozen hospitals and health systems to discuss SAFE-T partnership opportunities
- Delivered over 17 presentations to disseminate information about the SAFE-T Systems model program

Reflections and Lessons Learned

An important lesson learned was the importance of having both a strong local site champion and hospital administrator. When sites lack a strong site champion or hospital administrator, programs struggle to take up all the resources that SAFE-T Systems offers. A site champion may be dedicated, but if he or she does not have access to a supportive administrator, they often lack the authority to implement changes necessary for program success and are prone to burnout. Similarly, if a site administrator does not have a dedicated site champion, they may find themselves with an underperforming, disjointed team, making it difficult to recognize the value of the program. Another lesson learned was that limited in-person gatherings due to the COVID-19 pandemic stifled our ability to engage with communities. Although the SAFE-T Center maintained relationships through virtual meetings and email, in-person meetings and collaborative training opportunities were not possible. Similarly, it has been a challenge to help sites with the development of local SART teams due to the immense strain on hospital personnel and other emergency responders.

We experienced remarkably high turnover in hospital administrator champions during the pandemic. In four of our partner hospitals the administrator who helped develop and support the SAFE-T partnership was no longer with the hospital as we began negotiations to contract for SAFE-T support beyond grant funding. This meant that at a pivotal moment when we were asking for decisions to be made related to payment for ongoing service, the key decision-maker may not be aware of the value and benefits the program offered. We believe this was the case in two sites who declined to discuss contract renewal with us, thereby ending our formal collaboration. Taking that lesson into account, going forward we will ensure there is biannual connection with administrators (even if remote meetings) and that we will work to develop relationships with more than one administrator to ensure there is retention of knowledge about the value of the program within partner facilities.

The outcomes of this pilot project are promising. Program value was recognized by our partner hospitals and all partner sites expressed interest in a continued partnership beyond grant funding. Two partner sites, however, ended discussions when they were asked to financially contribute a portion of the funds to continue service.

Future Considerations and Direction

In July 2021, the SAFE-T Center received Health Services Resource Administration (HRSA) grant funding to expand to an additional six hospitals over a three-year period. Additional next steps include:

- Continue service provision at hospital sites continuing beyond DOJ OVC and PCCD grant funding
- Expand to six additional HRSA sites
- Strength coordinated multidisciplinary sexual assault response in partnered communities
- Seek growth opportunities that will allow SAFE-T Systems to have a wider impact

Goal 6: Plan and Conduct Rigorous Program Evaluation to Understand Program Impact and Potential Value

Approach to Evaluation

Novel programs must be rigorously evaluated to determine if they successfully achieve the goals established for the project. Sustaining and scaling this nurse-led model hinges on whether the model improves access to quality care in underserved communities, grows and sustains a Sexual Assault Nurse Examiner (SANE) workforce, provides compassionate, person-centered care that promotes healing, and is deemed valuable in the hospitals where it is in place. The SAFE-T co- investigator team was assembled to ensure we had expertise in evaluation research (Perkins), health system research (Scanlon), clinical nursing research (Miyamoto and Dorn), business process research (Zhao), and implementation science research (Perkins, Scanlon, Miyamoto). Table 6.1.

Table 6.1: Co-Investigator Team Members

NAME	TITLE
Dr. Sheridan Miyamoto	Associate Professor, Ross and Carol Nese College of Nursing and Child Maltreatment Solutions Network Principal Investigator, Sexual Assault Forensic Examination Telehealth Center (SAFE-T Systems) Fellow, Betty Irene Moore Fellowships for Nurse Leaders and Innovators
Dr. Lorah Dorn	Professor, Penn State Ross and Carol Nese College of Nursing
Dr. Daniel Perkins	Professor of Youth and Family Resiliency and Policy Principal Scientist and Founder, Clearinghouse for Military Family Readiness Bennett Pierce Prevention Research Center, Affiliate Faculty
Dr. Dennis Scanlon	Distinguished Professor of Health Policy and Administration Director of the Center for Health Care and Policy Research NCAA Faculty Athletics Representative
Dr. Hui Zhao	Associate Professor, Supply Chain & Information Systems, Smeal College of Business Charles and Lilian Binder Faculty Fellow

Framework

We began our work together by establishing a logic model that described our nurse-led model for provision of comprehensive, high-quality sexual assault care in rural and underserved communities. The logic model guided our community-engaged approach to service provision and evaluation.[15] The Dynamic Sustainability Framework (DSF),[16] a continuous quality improvement (CQI)-based framework, guides our program implementation and evaluation. We currently partner in eight diverse communities and, using the DSF framework, have been able to build a model agile enough to adapt to health systems and communities with varying resources and needs.[15] We do so by actively engaging stakeholders within the community, evaluating community strengths and needs, and working in partnership with stakeholders to implement workable solutions to meet local needs.

The SAFE-T logic model illustrates the processes involved in the SAFE-T Center's planning, development, and design phase.[15] Beginning with problem identification, a team of investigators and stakeholders identified a critical need for improved sexual assault care in rural and underserved communities. A vision for a comprehensive program that could address these disparities in sexual assault care was then articulated, and a group of stakeholders was convened to engage in collaboration, shared ownership, valuation, goal alignment, and planning for implementation and sustainability planning. These activities culminated in the program's design, which included key elements deemed necessary by the investigators and stakeholders to be able to achieve success and long-term sustainability. These stakeholders also informed the desired program outcomes. The logic model serves as a road map for understanding the relationship between the program interventions and outcomes as well as how best to measure/capture these relationships in the evaluation.

Sustainability of promising interventions and solutions cannot be achieved unless value is realized by stakeholders through strong evidence. Value can be demonstrated in improved quality of care, reduced inefficiencies in system's response to SA, retention of a highly skilled workforce, successful prosecution, and improved health outcomes for survivors. However, rigorous research evidence of the effectiveness of telehealth consultations for SA is limited. A small number of pilot projects, conducted by PI Miyamoto and others, have demonstrated that this approach is feasible[1,2,17], is acceptable to patients[2], improves the quality of forensic evidence collected [1], and results in a more complete and thorough examination.[1]

The SAFE-T Center is focused on generating high-quality evidence that will inform stakeholders about the effectiveness of the SAFE-T telehealth model. To accomplish this, we built a research infrastructure to support long-term evaluation goals. Based on lessons learned in PI Miyamoto's prior work,[1] we established bold partnership and data collection goals to fuel comprehensive evaluation needs. Successful programs embedded within community settings involve extensive relationship building. We were successful at building strong relationships with interdisciplinary partners (advocacy, law enforcement, and district attorneys) in each of our 8 partner communities as demonstrated by established agreements for data sharing to accomplish short and long-term goals.

Establishment of Long-term Evaluation Ability, Data Acquisition

At the outset, we established a strategy to ensure we can accomplish a comprehensive evaluation with the recognition that important evaluation aspects will come to fruition well beyond grant funding. SA examinations are relatively rare, therefore acquiring enough cases to appropriately power studies can take years. Meaningful evaluation of patient post-SA health trajectory and judicial outcomes may not be determined for years after a medical examination for sexual assault. With partnership and data use agreements secured, we are well-positioned to answer key questions about the impact of telehealth on forensic examination quality, patient experience, health and wellness trajectories of survivors, and judicial outcomes.

Research related to sensitive topics and vulnerable populations must be approached with sensitivity and comprehensive safeguards must be put in place. We worked closely with Penn State's Institutional Review Board (IRB) in the planning and execution of research. We developed protocols and procedures that are novel and have allowed us to conduct research via telehealth. Approval for research activities was sought and obtained in all partner sites.

Research Innovations

E-Consent

We invested substantial effort to ensure that research participation on the part of the survivor was not burdensome. To that end, we created novel methods of consenting patients to research, allowing for consent to occur on an electronic tablet, with facilitation and guidance provided by the teleSANE over telehealth in real time. We built the first-ever instance of e-consent used at Penn State University and received approval for use in our studies. This facilitated engagement in research and a high level of research participation in a population that has historically been difficult to engage in research.

Inclusion of Prisoners in Research

Early in the project we identified that prisoner survivors were presenting to our partner hospitals for SA evaluation. We sought and received IRB approval to allow inmates of the Pennsylvania State correctional institutions requiring SA forensic examinations to participate in the patient experience survey research. Prisoners were offered SAFE-T telehealth consultation as part of their care. All prisoners elected to have a telehealth consultation, and each was screened for eligibility to participate in research. Only prisoners who were institutionalized in a Pennsylvania State Correctional Institute (versus those from Federal or County correctional facilities) were eligible for research.

The SAFE-T Center teleSANEs have all completed CITI training for the protection of human subjects in research. The teleSANEs walk eligible, incarcerated patients through the informed consent process, which includes additional research protections due to their status as a vulnerable population. SAFE-T Center teleSANEs ensure that prisoners understand that participation is voluntary, that there are no personal benefits or gain from participation, and that the same high

quality of care and telehealth consultation will be afforded to them regardless of research participation. For prisoners who participate in research, an iPad is provided to them to complete the online patient satisfaction survey at the end of the exam. Survey responses are uploaded immediately, ensuring privacy and confidentiality. The survey questions include several questions specific to this population.

This provided an opportunity to learn how best to serve this population, recognizing that they present with unique concerns and needs during the exam. We created questions aimed at understanding the impact of our model on prisoner perception of care. Additionally, we worked with OVC and partner organizations who worked with prison populations, such as attorneys with Office for Violence Against Women and the Pennsylvania Coalition Against Rape Prison Rape Elimination Act (PREA) representative, to identify specific questions that would enable us to understand if we were meeting the needs of this population.

Key Outcomes

We have created comprehensive SANE coverage in rural areas where it previously did not exist, increased nurse perception of quality of care, and have stimulated local stakeholder partnership, enabling significant system-level changes that support and sustain local SANE teams, leading to high SANE retention rates.

Manuscripts published to date:

- Miyamoto, S., Thiede, E., Dorn, L., Perkins, D. F., Bittner, C., & Scanlon, D. (2021). The Sexual Assault Forensic Examination Telehealth (SAFE-T) Center: a comprehensive, nurse-led telehealth model to address disparities in sexual assault care. *The Journal of Rural Health*, *37*(1), 92-102.
  Access at: https://onlinelibrary.wiley.com/doi/full/10.1111/jrh.12474

- Thiede, E., & Miyamoto, S. (2021). Rural availability of sexual assault nurse examiners (SANEs). *The Journal of Rural Health*, *37*(1), 81-91.
  Access at: https://onlinelibrary.wiley.com/doi/full/10.1111/jrh.12544

- Miyamoto, S., Thiede, E., Wright, E. N., Berish, D., Perkins, D. F., Bittner, C., ... & Scanlon, D. (2021). The Implementation of the Sexual Assault Forensic Examination Telehealth Center: A Program Evaluation. *Journal of Forensic Nursing*. *17*(3), E24–E33. https://doi.org/10.1097/JFN.0000000000000337
  Access at:
  https://journals.lww.com/forensicnursing/Fulltext/2021/09000/The_Implementation_of_the_Sexual_Assault_Forensic.9.aspx

- Wright, E. N., Miyamoto, S., & Richardson, C. (2021). The impact of COVID-19 restrictions on victim advocacy agency utilization across Pennsylvania. *Journal of Family Violence*, 1-7. Advance online publication. https://doi.org/10.1007/s10896-021-00307-z

Access at: https://link.springer.com/article/10.1007/s10896-021-00307-z

Three additional manuscripts are under review at the time of this report. Topics include:

- Post-sexual assault examination experience
- Survivor concerns prior to examination and resolution of those concerns in SANE-led examinations
- Community stakeholder perspectives on SAFE-T Systems comprehensive program

Manuscript Key Findings

Implementation Evaluation

In July of 2021, our initial program evaluation manuscript was published in the Journal of Forensic Nursing. [14]

Summary of Key Findings.

Significant outcomes from the first three critical access hospitals were:

- 24/7 coverage by trained SANEs (access/quality)
- On-call pay for nurses (workforce sustainability)
- Double the number of patients receiving care compared to year prior to SAFE- T implementation (enhancing access to services)
- High patient satisfaction with care (patient-centered care; health impact)
- Community partners and hospital administrators identified value and willingness to invest in ongoing support (sustainability)
- Importantly, we have supported the training of 56 new SANEs (700% increase in those communities) in the first18 months (workforce growth).

Community Stakeholder Perspectives

In 2020, the SAFE-T Center conducted interviews with interdisciplinary partners at sites where the SAFE-T Center had been in place for a year. The goal was to gain insight into how the SAFE- T program had impacted communities. These interdisciplinary stakeholder evaluation interviews revealed that SAFE-T had stimulated new, positive coordination and mutual respect for multidisciplinary team roles (advocacy and LE), resulting in improved care and enhanced services for survivors of sexual assault. A table highlighting SAFE-T stakeholder responses is provided in the Journal of Forensic Nursing manuscript.[14]

Summary of Key Findings.

- Substantial barriers to provision of quality SA care existed prior to SAFE-T implementation
- Continuous quality improvement was central to successful implementation
- Positive impacts included hospital protocol and policy changes to support survivors, enhanced nurse confidence, supportive mentorship, facilitation of interagency

collaboration, and implementation of trauma-informed care.

Reflections and Lessons Learned

Establishing a robust evaluation model takes substantial resources. Many hours were spent in creating, refining, and discussing research protocols with the University's IRB, creating secure structures to house data, and establishing and maintaining community partnerships to achieve data-sharing agreements. Personnel are needed to manage these large evaluation goals with duties that include managing grantee and IRB requirements, coordinating data collection, and supporting data analysis and dissemination. Many service grants do not cover these activities, meaning that many service grantees do not contribute meaningful evidence of service effectiveness. To advance the field, pilot projects need to have expectations to contribute rigorous evaluation of their models and they must be resourced appropriately to do so. The value of investing in community engagement cannot be understated. Community relationships were essential to understand what worked well and where help was needed. This allowed us to tailor support to individual community needs. In doing so, we had strong allies eager to understand whether we were successful at creating improvements together. To that end, our partners willingly contribute data to answer research questions. We complete the feedback circle by sharing research outcomes with our partner sites. The data provides clear evidence of effectiveness and value and was instrumental in our ability to create sustainable, ongoing partnerships.

Future Considerations and Direction

We are grateful that OVC recognized the value of robust evaluation to contribute evidence of effectiveness of telehealth models. The funding to date allowed us to build a comprehensive short- and long-range evaluation plan. It also covered the analysis and dissemination of early evaluation outcome data. It is imperative that ongoing funds are available to continue evaluation research to inform the field about the impact of forensic telehealth models of care.

Funding is required for ongoing data collection and analysis to fuel the following studies:

SA Forensic Healthcare Quality. The controlled trial demonstrating significantly improved quality of *pediatric and adolescent* forensic exams when telehealth was accessed versus comparator sites conducted by Miyamoto and colleagues[1] needs to be replicated with an *adult and adolescent* population in SAFE-T partner sites.

SA Victim Health and Wellness. The detrimental effects of SA on the health and well-being of victims is well-documented; however, there are no studies that detail how victim health and wellness trajectories are impacted by the quality of the initial health care response (e.g. experience of clinician, interdisciplinary coordination with advocacy and LE).

Investigative and Judicial Outcomes. Approximately 75% of SAs are not reported to law

enforcement.[18] National estimates of judicial trajectory for SA cases show that for every 1000 incidents of SA, approximately 230 will be reported, leading to 46 arrests, 9 cases referred for prosecution, and only 5 cases (0.005%) result in a felony conviction.[19] Numerous factors may influence case progression in the legal system. Arrest rates of perpetrators are influenced by both legal factors (e.g., physical evidence collection and victim cooperation) and extralegal factors (e.g., victim demeanor or state of neurologic compromise).[20-22] The quality of evidence collected, victim characteristics, and victim relationship with the offender have been reported to impact a prosecutor's decision to charge a SA case. [20, 23] Rural LE officials cite a need for experienced SANE examiners, reporting that SANEs working in rural settings had limited experience in forensic evidence collection or courtroom testimony.[24] SANE programs have been found to improve legal case trajectories, with SANE cases moving farther along in the legal process compared to cases where SANEs were not involved.[25] However, a detailed understanding of *how* SANE-led exams impact legal case trajectories is needed. This information can further evaluate SAFE-T's effectiveness in obtaining quality forensic evidence collection, but also the impact of interdisciplinary team coordination to support effective justice outcomes. Federal investment in outcomes research related to sexual assault forensic examination, SANEs, and telehealth as it relates to long term survivor well-being and positive criminal justice trajectory is needed. This is critical to learning which care models demonstrate greatest value in terms of short and long-term survivor impacts, SANE workforce growth and sustainability, and financial sustainability.

Financial Evaluation/Cost-Benefit of Quality SA Care. SA has serious financial consequences. Studies undertaken to determine the financial impact of SA reveal significant tangible costs (e.g. health care, criminal justice), amounting to an estimated $122,000 per victim (or $3.1 trillion for all victims in the U.S.).[37, 38] These estimates do not include intangible costs (e.g. pain and suffering, psychological stress, and decreased quality of life (QOL)), with per incident estimates of nearly $200,000.[38] One study showed that 39% of the tangible costs were attributed to medical care.[37] Programs that aim to improve the quality of care, focus on interdisciplinary care coordination, and provide proactive physical and mental health services for victims may realize improved health and judicial outcomes and decrease costs associated with poor outcomes. Undertaking rigorous, multi-faceted economic evaluation of promising programs is imperative to understand if forensic SA telehealth consultations, intended to increase quality of care but not replace local service provision, have long-term return on the investment. Thus, methodically outlining the costs and potential economic benefits of telehealth programs can provide valuable information for future implementations and inform how costs may vary across settings/regions.

To date, there has been no detailed economic evaluation or measure of cost-benefit of interventions aimed at increasing the quality of SA care using community-based telehealth models. These studies are needed to determine whether improved care is directly linked to better short and long- term victim health outcomes, improved professional outcomes (e.g., lower burnout, higher workforce retention), and positive impact on investigatory and judicial case trajectories.

Comparison of telehealth models. Finally, due to the nursing shortage, worsened by the COVID-19 pandemic, there is pressure to consider models in which teleSANEs provide telehealth consultation to untrained providers. Yet we believe that abandoning the comprehensive supports we have built, meant to grow and sustain a SANE workforce, will have detrimental consequences. If expertise is provided via telehealth without simultaneously building expertise *within* communities, the important local cultural shift toward victim awareness, advocacy, and creation of needed supports will not exist. Models of care that support untrained providers hinge on that all the required knowledge of person-centered, trauma-informed care and the technical expertise required for defensible evidence collection can be imparted remotely. While we have shown telehealth an effective tool for modeling empathic, respectful, trauma-informed care and as quality assurance for best practice, it is not a replacement for those skills being delivered by the caregiver physically present with the individual who has experienced trauma. SAFE-T patients credit both their local nurse and the teleSANE as instrumental to their positive examination experience. Finally, if we deviate from the ideal that all victims of sexual assault deserve equal access to quality care by SANEs, and instead relay on untrained providers, we will deplete rather than grow our nations capacity to respond to this public health crisis.

Therefore, understanding differences in quality of care and community impact by comparing two different telehealth models of care is essential-- one in which local care is delivered by SANE trained nurses supported by teleSANE experts via telehealth compared to a model in which untrained providers are supported by teleSANE consultants via telehealth. We hypothesize that the latter model (where equipment is present and expert live exam telehealth consultation to untrained local providers) will result in many exams being conducted without providers accessing telehealth support. We hypothesize that examination quality will be lower in the untrained provider model. Funding is needed to examine this area so that future investments can be targeted at programs shown to improve case and victim outcomes.

Goal 7: Workforce Development - Grow and Sustain a SANE Workforce

A primary goal of the SAFE-T Center is to grow, support, and sustain a SANE-prepared workforce to allow adult and adolescent victims of sexual assault to receive high-quality care within their own community. In Pennsylvania (PA), as in all states, there are not nearly enough certified SANEs to allow victims of SA to obtain high-quality care in many communities. There are only 50 IAFN-certified SANE-As to serve Pennsylvania's 67 counties, 40 of which live and practice in urban counties. This leaves 40 (83.3% of all) rural counties without any SANE-A certified nurse coverage.[39]

Currently, dedicated SANEs concerned about gaps in training and coverage often serve on more than one response team and attempt to solve coverage issues by continually recruiting and training nurses willing to do the work. The result is a revolving door of SANE prepared nurses who fail to become experts and leave the field before they become proficient.

Further, a lack of exposure to the field through formal education opportunities during registered nurse training contributes to the shortage of forensic nurses in the communities where they are needed. The forensic nursing specialty is not a standard part of all undergraduate nursing curricula and therefore many nurses are not exposed to forensic nursing. Improving exposure during undergraduate training is essential to stimulating interest while students are considering career options.

We approached SANE workforce growth through two pathways: 1) Generate awareness of the SANE role as part of core nursing curriculum; and 2) Retain SANE-trained nurses by creating an infrastructure from which SANE nurse leaders can emerge - confident in their skills, certain of the value of their work, and able to sustain their commitment to the work because it is valued and supported within their community and by a network of peers. Below we articulate the steps to achieve these goals.

Generate Awareness of the SANE Role

The Penn State University (PSU) Ross and Carol Nese College of Nursing (CON) currently has nursing education programs established at 11 of its 24 commonwealth campuses, with nearly 2,000 students enrolled in graduate and undergraduate programs. PI Miyamoto teaches in the Child Maltreatment and Advocacy Studies minor that educates undergraduate students about the forensic nursing role. Students in these courses work in interdisciplinary teams, practice interview skills, conduct mock forensic SA exams, and explore ways to respond to patients who have experienced trauma in the SAFE-T Center forensic laboratory simulation environment. Evaluations from this

course revealed that nursing students had no prior exposure to the SANE role and over 30% of nursing students expressed interest in the field. Currently, the course is required for the minor at the University, but not required for the nursing curriculum.

In the past year, funded by a subsequent grant (DOJ OVC Award #2020-V3-GX-0069, "SAFE-T Center Campus Community Collaborative"), PI Miyamoto and the SAFE-T team has worked with the Associate Dean for Undergraduate Education to develop a sustainable pathway to ensure that every PSU undergraduate nursing student in the College of Nursing is exposed to the SANE role within their core curriculum. Our team developed an online module introducing students to the SANE role during the undergraduate course, Nursing 250: *Professional Role Development: Introduction to Professional Issues in Nursing Practice and Nursing Informatics*. Students learn about the important role they can fill to compassionately serve individuals who have experienced trauma and learn how to access SANE training post-graduation. This module is followed by a scheduled live Q and A session with a SAFE-T Center forensic nurse and delivered at every Penn State nursing campus. This virtual format allows every nursing student, currently 1,932, to be exposed to this training by the time they are sophomores. This exposure ensures that students learn about PSU's Forensic Nursing Certificate course and the CMAS minor, giving them the opportunity to complete those specialty courses during their PSU undergraduate education. This course was offered for the first time in Fall semester of 2021.

Retain SANE-Trained Nurses through Engagement in a Forensic Nurse Network

The SAFE Training Program provides a platform for mentoring and peer networking with a goal of empowering and sustaining SANE nurses to be local experts, reducing burnout and workforce turnover. SAFE-T program support, base training, continuing advanced education, and provision of a 'network of colleagues', not only sustains community SANEs to continue their work, but it also serves to encourage other local nurses to become SANEs. The goal of this program is to reduce burnout and associate turnover of teams as well as encourage new members. Provision of supports that allow SANEs to feel competent in their work, honored for the difficult work they undertake, and leadership within their community fuels retention.

Adequate Pay

To maximize the investment of grant funds, it is imperative that nurses who receive training continue to work in the field. This was the key reason we opted to create partnerships with hospitals with a vested interest in SANE team development. We vetted partner hospitals for their commitment to growing and sustaining a team and required partner hospitals to develop on-call pay structures to honor the work of being on-call. Our SAFE-T Systems leadership team have served on and coordinated SANE teams and have a deep understanding of the supportive elements needed to retain nurses and fulfill them in this role. These support lessons, as well as the costs of replacing specialized nurses, are shared with partner sites so that the value of supporting teams is understood

at the outset. The result was that each of the sites (initial 4 and all subsequent sites) initiated a paid call reimbursement model, replacing volunteer models in which nurses would be unpaid and called in from home when a sexual assault case arose. Additionally, we work to offset attrition by hosting seminars for prospective SANE trainees, led by practicing SANEs, to allow trainees to understand the role and ask questions to determine if it is a fit before they begin training.

Continuing Education and Peer Review

Nurses leave their work in instances where they feel unsure of their value or ability or in circumstances of burnout. To increase nurse confidence, it is imperative that nurses have access to regular, engaging education, especially in circumstances where there are time gaps due to low patient volume that may mean skills are forgotten.

We created supports aimed at increasing nurse confidence and retention (see goal #4). The realization of goal #4 (creation of the SAFE-T Training Institute) signals that training programs will endure and continue to fuel the development of the SANE workforce through new trainees and the retention of those we have already trained.

Key Outcomes

- In just 18 months of active SAFE-T Systems delivery and partnership with hospitals in Pennsylvania, 56 nurses have received SANE training and are actively working on teams to provide quality forensic care where it otherwise wouldn't exist. In addition to substantially growing the workforce in rural areas, SAFE-T partner nurses have thrived in their roles with 67% retained at 18 months versus notoriously low retention of only 7% over two years reported in one study. [40]
- Every PSU CON sophomore nursing student learns about the role of the SANE within regular nursing curriculum
- All partner sites have adopted a paid call schedule to honor the work of SANEs versus prior models that relied on unpaid coverage by nurses.
- Successful achievement of HRSA funds to fuel the SAFE-T Center to train the next generation of SANE nurses

Reflections and Lessons Learned

The global COVID-19 pandemic has created immense challenges for the collective nursing workforce. This is especially salient for nurse staffing in emergency departments that are overwhelmed by the influx of COVID patients and seeing exceedingly high rates of staffing shortages due to nurses leaving positions or opting for travel positions with higher pay. Nursing workforce strains have clear impacts on our forensic nursing workforce as well. With high rates of anxiety and job dissatisfaction among nurses, dropping the "extra" position held as a SANE may be the first thing to go to help nurses cope with overwhelming demands. Prior to the pandemic, we had

remarkable success at SANE retention in rural communities (approximately 75% one year after implementation). The picture, now 20 months into the pandemic, makes provision of SANE- led care much more daunting. Our partner hospitals have seen substantial reductions in their SANE team rosters, and it is difficult to identify nurses willing to take on additional duties. Nursing shortages will continue to be a substantial barrier for years to come.

Therefore, a comprehensive program that can adapt to unique community needs is essential. Had our model been to place our equipment in a hospital and wait for requests for consultation, the entire program would have dissolved. Because we regularly engage site leaders to learn about any challenges they face, we can help find solutions and create contingency plans to ensure quality care still occurs. An example of this is that we have been able to provide recruitment materials and have encouraged sites to include community nurses on their teams when previously they had only relied on emergency department nurses. With the toll the pandemic is taking on nursing, it is even more imperative that creative solutions continue to exist to bolster access to expert SANE care.

Future Considerations and Direction

Many efforts have been made to try to drive more nurses to forensic specialties. HRSA has worked to reduce training costs and burden by funding groups across the country to facilitate quality education and mentoring. This helps address the expense of training which may encourage more hospitals to send nurses for training. That solves one part of the problem. The larger issue is what will compel nurses to do *more* when they are already giving a tremendous amount in an under- resourced health system? Nurses who are drawn to provide care for victims of assault are typically not compelled by money, and certainly not the small amount that comes from being on-call. It is important to learn and understand what supports nurses need to enter and stay engaged in the field and then we must incentivize institutions to create those supports. This may be in the form of loan repayment for service years as a SANE, bonus time off, and thoughtful recognition of the important role they fill for the most vulnerable in their community.

Goal 8: Develop and implement a plan to ensure sustainability beyond grant funding

We had an ambitious goal of achieving sustainability of the Center and SAFE-T Systems program model in just 5 years. This required early application of a multi-pronged approach including demonstration of value through rigorous program evaluation, messaging value to key stakeholders, partner involvement in sustainability planning, development, and execution of sustainable business plans. Importantly, we have steadily worked on building a research-to-policy bridge to effect system change to advance equitable access to quality sexual assault care.

Demonstrating Value: Evaluation and Messaging

For innovative programs to be sustained, the value of the program must be demonstrated. Value can be found in improved quality of care, reduced inefficiencies in system's response to sexual assault, retention of a highly skilled workforce, successful prosecution, and demonstrable monetary benefits.

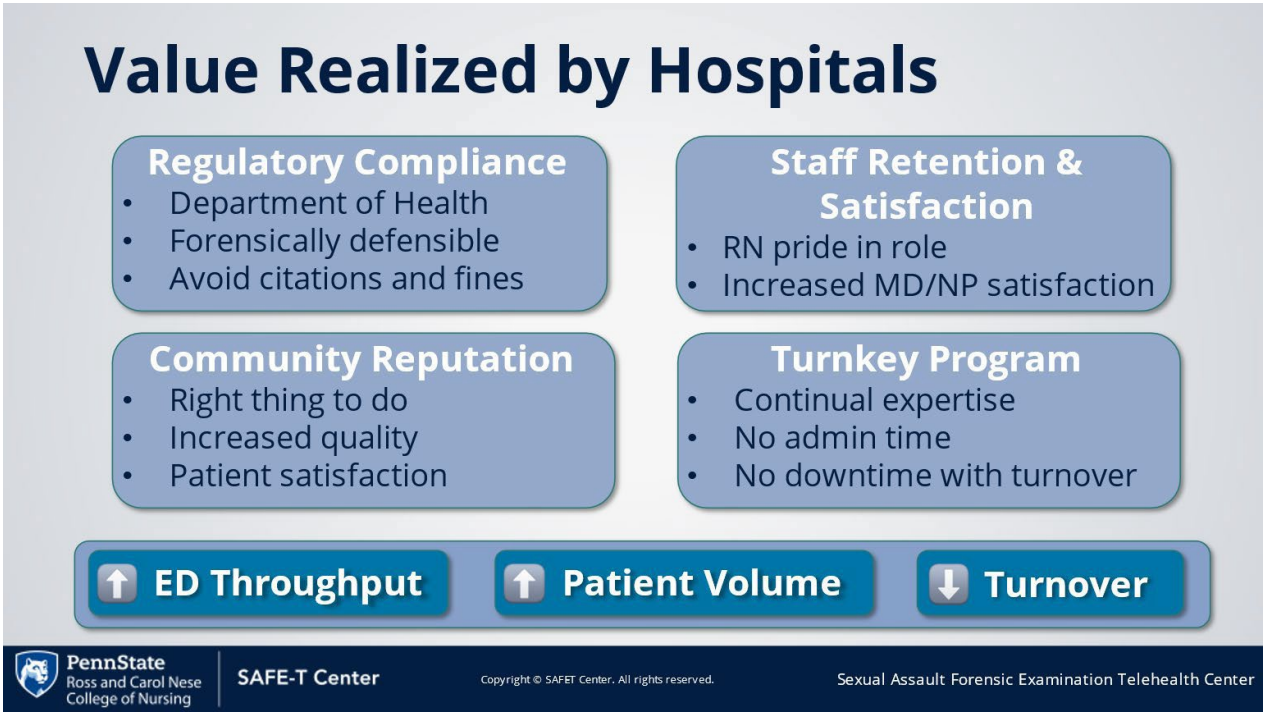
Regular communication of evaluation findings is essential for community recognition of value. We regularly disseminated progress to hospital leadership through advisory board meetings, where we often highlighted local nurse experience of the program. We returned to each partner site one year after program implementation to celebrate and share program outcomes with the interdisciplinary community.

As our sites grew and COVID-19 impacted our ability to travel and connect in person with our partners, we developed messaging strategies that highlighted positive progress and outcomes. These strategies included newsletters, policy briefs (described in detail below), infographics of key outcomes, and virtual meetings.

Partnership Model to Develop Sustainable Solutions

The cornerstone of our approach to sustainability is that we set up our program as a hospital partnership model. A key element of this model is that each partner hospital administration commits to meeting with Dr. Miyamoto annually to review site growth, outcomes, and value. Evaluation and dissemination of key local changes translate to value for the local health system (See Figure 8.1). Over the past two years, Miyamoto conducted interviews with each hospital executive leader to gain insight into the value they place on this service and where value equates to fiscal efficiencies.

Figure 8.1: Value as Articulated by our Hospital Partners



We then applied some assumptions of how these value categories could be monetized and tested those assumptions with our partners to refine the model. The outcome of this work is the foundation of a hospital payment model.

Following this, we engaged in discussions with each partner site about a preliminary pricing plan proposal. This pricing plan was based directly upon SAFE-T Systems actual operating costs, assuming no additional grant funding support. These preliminary discussions resulted in all sites expressing that although the SAFE-T program was valuable, the proposed pricing model was not feasible for their hospitals to pay after having experienced major revenue loss from the COVID- 19 pandemic. Through ongoing discussions and understanding of the program value to our partners, we ultimately arrived at a sustainability plan that worked for all sites that sought to continue to have a comprehensive SANE response. Since that time, we have forged additional site partnerships to launch in late 2021 and 2022.

Development and Execution of Sustainable Business Plans

Innovation and flexibility are essential to navigate and explore workable business plans for novel care delivery models. Miyamoto and the SAFE-T team engaged in numerous opportunities through the *Invent Penn State* initiative. Those opportunities were key to gaining business skills and access to experienced business mentors who serve on a SAFE-T business advisory board and partners.

In July and August, our team refined a bridge pricing structure (offsetting costs to hospitals based on grants the SAFE-T Center was able to secure) thereby reducing fees and providing some relief to hospitals as they struggle to navigate the financial and workforce losses related to COVID-19. Klein and Miyamoto negotiated new partnership contracts with four of the original eight sites and entered into an enterprise agreement with Penn State Health, meaning that SAFE-T will be in place in each of the four Penn State Health hospitals. This represents an important shift toward enterprise solutions for health systems. Penn State Health leaders have stated that they want to run SANE-led hospitals and that SAFE-T helps them adhere to that model. Similarly, the Penn Highlands Health System is exploring SAFE-T as a solution at the remaining hospitals in their system.

Building a Research-to-Policy Bridge

As Co-Investigator of the Center for Healthy Children's Dissemination and Outreach Core, an NIH-funded P50 Capstone Center for Healthy Children, Miyamoto actively pursued a "research-to-policy" bridge by building interdisciplinary community and policy leader input at every stage of SAFE-T Center work. An NBC nightly news segment on the shortage of SANEs caught the attention of PA Senator Elder Vogel Jr., who champions expanding healthcare access via telehealth. His team reached out to the SAFE-T Center as they sought guidance on how to solve the problem and improve sexual assault care across the Commonwealth. PI Miyamoto met with the Senator and his team to discuss the problem and SAFE-T's solutions to increase equitable access to quality SA care. SAFE-T developed a policy brief that outlined the SANE shortage issue and how SAFE-T can provide a solution by addressing gaps in the SANE workforce.

In May 2021, the SAFE-T Center met with the SAFE-T Advisory Board in a 2-hour virtual meeting to discuss plans for long-term SAFE-T Center growth and sustainability. The SAFE-T Advisory Board members explored ideas for sustainability such as Center of Excellence designation for SANE programs supported by telehealth, incentivizing hospitals to use services like telehealth to ensure quality care availability for sexual assault patients, and state or government funding support of Telehealth hubs. The SAFE-T Center is continuing to evaluate these and other avenues with Senator Vogel's office and key stakeholders.

In February 2021, The SAFE-T Center was mentioned in a Joint State Government Commission Report by the General Assembly of the Commonwealth of Pennsylvania titled, "Mental Health Services for Victims of Sexual Assault and Rape." News about this report was shared on the SAFE-T Center's website and on SAFE-T Systems' social media accounts. The full report is available at the Joint State Government Commission's website.

Changing the landscape of support for SANE models of care requires legislative action. SAFE-T has brought important partners together to find workable solutions to allow all communities access to high quality care. PI Miyamoto and SAFE-T advisory board members (Watkins, Bussard) as well as PSU State Health Relations Associate, Josh Eisner, have responded to the request to advance solutions to solve inequities in access to SANE-led care.

Key Outcomes

- Discovery of value of the SAFE-T model through research outcomes and interaction with hospital partners
- Development of a hospital partnership business plan, created with hospital partners, to arrive at sustainable, ongoing partnership
- SAFE-T hospital partner sites sustained beyond grant funding
- Expansion to three additional new sites in 2021 with hospital financial contributions to fund services
- Active legislative and policy measures in motion with Senator Vogel, PA.

Reflections and Lessons Learned

Creating sustainable pathways, even for programs with promising outcomes and recognized value to hospitals, is difficult. Our success in this regard stems from our approach to community engagement, having partnership as a central value and keeping the delivery of quality care for victims at the center of our work. We are fortunate to have partnered with health systems whose leaders were driven to improve care for this population. Even with this commitment and recognition of value, hospitals must come up with resources to fund this program that helps them deliver quality care but does not result in additional income. As things currently stand in PA, hospitals are reimbursed approximately $900 for each sexual assault examination. Sexual assault examinations are unique in that while care must be provided in an emergent setting, ideally by highly trained staff, payment burden rarely falls to insurers due to confidentiality issues and Federal law that states a victim of crime should not be billed for an evidentiary examination for a crime that has been committed against them. When insurers are not part of the process, there is no pathway to reimbursement for specialty telehealth services. For instance, if a hospital is unable to support or retain a neurologist at the facility, they may elect to bring this specialty in via telehealth. The neurologist is then able to bill for services provided by telehealth. This is not an option in sexual assault telehealth as third-party billing is not utilized.

Examinations require hospital resources such as a dedicated room and 3-5 hours of staff time, so at the outset hospitals lose money in the provision of this care. Without regulation or fiscal incentive for hospitals to achieve a standard of care that meets established quality criteria, it is difficult to compel hospitals to outlay funds to achieve higher quality care.

It was imperative for us to lay out the costs of running an expert telehealth hub and to use that as a foundation for a business plan to allow for services to continue beyond grant funding. Business partners and consultants were instrumental in this process. Additionally, it was important to have a business/sustainability lead to facilitate fiscal discussions with hospital partners, allowing PI Miyamoto to communicate value and remain focused on quality service provision. This structure

allowed both parties to negotiate openly and honestly. Additional grants obtained by the SAFE-T Center helped bridge funding and decrease overall expense to partner hospitals.

Future Considerations and Direction

Our outcomes show that our model can be successfully implemented and can help solve disparities that exist in SA care quality. The big question is *who* should be responsible for paying to ensure expert hubs like SAFE-T exist as a solution to increase access and equity to quality SA care? We must move away from reliance on grant funding for these solutions as grants typically are for pilot projects or to mount a new response. Rarely do grants provide for ongoing continuity of the work. The answer is likely multifaceted.

Grant funding is needed to:

- Establish evidence-based comprehensive forensic telehealth hubs of expertise including state of the art, secure technology; SANE training; telehealth consultation; peer review/quality assurance; program evaluation
- Make SANE training cost-free to nurses and hospitals
- Ensure short- and long-term *impactful, rigorous* evaluation research is conducted to establish the utility of the program and the value in solving access and equity to quality SA care
- Provide funding to evidence-based programs with proven outcomes to provide technical assistance to new hubs based on the foundational model
- Grow national capacity by investing in proven models of care and sustainability
- Ensure model adherence
- Maximize initial investments in successful pilot programs through replication

Policy/Legislative initiatives are needed to:

- Serve victims of sexual assault by setting standards for person-centered, trauma- informed sexual assault care by SANEs so that all victims receive equal access to quality care, reducing disparities that can occur due to race, income, or geographic location.
- Mandate facilities adhere to minimum standards of care
- Provide incentive payments to hospitals that engage in telehealth programs shown to improve the quality of SA care
- Hospitals pay for comprehensive, expert hub telehealth services when they are not independently able to meet all standards of care

Future Needs to Advance the Forensic Sexual Assault Field

Comprehensive Hubs of Expertise Can Increase Equitable Access to Quality Sexual Assault Care in a Field with Chronic Shortages of Expertise

OVC was bold in creating a vision for telehealth programs to be created to solve the intractable issues related to access to quality SANE-led sexual assault care. The investment in the SAFE-T program was substantial. In just four years, our outcomes demonstrate that building and implementing robust, comprehensive telehealth models of care is worth the investment.

We have demonstrated the effectiveness of our comprehensive telehealth model in the following areas:

1. Successful implementation of SAFE-T program in eight diverse and unique communities
2. Community partners value the program
3. Access to quality care in underserved areas where it previously did not exist
4. High ratings of quality of care by survivors of sexual assault
5. Increased local SANE-trained nurse confidence in provision of care
6. SANE workforce development
7. Sustainable business solutions. We have created an effective business model that ensures ongoing program support to hospital partners. We are the first telehealth program, to our knowledge, that has successfully moved to a fee-based contract with hospitals for our services rather than relying solely on grant funding for continued program support.

OVC is a leader in promoting quality care for victims of assault. There are many lessons learned from this project that can inform the effective growth of promising solutions to continue the advances OVC has helped make possible.

Investment in secure technologies to facilitate a higher standard of care

Clinical forensic experts who aim to support less-experienced clinicians via telehealth often do not have the resources or technical background to ensure proper equipment and protections are in place to support high-quality visual data capture and that interactions and data exchange conducted remotely are done with the highest standards of data security protections. Even outside telehealth interactions, forensic nurses rely on image capture devices that are not made for forensic purposes and do not facilitate secure data sharing for peer review, the gold standard in quality sexual assault care. For forensic sexual assault telehealth models to grow, investment in leading forensic telehealth technology that is secure, adaptable to any setting (only requiring a Wi-Fi connection) and that serves all photo and document capture needs. Currently, every new pilot project or entity

that explores the use of telehealth to increase access to expertise must try to piece together commercially available equipment that is often not specifically created for forensic use or does not have telehealth natively integrated. Additionally, these systems are not secure enough to safely handle the sensitive forensic data from SA exams and those identifying the systems may not have the IT/security expertise to know what standards to adhere to.

Recommendations:

Adherence to telehealth models that demonstrate evidence of effectiveness

There are many possible telehealth models. Models may differ in levels of community engagement, training and services offered, type and provision of technology and technology support, training and experience of the telehealth consultant, training and experience of the local clinician, and whether "telehealth" provides telepresence in an exam room on a cart or integrates the ability to see, in real time, detailed views of injuries or evidence that may be on the body. These choices will have an impact on whether programs are effective.

Likewise, effectiveness can be measured in many ways. Telehealth models of care have the potential to impact SANE workforce growth and retention, local provider confidence, patient experience, and quality of care. While not yet available, it will be important to conduct a cost- benefit analysis to determine if higher initial care quality results in improved recovery and better health and well-being outcomes for survivors.

For telehealth models of care to gain widespread acceptance, rigorous and meaningful outcomes need to be explored through evaluation research and that funding is prioritized for these endeavors. It is equally important that when positive outcomes are realized, those outcomes are tied to a specific model with the recognition that deviance from the tested model may not result in the same outcomes. For instance, as SAFE-T Center disseminates outcomes of our program (high levels of local SANE retention, patient experience data, cost savings, and quality improvements), these findings are unlikely to be realized in models that differ from ours, such as those that deliver consultation to untrained local providers rather than SANE-trained providers. Fidelity to evidence- based models is essential to make continuous gains in the field.

The most efficient way to advance the field is to scale and replicate successful models. In just four years we have created a secure, easy-to-use, affordable telehealth forensic system, built a model that has increased SANE trained nurses in underserved communities by 700%, served over 200 victims of sexual abuse, doubled the number of sites served within two years, and have executed a business plan for growth and sustainability of the Center. This model has successfully delivered on OVCs goals for this investment. To maximize that investment and grow solutions across the country, the SAFE-T Center model should be replicated with affiliated SAFE-T Centers implemented in different regions or states, with strict adherence to the model.

Concentrated investment in successful solutions is essential, especially when introducing disruptive technologies, modes of care, and new business models. Forensic telehealth is a disruptive technology, an innovation that significantly alters the way consumers, industries, or businesses operate. Disruptive commercial enterprises such as Airbnb, Uber, Lyft, Pinterest, and Zillow are not yet profitable despite their utility and visible adoption. Amazon wasn't profitable until their 14th year of existence. These companies can secure venture capital to ensure they have time to grow, expand, refine, and replicate their successes. These examples should guide investment in forensic telehealth models. Rather than investing in many groups to individually create all aspects of a novel technology and service, investing in the growth and replication of successful programs is more likely to lead to long-term viability and the ultimate impact goal of ensuring that every victim of SA has access to exceptional, quality health and forensic care to promote their recovery and healing. Further, investing in the growth and replication of successful programs saves set-up cost and time, builds on the strengths of what was already tested, and allows true focus on the adaption of the model to unique real-world implementation.

Disparities and Inequities in Access and Quality of Care Must Be Addressed

The disparities and inequities that exist in the quality of sexual assault care are staggering. Every state in the country suffers from a shortage of expertise. Even when promising solutions exist, such as telehealth to bridge gaps in expertise, ready adoption is slow, and clear reimbursement models to sustain these programs do not exist.

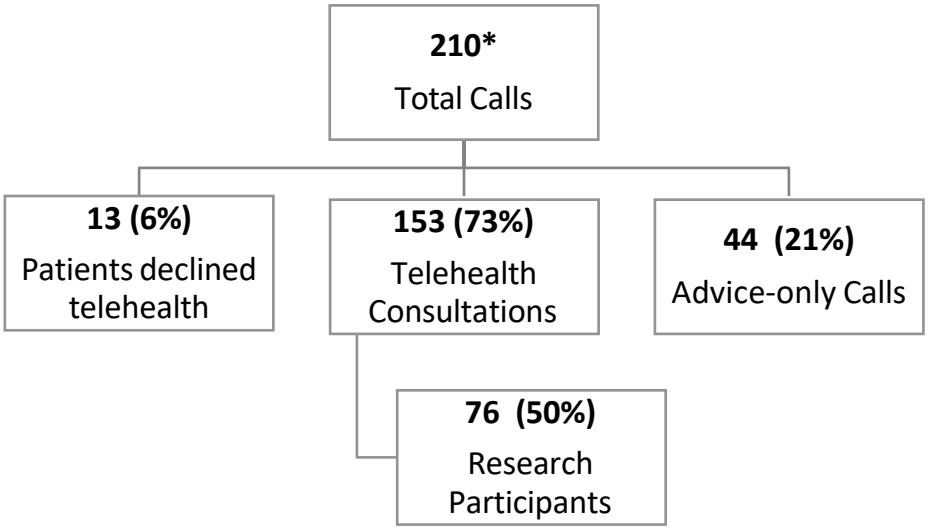
If you suffer a stroke or heart attack and live in a rural community, we do not accept that you should get substandard care. While recognizing that not all hospitals are resourced to perform open heart surgery, we treat it like the emergency it is and use technologies like telehealth to consult experts, stabilize patients, and expedite transfer to a partner facility where all lifesaving options are available. In this country, we fail victims of trauma by not demanding those same measures. The implications of not receiving quality care for sexual assault have detrimental effects just as serious as failure to treat chronic disease, and because sexual violence is so pervasive in our society, perhaps even more so. Among sexual assault victims, 30-65% will develop lifetime post- traumatic stress disorder (PTSD), 12-40% will develop generalized anxiety, and nearly 15% will attempt suicide. [26, 29-35] Women, children, and racial and gender minorities are disproportionately affected by sexual violence.

Studies undertaken to determine the financial impact of SA reveal significant tangible costs (e.g. health care, criminal justice), amounting to an estimated $122,000 per victim (or $3.1 trillion for all victims in the U.S.).[37, 38] These estimates do not include intangible costs (e.g. pain and suffering, psychological stress, and decreased quality of life (QOL)), with per incident estimates of nearly

$200,000.[37] One study showed that 39% of the tangible costs were attributed to medical care.[36] Programs that aim to improve the quality of care, focus on interdisciplinary care coordination, and provide proactive physical and mental health services for victims may realize improved health and judicial outcomes and decrease costs associated with poor outcomes.

DOJ OVC Performance Metrics for 2017-2021

210 calls to the SAFE-T Center between **8/29/2018** and **9/30/2021** across 8 partnered hospitals*



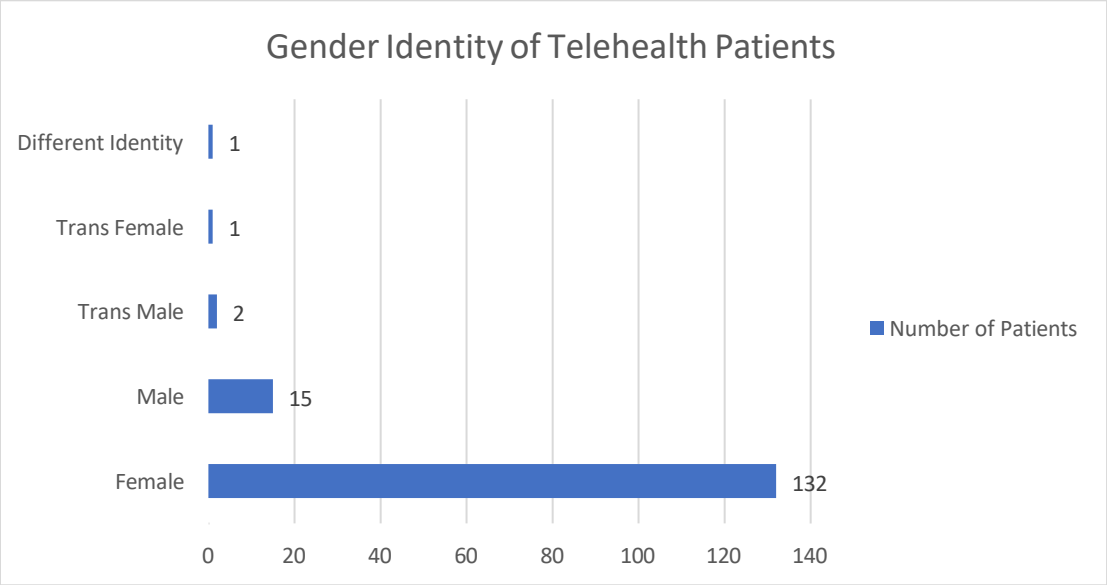
*There were only 3 active hospitals for the first 16 months (8/2018 to 1/2020)

Reasons for advice-only calls

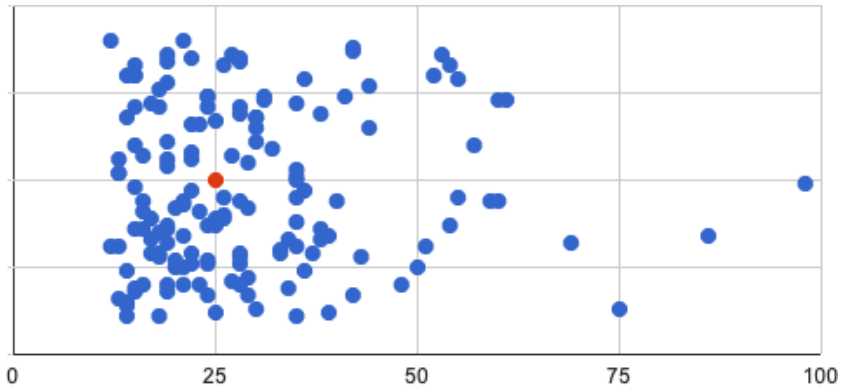
- Patient unable to consent to telehealth and forensic services (e.g., unconscious, altered mental status, incapacitated)
- Patient experiencing acute mental health crisis requiring treatment first
- Patient younger than the SAFE-T Center minimum age of 12 years
- Patient's assault occurred beyond the window of evidence collection
- Patient experienced physical violence without sexual assault (e.g., Intimate Partner Violence)
- Patient left before being seen

Patient Demographics

Gender Identity:

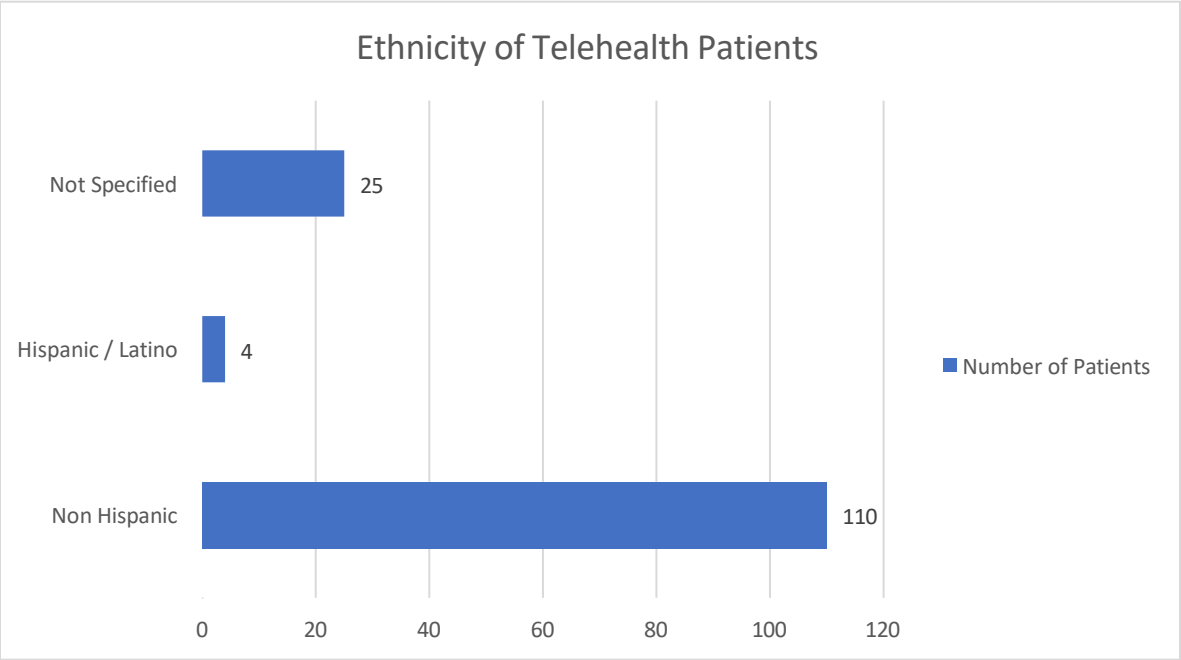


Age Distribution:

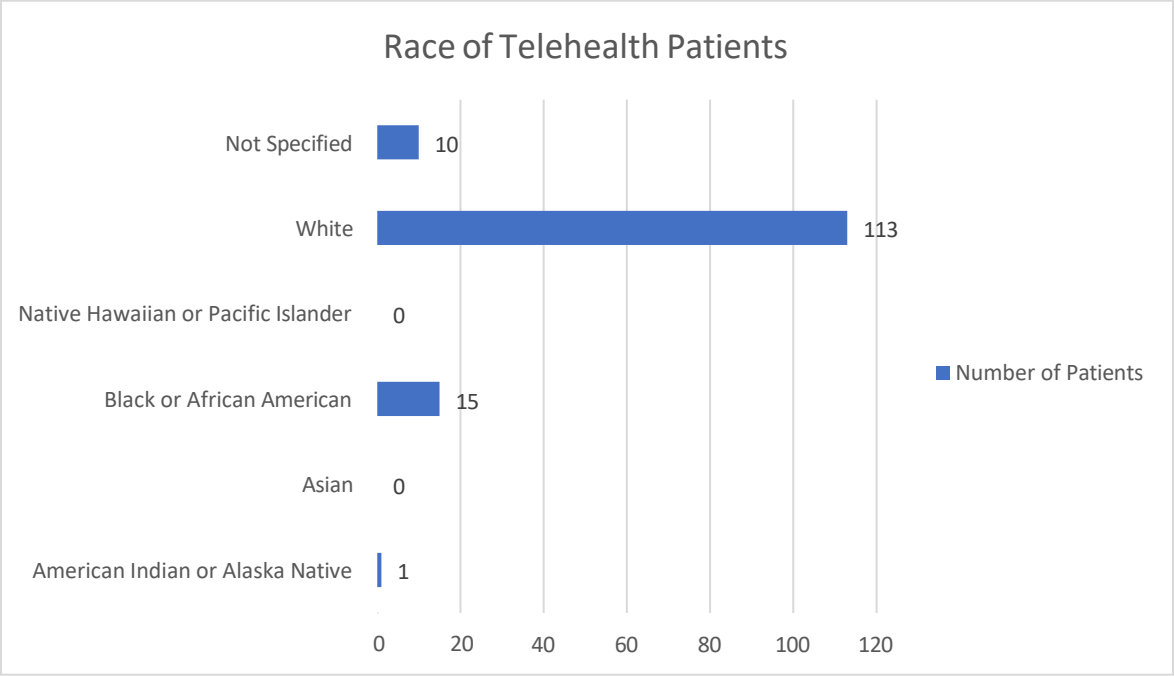


- Ages ranged from **12** to **98** years, with a median of **25 years**
- **31** Minors (between **12-17** years)
- **122** Adults (**18+** years)
- Age range of **12 to 98** years
- Median age of **25** years

Ethnicity:



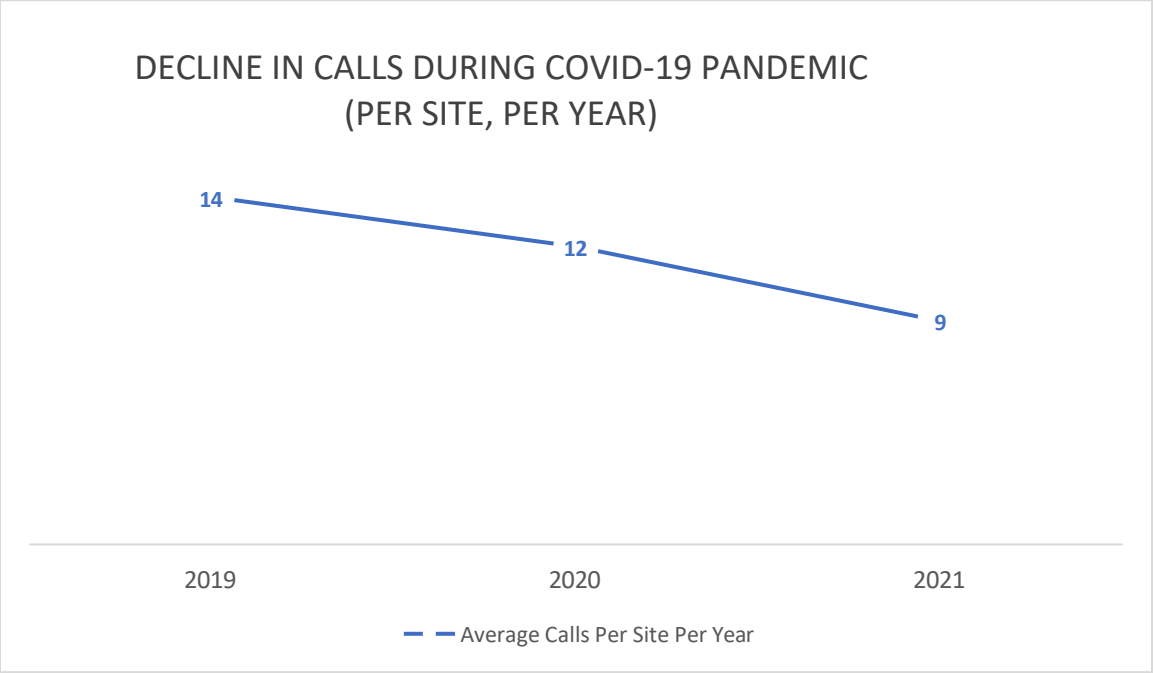
Race:



General SAFE-T Call Statistics:

- **58%** of all calls occurred on **Sunday, Monday, or Tuesday**
- **Noon to 5pm** was the peak period for calls to the SAFE-T Center
- **May, June, August** were the months with the most calls, followed by September and January

COVID Pandemic Impact:



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Appendix A: Optimal and Deficient SA Care Pathway