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AFRICA CASE STUDY

Transforming Africa's Healthcare Crisis with Telemedicine

The World Health Organization (WHO) has called the state of African healthcare "the world's most dramatic public health crisis."[1] High rates of communicable and chronic diseases strain African health systems; 19 of the 20 nations with the highest maternal mortality rates are in Africa. The continent also has the highest neonatal death rate and 60 percent of global HIV/AIDS cases.

Worsening this plight is a scarcity of healthcare resources. Many rural clinics lack a resident doctor, which means patients with complex issues and chronic conditions like hypertension, diabetes and coronary heart disease go untreated. The terrain in some areas is inaccessible by road, making it almost impossible for an ambulance to reach a patient in time. In some remote villages, the provision of healthcare is limited to a monthly visit from a nurse – and if villagers become sick on another day, the strongest residents carry them on foot to the area the nurse is visiting.

In Zimbabwe's Manicaland province, the Ministry of Health and Child Care wanted a solution to their catastrophic healthcare status – which led to a telemedicine deployment that ultimately changed lives.

Zimbabwe

CLIENT

ZIMBABWE MINISTRY OF HEALTH AND CHILD CARE

In partnership with the Ministry of Information, Communications and Technology, and POTRAZ, Zimbabwe's telecommunication regulatory agency, a telehealth pilot was developed launching into 16 clinics in rural Zimbabwe.

CHALLENGE

To expand care to underserved communities in rural areas, often inaccessible by road. With high rates of communicable and chronic diseases straining African health systems, chronic diseases are often undetected and go untreated.

OUTCOMES

The program has resulted in faster, more advanced patient care, improved ability to prioritize patients and relieve pressure on overwhelmed specialists, and a reduction need for ambulances and travel for less critical care needs.

[1] World Health Organization, The African Regional Health Report: The Health of the People, https://www.who.int/bulletin/africanhealth/en/

Moving from Concept to Collaboration

The Ministry of Health and Child Care devised a telehealth pilot that would launch in 16 clinics. By connecting patients to expert care through real-time virtual consultations, they hoped to bring primary and specialty care to residents, reduce the need for ambulances, and regionally transform health outcomes for entire villages.

The team was realistic; they knew a successful telemedicine deployment would be a complex undertaking. The mission of most virtual care programs – to bring care to the underserved – is often complicated by inherent logistical challenges in underserved areas. Pulling clinical resources, technology and infrastructure into a coherent program typically requires months of planning and collaboration. To build a strong foundation, the Ministry of ICT worked with POTRAZ, Zimbabwe's telecommunication regulatory agency, to win funding from ITU, a United Nations agency in Switzerland.

However, they also needed the right telemedicine solutions and the right telemedicine expertise – which led them to Yaya Mbaoua, CEO at The Mbaoua Group and a consultant with GlobalMed, the world leader in telemedicine solutions. Based in Abidjan, Cote d'Ivoire, Mbaoua connected the program to GlobalMed mobile exam stations, the Encounter® software application and examination devices like high-definition cameras, stethoscopes, ultrasound probes, vital signs monitors and other tools.

Building a Telemedicine Blueprint

In Zimbabwe, the pilot kicked off with the ITU and POTRAZ coordinating the distribution of responsibilities. As the main sponsors of the project, the ITU worked with GlobalMed and clinical experts while handling equipment shipping and delivery and liaising with the Foreign Affairs Office for tax exceptions. POTRAZ handled the technical side of the deployment, installing the power backup systems, configuring systems and Internet connectivity.

The Ministry of Health and Child Care provided the list of rural health institutions for the pilot phase, as well as the list of practitioners to be trained. Next they coordinated week-long training workshops for dozens of healthcare and IT professionals, helping them understand how to use the equipment and consequently train their colleagues.

At this point, the pilot was ready to roll at the intended 16 healthcare facilities, including 12 rural clinics, two district hospitals, one provincial hospital and one national referral hospital. The Ministry launched their telemedicine deployment – and immediately ran into challenges.

Solving Challenges, Converting Skeptics

The first roadblock was a low volume of consultations. When the pilot leaders investigated, they found a prevailing skepticism at rural clinics. The staff simply didn't believe that telemedicine could be effective or that the equipment would operate as promised. Many had relied on paper-based manual process for decades. POTRAZ visited for refresher training and one-on-one training and provided a clever incentive: tablets for personal use that helped the staff become comfortable with modern technology.

Another challenge involved Zimbabwe's regulatory frameworks, which govern the storage of sensitive data such as health information. While the telemedicine equipment was designed to help physicians save their medical consultations onto the cloud, national regulations forbid that kind of storage. The clinics were able to find a workaround by redirecting all health records to locally hosted data centers.

Finally, several facilities had network issues that prevented continuous system use. While major cities accessed the Internet through fiber cable, the more remote clinics relied on a VSAT system that wasn't functioning. The POTRAZ team discovered it had been damaged by a natural disaster, made repairs and restored Internet access.

With all 16 facilities operating in full swing, the pilot leaders began assessing their results.

Expanding Care and Saving Lives

The team was initially gratified to note that GlobalMed telemedicine stations and devices were "performing with high reliability" and that staff had become comfortable using the equipment to conduct virtual exams. The trained providers were even training other staff – and the number of virtual consultations was rising steadily.

This quickly translated into faster and more advanced care for patients. The most in-demand specialties driving televisits were maternity, pediatrics, chronic disease and ophthalmology, with physical injuries ranking next in need. "Most visits are for complicated medical conditions requiring specialized medical attention – often beyond the physician's expertise so they escalate," Mbaoua said. He noted that the many virtual consults are handled locally by a general or senior nurse practitioner "to avoid overwhelming specialists at referral centers with minor cases."

The virtual capabilities also improved the availability of medical expertise in an unexpected way. Zimbabwe physicians were able to pursue advanced medical education in other countries while still caring for their patients back in Africa. One very popular obstetrician, Dr. Choga, was able to attend training in the U.S. while virtually seeing his caseload of expectant mothers in a Zimbabwe district hospital.

Then the telemedicine program offered a massive advantage that no one could have foreseen. In March 2019, one of the worst disasters on record struck the Manicaland Province – Tropical Cyclone Idai. The storm caused catastrophic flooding, landslides and damage across Zimbabwe and Mozambique, killing more than 1,300 residents, with thousands missing and thousands more in dire need of medical assistance. In addition to immediate injuries, a cholera outbreak afflicted more than 4,000 patients.

Zimbabwe's telehealth clinics were able to relieve pressure on overwhelmed hospitals and provide remote consultations during the disaster recovery efforts. Wounded and sick patients could see doctors immediately instead of waiting for care – and so the telemedicine pilot saved countless lives.

Cost Savings and Travel Reduction

By this point, the pilot had proven its immediate clinical value. But the program leaders were measuring additional benefits as well. One of the most crippling challenges in Zimbabwe healthcare has been the vast patient travel required for even basic care. Having to travel hundreds of kilometers for specialist appointments or hospital visits can be so burdensome that many patients simply forego treatment. Through virtual consults, the telemedicine pilot was able to reduce the need for ambulances, eliminate significant travel for each patient and accelerate their access to clinical expertise.

LOCATION	KM SAVED PER PATIENT	AVERAGE NUMBER OF CASES	SCHEDULING FREQUENCY
Rural Clinic to District Hospital	75 km	10 referral cases/ month per site	Once or twice a week and emergencies
District Hospital to Provincial Hospital	150 km	5 referral cases/ month	As needed
Provincial Hospital to National Referral Center	300 km	Rare	When a second specialist opinion or neurologist/ surgeon is needed.

Lessons Learned: Deploying Telemedicine in Disadvantaged Areas

Today the Zimbabwe deployment is regarded as an epic success. Yet the team has been diligent in documenting improvement opportunities for future implementations. Some of their recommendations for telemedicine programs in disadvantaged areas include:

Align providers on best practices, procedures and care protocols. You'll be dealing with clinicians from different regions, cultures, generations and backgrounds – so be sure to align them on a standardized set of practices. Anticipate a technology generation gap and offer training and incentives to help build confidence in using the equipment.

Establish a steering committee. This is the most effective way to secure support from all stakeholders across multiple organizations. Designate champions, such as a high-ranking government official, who can persuade government leaders to embed telemedicine into their national digital health strategies; approaching the deployment as a stand-alone technology will creates silos within the digital health ecosystem.

Adopt recent project management methodologies. Clearly define all roles, with contracts designating responsibilities and resources to avoid gaps and gray areas. Allocating resources efficiently is also critical. Deploying telemedicine in a large geographical area often means a higher implementation cost, which can strain smaller organizational budgets.

Take a tailored approach. Any deployment involving different facilities and regions will require addressing disparate needs and scenarios. Tailor the implementation to the roadblocks, requirements and nuances of each site, instead of relying on a one-size-fits-all approach.

Educate – and listen to – the patients. Community awareness campaigns are essential to build trust with the local population base. Enlist local leaders as telemedicine ambassadors, distribute flyers about virtual care and listen to patients when they express specific needs or misgivings. They may have challenges and questions your clinical team didn't anticipate.

Establish infrastructure, transportation and logistical needs. Electricity standards, Internet access, security requirements, shipping regulations and other considerations may differ in a remote or disadvantaged area. Transportation is a common barrier; if patients

lack cars or public transit, the sickest residents won't be able to seek care. Determine in advance what resources or workarounds you'll need to provide.

Prepare backup plans. Surprises are inevitable in struggling regions with limited resources. Some clinics might experience a disruption in power, limiting services; heavy rains can make remote areas even more difficult to access. The demand for care may be significantly higher than predicted. Prepare corrective measures and contingency plans.

Expanding a "Transformative Technology"

Having successfully transformed patient outcomes at the initial 16 clinics, the virtual care pilot has expanded to 96 healthcare facilities. Cosmas Chigwamba, principal director at Zimbabwe's Ministry of ICT & Cyber Security, has called telemedicine "an enabling and transformative technology" and predicted the program will "greatly contribute to the sustainable socioeconomic goals of our country."

Africa's healthcare challenges remain as exigent as ever. But telemedicine has always changed population health one life at a time. Launching a clinically effective telemedicine program across disadvantaged regions may be as arduous as it is rewarding, but it also blazes a trail for widescale change. By partnering intelligent strategy with a sophisticated telemedicine infrastructure, Zimbabwe leaders have taken up a torch that can transform Africa's future.

GlobalMed®

GlobalMed powers the world's largest, most advanced virtual health programs by designing and manufacturing integrated software and hardware telemedicine solutions that support a patient at any point in the continuum of care. Providers are enabled with data capturing tools to deliver evidence-based treatment and improve patient outcomes while lowering costs. Providers looking for their own technology to manage capacity, save money, and deliver responsible medicine, will get all they need from one platform. Recognizing the importance of trust and consistency in healthcare, GlobalMed also offers white-label versions of their systems so that providers can self-brand their virtual care offerings to strengthen the patient relationship with their organization.

With over 25 million consults delivered in 60 countries and specializing in both federal and commercial spaces, GlobalMed's virtual health platform deploys in its highly secure Azure environment and is used worldwide from the Department of Veteran Affairs and White House Medical Unit to rural hospitals and villages in Africa. Founded in 2002 by a Marine Corps Reserve Veteran still serving as CEO.

Learn more at www.globalmed.com.