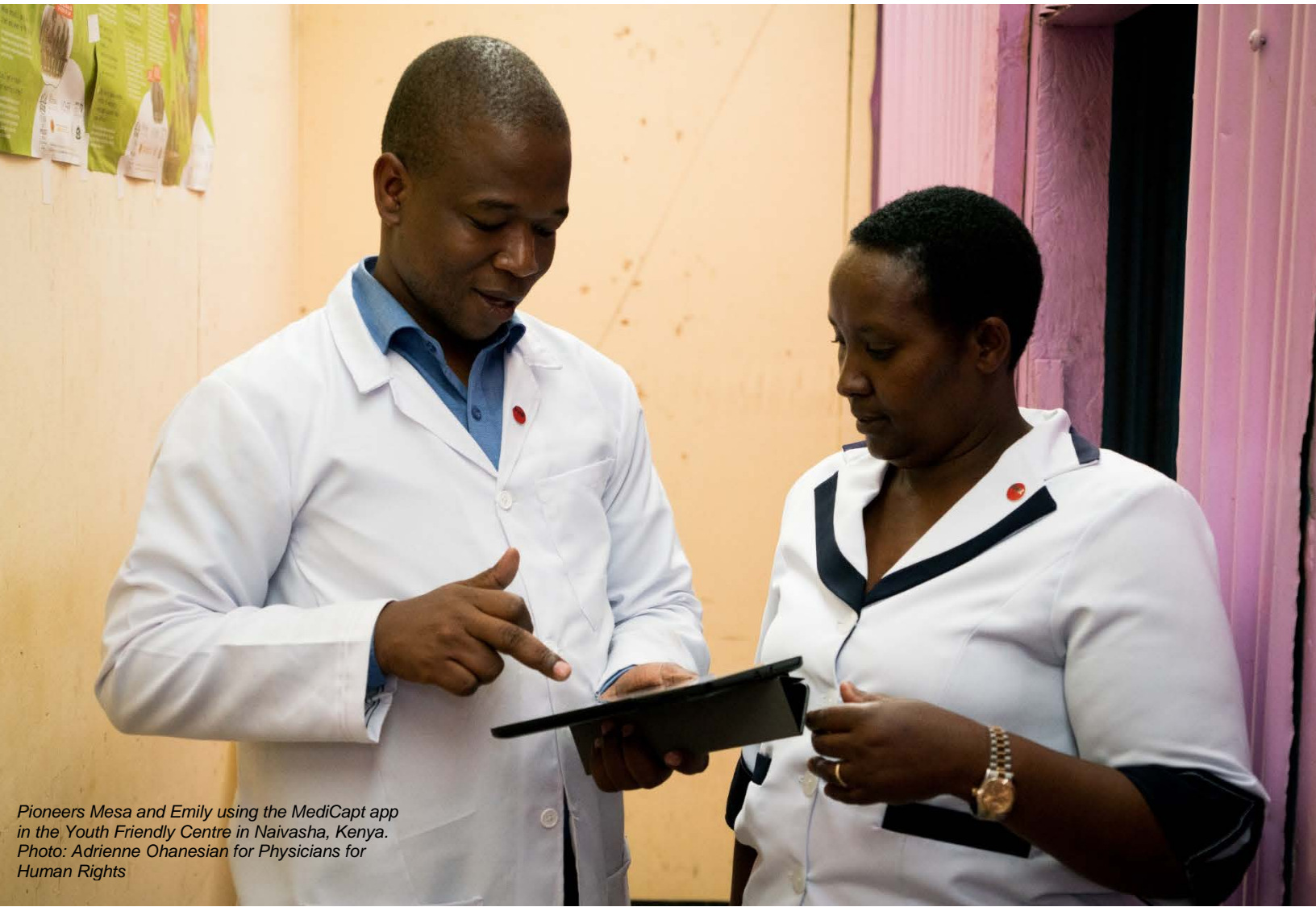**NAIVASHA COUNTY REFFERAL HOSPITAL (NCRH) LEVEL 5**

Using MediCapt to Document Medical Evidence of Sexual Violence in Kenya

Perspectives from the End Users

November 2019

About NCRH

Naivasha County Referral Hospital (NCRH) is a public hospital in Naivasha, Kenya that aims to provide patients with efficient and cost-effective medical care. The hospital was established in 1920 and has since been elevated to a Level 5 facility, indicating it is a referral center for the area. The hospital has a capacity of 247 beds and 37 cots. The daily inpatient and outpatient load is approximately 300 and 650 patients, respectively. The facility is also an internship center for clinical officers and medical officers as well as a training facility for other medical professionals.

About PHR

Physicians for Human Rights (PHR), which shared in the Nobel Peace Prize for its work to end the scourge of landmines, works at the intersection of medicine, science, and law to end human suffering, save lives, and secure justice and universal human rights for all. PHR launched the Program on Sexual Violence in Conflict Zones in 2011, with the aim of forging coalitions among medical, law enforcement, and legal experts in Central and East Africa to end sexual violence in conflict. PHR saw medical professionals as potentially powerful change agents and intervened at a practical level to devise ways for clinicians to work directly with their law enforcement and legal counterparts to collect and analyze forensic evidence, change how survivors receive medical care and treatment, and make justice systems work for victims.

Acknowledgments

Table of Contents

From left to right: Benson Wahome, Dr. Angeline Ithondeka, Sylvester Mesa, Grace Muthima, Emily Kiragu, Naomi Gikonyo, Ruth Ngugi, Serem Keitany, and Purity Thirikwa from the Pioneer team at Naivasha Sub-County Referral Hospital.

Introduction

Through PHR's Program on Sexual Violence in Conflict Zones and its engagement with medical, law enforcement, and legal partners in the DRC and Kenya, it was evident that a staggering number of sexual violence cases fail in court due to lack of evidence and/or low-quality evidence. The obstacles to obtaining and using evidence effectively in court include the lack of forensic examinations of survivors and thorough documentation of those examinations; the risk of evidence tampering, loss, or theft when there is no secure storage for confidential medical files; regular stock outs of the standardized documentation forms; and significant challenges in transmitting the evidence between the medical and law enforcement sectors while preserving the chain of custody. In the Democratic Republic of the Congo (DRC), PHR worked with partners to take advantage of mobile technology and its widespread use to overcome these challenges and support survivors seeking justice.

In 2012, the idea for MediCapt was born: a mobile application that converts a standardized medical intake form for forensic documentation to a digital platform and combines it with a secure mobile camera to facilitate forensic photography. Health care providers could use MediCapt to compile medical evidence, photograph survivors' injuries, and securely transmit the data to police, lawyers, and judges involved in prosecuting sexual violence crimes.

PHR embarked on a collaborative design or "co-design" process with partners, initially in the DRC and later in Kenya, to develop the application to ensure that it functioned in their work setting and did not disrupt the clinical workflow. The co-design process includes obtaining feedback from end users early and often in the development of the app. For example,

early in the process, clinicians in the DRC noted that the application must work both online and offline, as clinics often have limited power and WiFi. PHR took this feedback to the third-party technology developers and found a solution that would ensure the application is usable and secure while offline. The co-design process has continued long beyond the initial design phase; co-design is a core principle of the project and user feedback is instrumental to improving the application throughout its roll out.

Currently, the clinician-facing application has been developed and the web-based platform to transmit the evidence to the police and justice sector is still under development. This report will focus on the clinician-facing app that was piloted in Naivasha, Kenya.

MediCapt Mobile Application Features:

- Sophisticated encryption, cloud data storage, high fidelity to chain of custody standards, and tamper-proof metadata.
- Functionality in remote locations and conflict zones where wireless data transmission is limited.
- Photo capture capacity for the secure collection and storage of forensic photography.
- Secure printing to ensure that the survivor is able to keep a copy of their information.
- Easy adaptation for any language or legal jurisdiction, as well as documentation of other human rights violations.
- At scale, the data mapping feature can be used to help map patterns or prevalence of violence, including the widespread or systematic nature of offenses critical to demonstrating crimes against humanity. MediCapt also has the potential to facilitate early warning of and rapid response to mass crimes.
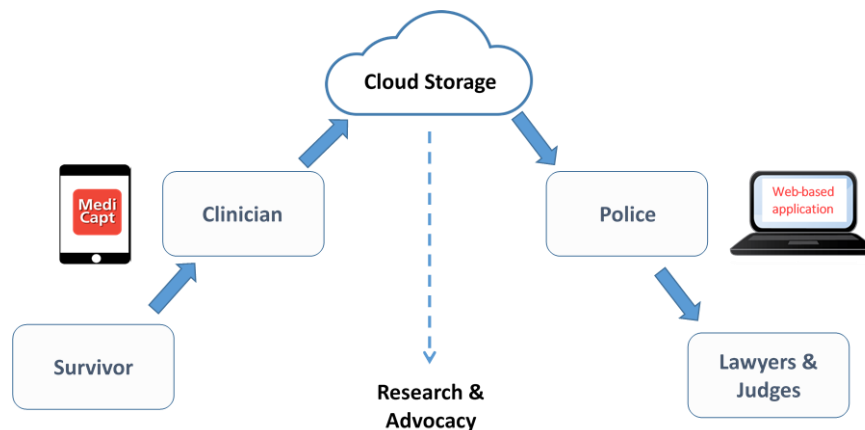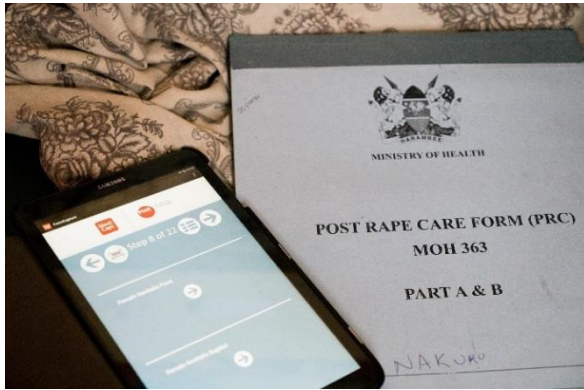

Figure 1: The Concept of MediCapt

The MediCapt application and the Kenyan Post-Rape Care form. Photo: Adrienne Ohanesian for Physicians for Human Rights

Since its initial development, MediCapt has received multiple awards, including: the Science and Human Rights Innovator Award from the American Association for the Advancement of Science (2019), the Sexual Violence Research Initiative and World Bank Group Development Marketplace Award for Innovation in the Prevention and Response to Gender Based Violence (2019), the MIT Solve Award in the Frontlines of Health category (2018), and the USAID-Humanity United Tech Challenge for Atrocity Prevention competition in the Safe Documentation category (2013).

100 percent of clinicians involved in the pilot reported that MediCapt helped them do a better job documenting sexual assault examinations.

This report, written by the MediCapt team at NCRH (including the end users - doctors, nurses and clinical officers, IT and records team members, and hospital administrators) and PHR, aims to share the experience of the first-ever pilot of MediCapt with patients, including challenges and lessons learned.

Training and Field Testing

Assessments and Protocol Development

In 2017, PHR worked with existing partners in Nakuru County and the Ministry of Health to begin rolling out MediCapt in Kenya. As a first step, PHR conducted two assessments to inform the project in Kenya. The first was a landscape assessment to understand the challenges and opportunities for integrating MediCapt technology into medical and legal systems in Kenya. This assessment focused on current mobile technology, existing electronic medical records (EMR) systems, and models used in sexual violence patient care at select facilities in Nairobi, Nakuru, Kisumu, and Uasin Gishu Counties. Through this assessment, PHR selected NCRH as the pilot facility based on its capacity to respond to survivors of sexual violence and the existing linkages with multi-sectoral stakeholders. Additionally, PHR worked with NCRH to identify the end users and support team, based on the entry-points for survivors within the facility. Together, we settled on a team of 12, comprised of doctors, nurses, and records officers. Over time, this group of 12 elected to call themselves "the Pioneers."

Assessments completed, MediCapt team identified, 2017

Initial MediCapt training, January 2018

Technical support team training, March 2018

Multisectoral training, April 2018

Refresher training, October 2018

Pilot, October - December 2018
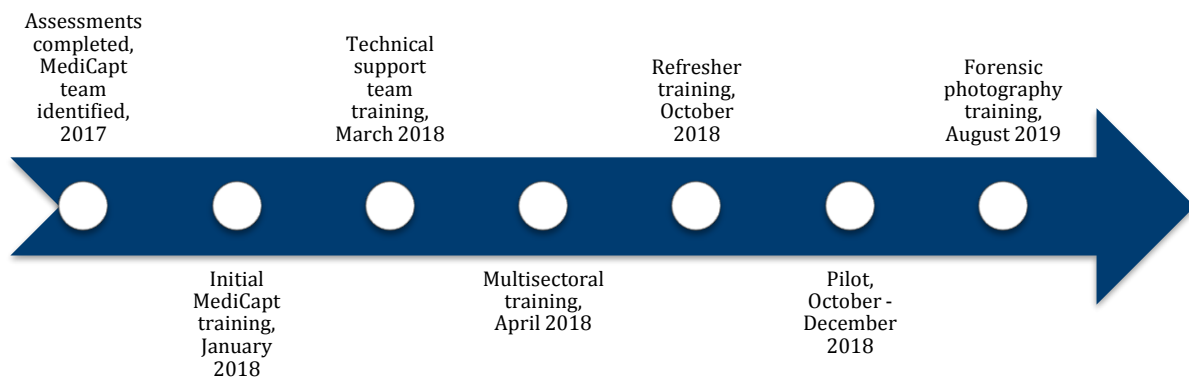
Forensic photography training, August 2019

Figure 2: Timeline of MediCapt Roll-out at NCRH

The next step was to conduct a second assessment to evaluate the technical capacity and skills within the institution to support the use of MediCapt. The technical assessment included the potential for interoperability between MediCapt and the hospital's EMR systems, data flow in relation to treatment and management of sexual violence cases, and infrastructure gaps that may inhibit the use of the application. The technical assessment helped to identify gaps, such as the lack of specific forms/registers within the existing EMR system to collect SGBV data as well as the limited wireless network reach that the current set-up allowed for.

In collaboration with PHR's technical consultant in-country, we were able to extend the wireless network to the outpatient department and youth center that previously lacked connectivity, and identify the points where the tablets and printer would be located as well as the possible MediCapt integration points with the EMR system.

PHR and NCRH also collaboratively developed a set of protocols that provide guidance to the end users and technical support team. The protocols offer instructions on proper storage of equipment, activating and deactivating user accounts, replacing hardware, troubleshooting, and making updates to the application. The head of the records department lauded these protocols as essential to the success of MediCapt at the facility. The technical support team used them as reference to further improve the support that they provided to the end users.

Training Workshops

Before the Pioneers began using the application, PHR led a series of preparatory trainings. The first training in January 2018 served as an introduction to the MediCapt app, where the pioneers first interacted with the application and assessed the feasibility of MediCapt use at the facility, including in the urgent care, pediatric, internal medicine, obstetrics, and gynecology units as well as in the records department. Participants also discussed how to obtain informed consent specifically for technology, and gave important recommendations towards the improvement of the application. This feedback is part of the ongoing co-design process. Many of the end users were initially reluctant to use the application – it meant changing their current workflows, they were unsure about the patients' reactions to the technology, and synchronization challenges during the training made them wary of the application. The Pioneers also varied greatly in their comfort with technology; some were very comfortable with the hardware and software

The first MediCapt training with the Pioneers, January 2018.

right away, while others initially struggled to type with more than one finger.

As MediCapt was developed to enhance the collection and documentation of forensic medical evidence of sexual violence, the team had to have the requisite clinical skills for the application roll-out to be successful. The second training workshop, in April 2018, was one that focused on imparting these basic skills to the health workers. Clinicians were joined by other legal and law enforcement professionals in this multi-sectoral training. Gaps noted during this training, which further reinforced the need for MediCapt in-country, included: lack of standardized documentation for consent, incomplete Post-Rape Care forms, limited space to fill out patient information, and the destruction of physical forms. The third encounter, which took place in October

One clinician shared that she was afraid of filling out Post-Rape Care (PRC) forms, the nationally-adopted standardized form for documenting sexual violence in Kenya, and did not bother with them, as she thought they were too complicated. It was after both of these trainings that she gained the interest and confidence to use the PRC forms. The interaction with judges and lawyers in the multisectoral training also made her less apprehensive about the potential of presenting her documentation in Court.

2018, served as a "refresher" training on the application before the pilot with patients. In this training, the Pioneers participated in simulated clinician-patient exercises through the use of standardized patients. This proved beneficial to their practice, as they went through the whole process of interacting with a patient, from greeting the patient, explaining the application, positioning the tablet so the patient could see what the clinician was typing, and filling out the entire form on the app. Because the perceived risk was lower, clinicians were able to participate with less anxiety in preparation for working with patients. For the administrative representatives, the sessions helped them to better understand the process and the nature of support that

Using MediCapt to Document Medical Evidence of
Sexual Violence in Kenya: Perspectives from the End Users

the clinicians would require, including, at least initially, the increased time required to practice with the app, to conduct a thorough examination using the app, and to complete the documentation directly in the digital form.

Pioneers Wahome and Ruth practicing using the application.

A team of four technical staff from the Records and IT department were also trained to enhance the support available for MediCapt at the facility level. After this training, the team felt equipped to assist the end users with most technical issues that arose during the field testing and pilot of MediCapt.

The final training, which took place in August 2019, focused on forensic photography, after the initial pilot period. MediCapt end users have the ability to take forensic photographs in the application to support the

patient's narrative and to enrich their documentation for legal proceedings. The original MediCapt training included an introduction to forensic photography, and this training provided a more advanced exposure and practice. This sequencing of training workshops over the course of 18 months was useful, as the Pioneers did not feel overwhelmed by all the information and skills that they received.

Field Testing

The eight months following the training were used to further acquaint the end users with the application before beginning use with real patients. The team worked together (with the help of case studies) to practice using MediCapt, focusing on typing skills and navigating the digital form.

> "When we were practicing, I learnt a lot, with help from another clinician. He supervised my typing and ensured that I got comfortable with typing using both of my hands and also to explain the application to patients. My confidence kept growing with each session."

During the field-testing period, the U.S. team made a lot of upgrades to the application, basing their updates on gaps or challenges identified by the end users. For example, one clinician noted that it was cumbersome

---

MediCapt vs. Paper-Based Forms: Highlights from the Pilot

- MediCapt data is more secure than the paper-based forms. Previously, there had been issues with the paper-based forms going missing.
- The forms filled using MediCapt are more complete, as required fields make it impossible to submit without completing key questions.
- MediCapt saves time for the clinicians, using features like skip logic and auto-populated answers.
- MediCapt enhanced the information collected by the clinicians because it has unlimited characters, while the paper form provides little space to answer key questions.
- MediCapt allows for forensic photography and the photos are securely stored in the app.
- MediCapt emphasizes documentation of informed consent and the clinician's final assessment, which are critical components not included in the paper-based form.
- MediCapt generates a monthly report, which saves time for the hospital records team compared to the manually completed reports for the paper forms.
- MediCapt eases the burden in accessing and retrieving information from previous cases. As one example, in 2018, a police station burned down and many of the records of sexual violence cases were lost. Police officers asked the hospital for records on cases from 2015 and 2016. It was difficult to track down the information. With MediCapt, finding such information would be quick and easy.
- The one downside to the application currently is that the print-outs are bulky compared to the paper-forms. Until the web-based platform is launched, print-outs for the hospital, police station, and survivor are necessary.

to keep scrolling to the bottom of the page to select the next field. With help from the developers, we were able to change this and now the end users can use the "Enter" key to move to the next field.

Pilot Period

In October 2018, we began the first-ever pilot of MediCapt with patients. Over a two-month period, the Pioneers in Naivasha documented 32 cases using MediCapt. This section will highlight this experience.

Using the Application with Patients

At the beginning of the pilot period, it was a challenge to use the application with patients, navigating the technology and the needs of a live patient in real time. Most of the end users found that the first case was the hardest, but it became easier with time. Several clinicians noted that by the third case they were confident in their ability to use the application. While many patients were comfortable with the tablet being used, some were wary of the device and asked if their information would end up on social media or if it was a personal device. The Pioneers worked together to explain the application, its risks, and its benefits to the patients, in order to ensure they understood what their options were before moving forward. The application also prompted the patient to provide a signature in order to document informed consent, and many patients were unsure why they needed to sign. Many patients asked questions about informed consent and the process, and sometimes the questions were difficult to answer. Some patients had concerns about forensic photography, especially regarding photos of genital injuries.

> A patient came to the facility after being physically and sexually assaulted. Her face was badly swollen and she had bruising all over her body. The Pioneer treating her took forensic photographs of the injuries and the patient said she was glad the photos could be used in court against her attacker. Without MediCapt, it is unlikely they would have been able to take these photos and use them in court.

Some patients showed interest in the application, particularly younger patients. It even encouraged a few patients to share more than they might have with the paper form, as the end users noted that they seemed more engaged with the app than the paper form. As one example, one patient noticed that a clinician had skipped a question while they watched them navigate the application and told the clinician to fill it in. Additionally, being able to see the form on the application enabled another patient to recall that she had additional injuries on her neck, despite having forgotten to disclose them during the history-taking.

Navigating the Technology

The Pioneers felt motivated using MediCapt; it was faster and easier to use than the paper-based forms. The Pioneers also assisted each other throughout the pilot, and often turned to each other for support. For example, if an end user forgot their login they could go to the technical support team for help or if they were having trouble with forensic photography, they could ask another clinician to assist. Some of the Pioneers felt more comfortable navigating the technology than others, and they were able to aid the other Pioneers to ensure that they all were confident using the tablet and application.

Milka, from the Records Department, printing the form from the MediCapt tablet.

Feedback and Support from PHR

PHR provided support throughout the pilot period, both onsite and offsite. For the first week of the pilot period, the PHR Kenya team was at the hospital and poised to assist with any troubleshooting. After the first week, PHR made regular visits to the hospital and

phr.org
Using MediCapt to Document Medical Evidence of
Sexual Violence in Kenya: Perspectives from the End Users
6

also communicated frequently with the Pioneers. Members of the technical support team noted that other technology solutions had been attempted at the hospital, and many failed due to the lack of support or follow up. PHR worked to ensure that the Pioneers felt supported and confident throughout the pilot.

In addition, an expert medical consultant provided clinical feedback on the de-identified forms on the backend of MediCapt each month. The Pioneers found this to be of critical importance in improving their documentation and how they describe injuries. This was particularly helpful in learning new ways to describe the appearance of the hymen, rather than saying only "broken hymen."

Reporting and Monitoring & Evaluation

A core element of the project is to ensure hospitals have high-quality, real-time data on sexual violence cases treated at the facility. To facilitate this reporting, the application includes an easily downloadable Excel file that can summarize the data and be used to produce a variety of reports. The hospital records team found that this saved significant time in their monthly reporting to the county and Ministry of Health. The aggregate data also allows for tracking the number of follow-up appointments each patient attended. This feature was built as part of the addendum on the app after feedback from the Pioneers on the need to document and track this information.

PHR also conducted a survey to provide the Pioneers an opportunity to give anonymous feedback about the application and overall project. Key highlights from the questionnaire include:

- **100 percent** of clinicians involved in the pilot reported that MediCapt helped them do a better job documenting sexual assault examinations.
- **100 percent** of clinicians agreed that sexual violence patients accepted the use of MediCapt.
- **75 percent** of clinicians reported that MediCapt helped them save time in conducting sexual assault examinations.

At the end of the pilot period, the Pioneers and the hospital administrators elected to continue use of MediCapt at NCRH.

Challenges

The following are the key challenges experienced during the training, practice, and pilot period.

- **Initial hesitation with the application:** A few end users were hesitant about using the newly introduced application. This was caused by unfamiliarity with MediCapt, lack of confidence in their skills to use the hardware, and the perception that this would increase their workload. With subsequent trainings and support from PHR, this attitude changed, as they better understood the benefits of MediCapt and gained the skills to use it.
- **Integrating MediCapt into clinical workflow:** With the introduction of a new system, it was paramount to have it integrated into existing workflows. This proved to be a challenge initially. The printer needed to be accessible at all hours but was locked up after hours; because not all the clinicians/nurses in the various departments were trained, handing over at the end of one's shift was more complicated. Eventually, a solution was identified, but integrating the application into the existing workflow is perhaps the greatest challenge to the project and requires proactive consideration in the planning stages.
- **Hardware and technology challenges:** With multiple user accounts, MediCapt experienced challenges with synchronizing data at the beginning of the pilot. This was rectified by the technology developers so that the app only synchronized new data, making it faster. Additionally, the printer selected for the pilot proved to be slow and expensive to maintain; as the ink cartridges were not locally available, this caused an interruption in using the application in the period following the pilot. A second printer was purchased that proved to be more cost-effective.

Lessons Learned

Following the roll-out of MediCapt at NCRH, the Pioneers and PHR team reflected on and discussed lessons learned to inform future MediCapt pilots.

- **Practice, practice, practice:** Mastering the application takes time and there is a steep learning curve, but it gets easier with practice. Practice with standardized patients was particularly helpful in gaining confidence in using the application successfully with a patient.
- **You can't spell MediCapt without "Team":** Fostering a sense of team both among the hospital departments (the various medical departments, IT, records, and administration) and with the PHR staff and consultants was critical for the success of the pilot. The end users relied on each

other for support in filling out the form, they turned to the technical support team for any technical questions, and the administrators ensured that the end users had the resources they needed. PHR and NCRH worked extremely closely throughout the duration of the process to ensure a truly collaborative project.

- **Ongoing training:** A progressive series of trainings was helpful in developing the skills needed to use the application without overwhelming the team all at once.
- **Feedback is key:** The Pioneers provided feedback on the application, PHR shared this with the technology developers, and the developers incorporated the feedback into the application. The Pioneers received feedback on using the tablet and software with a patient in the standardized patient exercise. During the pilot period, the Pioneers received feedback on the documentation through MediCapt from an expert medical consultant. The Pioneers also gave feedback to PHR on the type of support and training they provided. This bidirectional feedback throughout the process was crucial to improving the way the Pioneers documented cases of sexual violence, the way they used MediCapt, and the application's usability.
- **If the clinician is comfortable with the application, the patient will also be comfortable:** The Pioneers found that as they became more confident in their use of the app, so did the patients. This also relates to the point above – practice makes perfect.
- **Consistent support from PHR:** The Pioneers noted that PHR "kept showing up," when other implementing partners dropped off the

Pioneers Serem, Naomi, and Emily practice using MediCapt.

technology platform and seemingly disappeared. This consistent support both onsite and offsite throughout the training, practice, pilot period, and beyond made the difference in this project.

- **The MediCapt pilot requires a strong technical support team:** Throughout the practice and pilot period, the Pioneers occasionally forgot their passwords, experienced challenges with synchronization, etc. The technical support team at NCRH was able to support the clinicians using the application and quickly troubleshot any issues. This help from the technical support team encouraged the Pioneers to keep using the application and resist any temptation to revert to paper-based forms.
- **More technical upgrades are needed:** Moving forward, it will be essential to enhance the capacity for data aggregation and enable case tracking within the application for the hospital to understand the case outcome for patients. Additional features, such as mapping capabilities, auto completion of fields, and voice dictation will also be useful.
- **A large team of end users is crucial:** During this pilot, it was common for survivors to be referred to the small end user team by hospital colleagues, as the Pioneers were the ones with "specialized" training. The combination of an increased case load and the fact that the Pioneers work in shifts and are not always at the facility meant that survivors sometimes did not have access to a MediCapt-trained end user. A larger group should be trained to ensure that someone is always at the facility who is trained to use MediCapt.

Conclusion

PHR and NCRH have made enormous progress together, launching the first ever pilot of MediCapt with patients. From the initial idea of the application in 2012, we have seen its potential to support survivors of sexual violence and the clinicians that treat and care for them. The pilot in Naivasha has proven that MediCapt is a viable solution to the many challenges faced when using the paper-based forms. The co-design process is far from over and we continue to improve the application to ensure that it is user-friendly and easily integrated into the existing workflow and local EMR systems. Looking forward, we hope that MediCapt will be adopted by other facilities and counties in Kenya and beyond.

PHR

For more than 30 years, Physicians for Human Rights (PHR) has used science and the uniquely credible voices of medical professionals to document and call attention to severe human rights violations around the world. PHR, which shared in the 1997 Nobel Peace Prize for its work to end the scourge of land mines, uses its investigations and expertise to advocate for persecuted health workers and facilities under attack, prevent torture, document mass atrocities, and hold those who violate human rights accountable.

Through evidence, change is possible.

Shared in the Nobel Peace Prize