A TELEMEDICINE PARTNERSHIP LEADS TO BETTER PATIENT OUTCOMES IN LATIN AMERICA

INSIDE:
Time is Muscle: How a Medtronic Telemedicine Partnership is Saving Time and Lives in Latin America
On the outskirts of Sao Paulo, Brazil, in one of the most impoverished areas in the region, a man is rushed to the nearest primary care center with chest pain. Physicians quickly hook him up to an EKG machine and a specialist hundreds of miles away reviews the readings electronically. Through a telemedicine platform, the specialist diagnoses and confirms to the emergency professionals that the patient is having a severe heart attack. Promptly bypassing the local ER, the patient is admitted directly to a specialized cardiac catheterization lab to receive corresponding treatment.

The process, made possible through a telemedicine program called the Latin America Telemedicine Infarct Network (LATIN) — is the result of a partnership between the LUMEN Foundation (education program), ITMS (telemedicine provider), and Medtronic.

“We have a saying that time is muscle,” said Cristian Marcos Gonçalves, manager of the 24-hour Itaquera AMA, a primary care center and part of Santa Marcelina’s Hospital Network in Sao Paulo, Brazil. “Before LATIN, it was like this: The patient would check in, fill out a file, a nurse would see them and they would wait two to four hours to see a doctor. After two to four hours, the doctor would ask for an EKG. That is – four hours of heart muscle that was lost. That’s before LATIN, in the old days.”

SITUATIONAL ANALYSIS
While healthcare standards around the world are generally improving thanks to scientific discoveries and new breakthroughs, millions of people aren’t able to benefit from these advances. Barriers exist such as a lack of highly trained healthcare specialists, too few state-of-the-art facilities and limited resources to upgrade to efficient and sustainable systems. And as a result, many of the treatments and services that have become standard of care in the U.S. and Europe have yet to be implemented in other markets.

Cardiovascular disease, which includes heart failure, arrhythmia and heart valve problems, is a particularly complex condition that demands increased attention. It’s estimated that 17.3 million people worldwide died from cardiovascular disease last year, according to latest figures from the American Heart Association, making it the number one cause of death.¹

In Brazil alone, cardiovascular disease is the leading cause of death, and yet only about 8 percent of the population has access to the highest recommended medical care as suggested by the Brazilian Cardiology Society. Estimates suggest the country has lost $49 billion due to premature deaths associated with heart disease, stroke and diabetes in the last 10 years.²

For remote areas of Brazil, treating this disease has proven especially difficult. Rural and underserved communities often lack the services, medical equipment and trained physicians that are important to improving patient outcomes. This impacts doctors’ ability to properly diagnose and treat conditions that are easily addressed in more developed areas of the world.

In order to alleviate some of these issues in Brazil and other markets, Medtronic is investing in forming local partnerships that build patient-centric care infrastructures for health systems. Each solution is catered to the specific region based on its needs, but all aim to improve quality of care as well as outcomes, while reducing overall costs. The goal is to develop solutions that not only address immediate, local needs, but are scalable and applicable to other regions.

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COLLABORATIVE SOLUTION
Medtronic started by working with local government officials, leading physicians, emergency care personnel and hospital systems in Brazil and Colombia to implement the right infrastructure so health systems could provide optimal care for patients experiencing potentially fatal heart attacks. The solution provides cardiovascular disease patients in the region emergency treatments and services comparable to those found in the U.S. and Europe.

The program is called the Latin America Telemedicine Infarct Network, or LATIN, and is a first-of-its-kind partnership between the Lumen Foundation, International Telemedicine Systems (ITMS) and Medtronic. The partnership was developed to optimize care integration for patients affected by cardiovascular disease through education-based initiatives for cardiologists, emergency care professionals as well as the broader patient population on how to recognize and react to the most dangerous type of heart attack where swiftness to treatment time can save lives.

LATIN was specifically designed to improve outcomes for patients with ST-segment elevation myocardial infarction (STEMI). In these cases, a blood clot blocks a patient’s coronary artery, causing heart muscle that’s supplied blood by that artery to infarct, or die. Time is of the essence in these cases, as the longer the situation goes undiagnosed and untreated, the more muscle is permanently damaged and can lead to mortality.

The program uses a “hub-and-spoke” model, relying on telemedicine to expand the reach of primary care physicians to remote areas that lack access and resources for diagnosing and treating STEMI. This allows experienced cardiologists based in large medical centers to provide guidance on diagnosis and patient management from their “spokes” to “hubs” as far as 250 miles away. The spokes include small clinics, primary health centers and small community hospitals that often lack cardiologists and specialized cardiology care. Hub treatment centers are capable of performing a percutaneous coronary intervention (PCI) – with cath lab and specialists – all hours of the day, every day.
The LATIN program’s protocol comprises four steps:

1. Patients who arrive at remote locations with chest pain have an EKG taken.
2. This EKG is sent wirelessly to a specialist at a remote medical center that in real time diagnoses and recommends patient treatment.
3. Physicians decide based upon the duration of chest pain, EKG diagnosis and other clinical factors what treatment the patient should receive, such as thrombolysis, pharmaco-invasive strategies, or urgent balloon angioplasty (with or without stenting).
4. A review takes place to ensure that the diagnosis and teleconsultation for the entire door-to-treatment process was accurate.

IMPACT AND EXPANSION

During the two year pilot program of LATIN at Santa Marcelina, the hospital saw a 30 percent increase in STEMI case volume and a 50 percent reduction in STEMI mortality. Medtronic expanded to other areas of Latin America. In Barranquilla, Colombia, a citywide STEMI program was put in place that used telemedicine as a foundation pillar to provide Primary PCI for its 2.4 million inhabitants. The region was connected to an expert cardiologist, based 250 miles away in Bogota, to provide remote guidance.

As a result of this program, which was called the Barranquilla Operational Telemedicine Enterprise for Revascularization of Occluded Arteries (BOTERO), a total of 100 patients were diagnosed and treated. The time to first medical contact was reduced to 207 minutes from 247 minutes; symptom-to-balloon times reduced to 167 minutes from 384 minutes; and time to Telemedicine Diagnosis was 5.8 minutes for the entire group with 98 percent accuracy of diagnosis achieved.

Most importantly, 30-day mortality rate was cut to 3.2 percent from 11.1 percent.

To date, Medtronic and its partnerships have established 18 hubs and 90 spokes throughout Latin America.

Overall, the new model of care has provided cost-effective, comprehensive management for patients with STEMI across Latin America. During 20-months of trial, 100 operational centers were opened in Brazil and Colombia, and 124,000 EKGs were transmitted using the telemedicine system. About 1 percent of the total EKGs taken were diagnosed as STEMI, and 47 percent of total STEMI diagnoses were treated cases in these regions.

With more than 3 million worldwide cases of STEMI each year, applying programs like LATIN to other markets could enhance standards of care seen in these relatively small case studies and scale up to save thousands of patients every year while improving outcomes for many more.

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