



# NIGERIA EMS TRANSFORMATION

Implementing Nationwide Emergency Medical  
Services

A pathway to achieving a viable and self-sustaining emergency response service program in the Federal Republic of Nigeria. Presented by Maecenas Health Systems and Vester's Edge Medical Organization

## TABLE OF CONTENTS

---

1	Executive Summary.....	2
2	The Golden Hour.....	3
3	Emergency Services in Nigeria.....	4
4	Elements of an Emergency Response System.....	5
4.1	Emergency Personnel.....	6
4.2	Emergency Equipment.....	6
4.3	Communications and Information Technology.....	6
5	Detailed Solution.....	7
5.1	The Public Private Partnership.....	7
5.2	Software Development.....	7
5.3	Call Center Development.....	9
5.4	A Phased Approach.....	9
6	Funding Model.....	12
6.1	Startup Funding.....	12
6.2	Long-term Sustainability.....	12
7	Benefits to Nigeria.....	14
8	About Vester’s Edge Medical Organization and Maecenas Health Systems.....	14

# Nigeria EMS Transformation

Implementing Nationwide Emergency Medical Services

## 1 EXECUTIVE SUMMARY

---

Every day along the congested, potholed highways that cross the Nigerian landscape, a familiar scene repeats. Accident victims in various states of distress sit in their crumpled wrecks, or lie bleeding on the pavement, while bystanders look on helplessly or perhaps try to aid the injured as best they can. Paramedics might take anywhere from 30-minutes to several hours to arrive, if they arrive at all.

For decades the Nigerian people have suffered the consequences of life in a country without an emergency medical service (EMS) system. Over the years a seemingly endless series of public and private programs have come and gone, always introduced with great fanfare soon followed by disappointment when the promised improvements never materialize. Today, despite the billions spent developing emergency programs, an injured or critically ill person is still far more likely to arrive at the hospital in a taxi than an ambulance.

The results of this unacceptable state of affairs are tragic. People die who could easily survive. People endure a lifetime of disability who could easily have seen complete recovery. These tragedies destroy lives, not only for the victims themselves, but for their families who go on to face grief, poverty and the burdens of caring for a disabled loved one.

The time has come to fix this broken system. Vester’s Edge Medical Organization located in Lagos, Nigeria, and Maecenas Health Systems PC located in Southfield, Michigan in the United States of America are committed to the vision of a viable and self-sustaining EMS program for the people of Nigeria.



***Good Samaritans struggle to rescue accident victims while waiting for help to arrive.***

In this document we present a pathway for achieving that vision. We propose to take responsibility for the abandoned national “999” emergency number and build a new, national emergency response system from the ground up. We will develop customized emergency dispatch software and establish emergency dispatch call centers across the country, ultimately having a call center in each of the 774 local government areas. Through a phased approach we will begin by deploying an emergency medical dispatch system and then systematically bring police, fire, and natural disaster response online.

Long-term sustainability and financial viability are essential to the success of any EMS system. We propose to implement a two-step funding model. To start the program, we will secure a \$25-million loan through the American Export Import Bank. Once the program is operational we propose to finance ongoing operations with a small fee levied on cell phone usage. Our analysis indicates that a modest fee

spread fairly among Nigeria’s 150-million cell phone subscribers can easily and painlessly support the complete planned EMS infrastructure.

Vester’s Edge and Maecenas Health Systems stand ready and able to bring Nigeria’s EMS system into the 21<sup>st</sup> Century. Our multinational Nigerian/American team has the skills and drive needed to lay the foundations for success and lead the project to completion. We have the knowledge required to develop EMS software optimized for the Nigerian landscape, the medical skills required to establish emergency protocols, and the credibility required to secure startup funding. We urge to the government to review the following proposal carefully and then take the actions needed to give the Nigerian people the medical services they deserve.

## 2 THE GOLDEN HOUR

---

When trauma care doctors talk about “The Golden Hour” they are describing the small window of opportunity that exists to provide life-saving care during an emergency. Many serious injuries, such as internal bleeding, require immediate attention at the scene quickly followed by in-hospital surgery. As time passes without receiving this care, the patient’s chances for survival begin to dwindle.

After a traumatic injury, timely delivery of care can stop a rapid deterioration that otherwise soon leads to death or lifelong disability. For those who have survived a car accident or similar trauma, most deaths in the critical first hours result from breathing problems or uncontrolled bleeding. Sadly, basic first aid can easily address these conditions.

Prompt pre-hospital care can also contribute to better long-term outcomes, warding off an array of complications that can lead to death and disability days or weeks after the original injury. Just a few essential treatment measures that reduce the possibility of later complications include proper wound and burn care, adequate immobilization of fractures, and support of blood oxygen and blood pressure. Again, these measures are all easily provided by properly equipped emergency personnel trained in basic first aid.

When discussing trauma care it is common to look first to road traffic injuries as these are by far the most likely life-threatening traumatic injury. Worldwide, road traffic injuries are one of the leading causes of death, accounting for more than 1.2 million deaths yearly among young adults aged 15-44.

In Nigeria, there are approximately 52,000 road traffic fatalities each year. International studies indicate that in countries without adequate EMS services, 40% or more of traffic deaths are avoidable. Therefore, we know that at least 20,000 Nigerians could be saved from death each year simply by improving the response time to traffic accidents.

There are, of course, many other events for which rapid emergency response will dramatically improve patient outcomes. Victims of heart attack and stroke require intervention within minutes to survive the event. Approximately 70,000 Nigerians die from strokes each year and an additional 54,000 from heart disease.

### 3 EMERGENCY SERVICES IN NIGERIA

---

In Nigeria today, emergency response depends on a loosely connected patchwork of services. There is no comprehensive nationwide system to coordinate responses to medical, police, fire or natural disaster emergencies. Some of the major urban centers, such as Lagos and Abuja, have developed local EMS systems, but even those systems have gaps. They lack a single access phone number, there is poor public awareness of the programs, dispatch systems are ineffective, and there is a terrible shortage of trained personnel. In other areas, especially rural areas, there is often little or no organized emergency response system.

Historically, Nigerian Telecommunications Limited (NITEL) managed a national, operator assisted “999” emergency number. NITEL operators answered the calls, determined the nature of the emergency, and routed the caller to the appropriate service – police, fire, medical or traffic. NITEL is now defunct with its telecommunications assets transferred to the successor NTEL. The emergency number system did not survive the transfer.

There are multiple federal agencies in Nigeria with a role in providing emergency response. The National Emergency Management Agency (NEMA) was established in 1999 to manage disasters at the national level. The Federal Road Safety Commission (FRSC) was established in 1988 and has broad responsibilities which include giving prompt attention and care to victims of accidents. The Nigerian Communications Commission (NCC) operates Emergency Communication Centres (ECCs) across the country.

With so many existing, overlapping federal and state level programs, it would be easy to get the impression that Nigerian EMS systems are more substantial and effective than they actually are. Unfortunately, despite a tremendous expenditure of time and money over the past several decades, very little actual progress has been made in providing improved emergency service. The NCC Emergency Communication Centres project alone is reported to have absorbed N10-billion since 2003. After 15-years of work only 5 of the project’s 37 ECCs are operational.

With few exceptions, existing programs are poorly equipped and lack the logistics infrastructure necessary to effectively dispatch assistance and ensure patients are routed to the most appropriate facility.

Consider the Lagos-Ibadan expressway which is well known as one of the busiest and deadliest in Nigeria. The 110km expressway links Lagos to other Southwestern states and serves as the gateway to the Southeast and Northern part of Nigeria from the Southwest. Severe accidents are a daily occurrence on the expressway, and fatalities are frequent.

Along the entire stretch of highway there are only five emergency access points, but even that number is deceiving. Of the five points, only one is a fully supplied medical clinic. Three of the points are simply FRSC operations offices where accident victims are given first aid while they await transportation to a clinic. There is a shortage of FRSC vehicles, and it has been known to take hours to get victims transported – especially in multiple vehicle accidents with many injured.

Elsewhere across the country, family members and bystanders remain the most likely to transport accident victims to emergency rooms. Injured and severely ill patients are still more likely to arrive at

the hospital in a taxi than an ambulance. Most patients arrive at the emergency facility with no pre-hospital treatment whatsoever, and do not receive the benefits of lifesaving pre-transportation measures such as immobilizing the spine and providing airway protection. Sadly, despite the best efforts of these family members and bystanders, many patients are further injured while being transported.

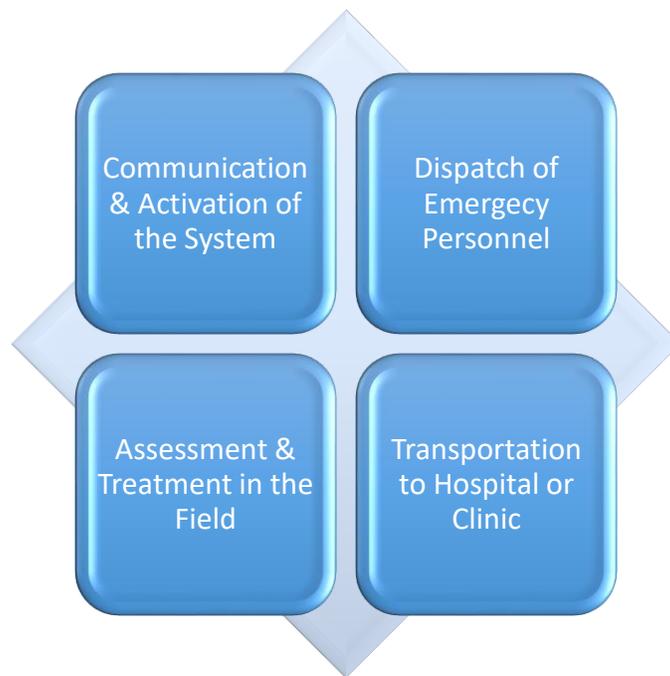
## 4 ELEMENTS OF AN EMERGENCY RESPONSE SYSTEM

---

An effective emergency response system is a tightly integrated framework made up of trained personnel, vehicles and other equipment, information technologies, and a dispatch protocol that links the multiple agencies and organizations that provide emergency services.

There are numerous models of emergency response systems in place throughout the world. These models vary in complexity and they also vary in the fundamental approach to providing pre-hospital care.

Nonetheless, there are certain, minimal elements that are essential to any system. These elements include communication and activation of the system, response of the system, assessment and treatment in the field, and transportation of patients to hospitals or other properly equipped health-care facilities.



*The minimum elements of an EMS System*

## 4.1 EMERGENCY PERSONNEL

The personnel at all levels of a response network must be among society's most highly trained and skilled workers. They include:

- Pre-hospital personnel such as paramedics and paramedic technicians. This category also includes police and fire-fighting personnel.
- Hospital personnel such as doctors and nurses.
- Administrative personnel.
- Dispatch personnel.

The role of doctors, nurses and paramedics in providing emergency medical care is generally well understood. It should be stressed, however, that the roles of administrative and dispatch personnel are critical to the effectiveness of an emergency response.

Dispatch staff must have the knowledge and skills necessary to engage callers who are in emergency situations, assess the nature and severity of the emergency, dispatch emergency workers to the scene, and coordinate the transportation of the patient to an appropriate facility.

## 4.2 EMERGENCY EQUIPMENT

A well-equipped fleet of emergency vehicles significantly improves outcomes for severely ill and injured patients. A proper ambulance is more than a simple vehicle for moving a patient to the hospital but is truly a mobile care facility optimized for delivering pre-hospital trauma care. Emergency equipment includes:

- Ambulances and air transport vehicles.
- Ventilation and airway equipment.
- Monitoring and defibrillation.
- Immobilization devices.
- Emergency medicines and bandaging.
- Radio and other communication gear.

## 4.3 COMMUNICATIONS AND INFORMATION TECHNOLOGY

From the ability of the public to summon help quickly, to the ability of dispatchers to coordinate an emergency response, communications are at the heart of a well-functioning EMS system. In the modern context, EMS communications networks are an element of an emergency medical dispatch (EMD) system. EMD information technologies include both hardware and software optimized for the delivery of EMS services. These systems connect all members of the response framework – citizens, call centers, paramedics, police, firefighters, hospitals – they must be highly customized to align with local and regional infrastructure and institutions.

The emergency dispatch process is activated when a citizen places a telephone call for help, ideally by dialing a well-known, nationwide three-digit number. The call is received at a public safety answering

point (a call center), where dispatchers must quickly establish both the location and nature of the emergency. Call center staff coordinate a response which includes dispatching the appropriate personnel to the scene, providing instruction and further assistance to the caller, arranging for transportation to an appropriate medical facility, and facilitating communication between pre-hospital and hospital medical providers.

## 5 DETAILED SOLUTION

---

Maecenas Health Systems PC and Vester’s Edge Medical Organization propose to combine their respective resources, creating an entity that will collaborate with the federal government of Nigeria to establish a nationwide emergency response service program. If adopted and endorsed by the government, our plan will revolutionize emergency services in Nigeria. In just a few years we will transform Nigeria from a country without emergency infrastructure, to a country whose EMS system ranks among the best in the world.

### 5.1 THE PUBLIC PRIVATE PARTNERSHIP

The mission to provide emergency services across Nigeria is a significant undertaking requiring regulatory and financial commitment.

It will be critical that the federal government of Nigeria through the Ministry of Communication Technology grants our organization licensure and authority to resume the operation of the 999-emergency phone number. Our organization will need proper authority to guarantee that the system is administered and maintained correctly and to ensure the long-term success and viability of the program.

Our funding plan (detailed in the next section) is dependent on the public private partnership. To secure funding through the United States Export Import Bank, the licenses must be in place and there must be a government guarantee that the project will be awarded to the US-based Maecenas Health Systems. Once the initial funding is secured and the program moves into long-term operation, authority to collect fees through the cell phone system will be required for the project to be self-sustaining.

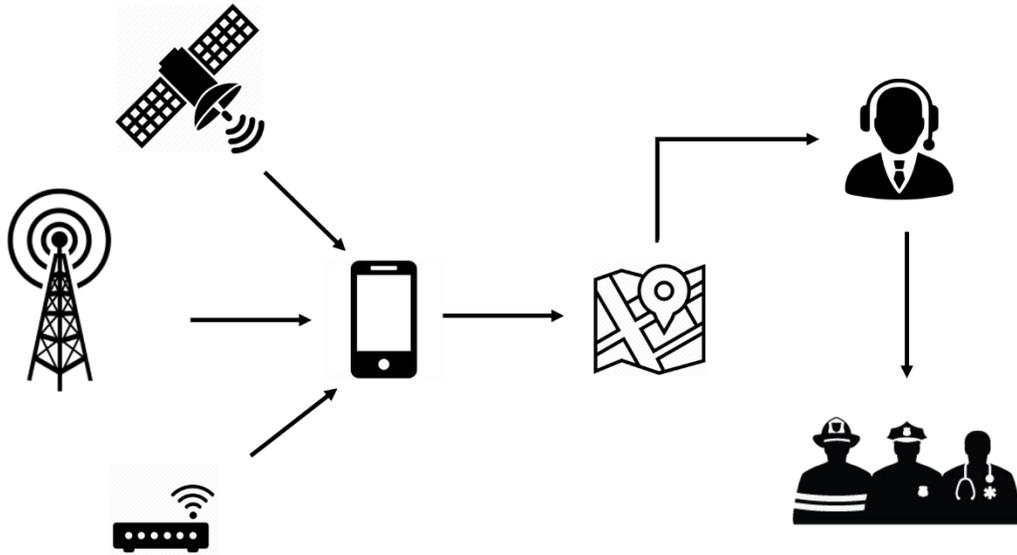
### 5.2 SOFTWARE DEVELOPMENT

Emergency dispatch software is the cornerstone of a modern, effective EMS system. The Vester’s Edge/Maecenas Health Systems team will build a solid EMS foundation by focusing early on the development of state-of-the-art dispatch software. This software will be highly customized and optimized for Nigeria. It will completely connect the government agencies that oversee emergency services with the hospitals, clinics, police departments, fire departments and ambulance units that must respond.

The dispatch software platform will automate as many functions as possible so that the dispatcher will be free to concentrate on helping the caller. The software will provide the dispatcher with a visual display that integrates all of the available information while guiding the dispatcher through protocols specific to the current emergency.

Identifying the exact location of the caller and the closest emergency resources is one of the most important features of the software. It is also one of the biggest challenges in developing and

implementing the software. We will bring the most advanced geolocation technologies to address these challenges.



***A Combination of GPS satellite, cell tower and local WIFI data will provide state-of-the-art precise caller location.***

Our solution will use a combination of GPS, cell phone tower and WIFI location data to determine the location of the caller with the best possible precision. We will work closely with Nigeria’s many cell phone providers to ensure that cell phones have the correct software and hardware configurations to support emergency location. We will also work closely with the Federal Ministry of Communication Technology to ensure that the necessary location infrastructure is fully supported.

Critical features that our custom software solution will provide include:

- Fast, precise caller location information.
- Nearest responder and unit availability assessment and recommendation.
- Dynamic mapping so dispatchers can view caller and responder locations in real-time.
- Multi-event support to allow dispatchers to manage more than one emergency at a time.
- Automatic real-time event logging.
- Advanced scripting features to guide dispatchers through complex protocols.
- Automatic SMS alerts to police, fire and rescue chiefs.
- Support for multiple interface protocols to seamlessly connect with existing police, fire and hospital systems
- Prior history and outstanding warrant alerts for police calls

The EMD software will be a proprietary Maecenas Health Systems product heavily customized for Nigeria. It is our intention to engage Nigerian resources to support this customization development work. We envision one or more Nigerian software information technology subcontractors with core competencies in the existing wired and wireless telephone infrastructure, as well as domain knowledge of Nigerian culture and geography.

### 5.3 CALL CENTER DEVELOPMENT

The new EMS system will be made up of a network of call centers which house the dispatchers and their equipment. The program will begin with one national call center. The call center will be established as soon as possible after the agreement is signed between the government and the program to grant licensure and authority to resume 999 emergency number operations. This original, primary call center will bring immediate benefits. Emergency resources will be coordinated and deployed more quickly, and the public will become accustomed to a functioning, single emergency phone number to call for help.

The call center network will be expanded systematically. Regional call centers will be established for each of the six geopolitical zones. Eventually there will be a call center in each of the 774 local government areas. As the call center network expands, the country will see steady improvements in the system. At each stage of expansion, the call centers will be staffed with more local workers and become increasingly integrated with local police, fire and rescue services. As the progression continues to bring in more indigenous involvement, faster and faster response times will be seen as the program achieves response time milestones of first 30 minutes, then 15 minutes and ultimately 5 minutes.

### 5.4 A PHASED APPROACH

The Nigeria EMS Transformation program will be implemented using a tightly phased approach. By implementing the program in phases, we will be able to drive success by ensuring an orderly rollout of capabilities and ensuring that each new phase is informed by the lessons learned in the preceding phase. A phased approach has the added benefit of enabling us to focus on bringing the greatest benefits to the greatest number of people quickly.



***A phased rollout drives success.***

## **Phase Zero**

In Phase Zero some of the most important work of the program will be completed. The necessary licenses, agreements and contracts will be established, a custom software solution developed, and preparation made for the deployment of nationwide emergency response.

Proper planning and assessment will be critical to lay the foundations for the program. The nation's 186-million citizens make Nigeria Africa's most populous nation, and with 500 different ethnic groups, the country is one of the world's most culturally diverse. A nationwide EMS system must operate across all 774 local government areas, with communities that range from densely populated cities to remote rural villages.

In the earliest stages we will work toward the acquisition of licensure and the generation of the pertinent memorandum of understanding and a contractual agreement of commitment between our organization and the federal government of Nigeria. We will work closely with the Federal Ministry of Communication to assume the operational responsibility for the legacy 999 three-digit emergency number.

Once we have assumed operational responsibility for the emergency number, we will immediately launch a large-scale implementation program in which we will oversee the development of the necessary EMD software and assemble a core project team with the requisite logistics expertise to manage a network of call centers.

## **Phase One**

In Phase One call centers will be established and the medical emergency program will be activated in all 6 geopolitical zones of Nigeria. There will be several steps repeated for each new call center established. An appropriate site for each call center will need to be identified and the location secured through purchase or lease. When possible, appropriate existing emergency offices will be used. The call center facilities will then be renovated to support the new call center operations and outfitted with computers, radios and other related equipment.

The program will recruit and train local workers as dispatchers and administrative personnel. We will implement a train-the-trainer model in which excellent dispatchers are identified to act as trainers and facilitate the rapid expansion of the call center network.

Phase One will also see a nationwide advertising campaign. We will leverage all available forms of media (print, radio, television and signage) to inform the public of the activation of call centers and build excitement around the positive changes the program is bringing to communities.

## **Phase Two**

In Phase Two police emergency response dispatch capabilities will be activated. During this phase an elite emergency response unit of the Nigerian Police Department will be formed. This elite unit will be made up of 12 officers that have been trained by United States paramilitary consultants. The unit will always be ready to mount an armed police response using land, air or water transportation.

The elite unit will be deployable to each geopolitical zone and eventually to each local government area. As local government areas are brought online, the public will see significant improvements in police response times.

The dispatch system will also have integration with local military units close to respective geopolitical zones. In the event that riots or similar states of unrest threaten to overwhelm local police and elite police units, dispatchers will be able to activate these military units to provide law enforcement surge support.

### **Phase Three**

In Phase Three fire emergency response dispatch capabilities will be activated. During this phase an elite fire extinguishing unit will be formed. This elite unit will be made up of 10 firefighters who will be trained by United States consultants who are experts in fire emergencies and management. The elite firefighting unit will be available for deployment to each of the six geopolitical zones, and eventually in all local government areas.

Phase Three will introduce significant improvements to firefighting equipment and infrastructure. An air transport protocol will be implemented to enable fire trucks to be brought more quickly to the scene of fires and alleviate some of the delays caused by traffic congestion. The program will also work to increase the availability of water for firefighting purposes. Fire hydrants will be supplied by boreholes in heavily populated areas. Initially the program will target one hydrant per square mile. This target density will increase as the program expands.

### **Phase Four**

Phase Four will be the capstone of the Nigeria EMS Transformation program and the people of Nigeria will finally enjoy the full benefits of a national, coordinated emergency response network. In this phase the program will activate a national natural disaster response mechanism. The program will expand to include infrastructural and advanced technological support, including strategic evacuation plans, in the case of natural disasters.

Unlike isolated medical, police and fire emergencies that may impact anywhere from one to several dozen people, natural disasters can affect entire regions. Without proper prior planning, natural disasters can easily overwhelm local police, fire and rescue organizations.

The program will work with local authorities and NEMA to ensure response protocols are in place, emergency supplies are at the ready, and that rescue and relief workers from across the country can be dispatched effectively. We will also administer a nationwide natural disaster training program, including regular disaster drills, to be sure rescue workers are prepared to respond.

Flooding is by far the most common and costly of the natural disasters to impact Nigeria. Every year during the rainy season millions of Nigerians are impacted by floods. Additionally, every few years sees a major flood that brings loss of life, great financial loss, disease and the displacement of millions of residents. These floods have become more severe in recent decades due to human activities which interrupt natural water flows and put people more directly in harm's way.

The program will address the worsening problem of urban flooding head-on by building underground sewage and overflow pumping facilities for at-risk locations. These advanced systems have been proven

around the world to protect citizens and property. Some of the largest and most famous include the G-Cans Project in Tokyo, Japan and the SMART Tunnel in Kuala Lumpur, Malaysia.

Tokyo's G-Cans Project, also known as the Metropolitan Area Outer Underground Discharge Channel, has been extremely successful. The densely populated city's 35-million residents are very vulnerable to monsoon-season flooding along the Tone, Aru and Edo Rivers. Since G-Cans was completed in 2006 it has been activated more than 70 times and has reduced flood related damage by two-thirds.

The system consists of 6.4km of underground tunnels connecting five giant silos 65m high and 32m wide to a single giant flood chamber. Flood water enters the network through the city's drainage systems and is channeled into the flood chamber. Once the water in the flood chamber reaches a certain level, four massive engines pump the water out of the chamber at a rate of 53,000 gallons per second. Beyond the city, the water spills safely in into the Edo river where it is carried to the ocean without further flooding.

The program will manage the building and administration of an underground overflow system for Nigeria. Management will be headed at the geopolitical zones and then eventually at the local government level.

## 6 FUNDING MODEL

---

Funding for the project is envisioned in two stages: an initial round of startup funding necessary to organize the program, develop systems, and procure necessary equipment, followed by a long-term funding plan necessary for the program to be viable.

### 6.1 STARTUP FUNDING

Once the licensure and allocation are granted by the federal government of Nigeria; Maecenas Health Systems PC will work closely with the American Export and Import Bank (EXIM) to obtain the necessary capital loan needed to provide the initial startup funding which is estimated to be approximately \$25-million.

The role of United States based Maecenas Health Systems will be important to securing EXIM funding support. Maecenas has expertise in working with U.S. financial institutions. EXIM has expressed a commitment to assist U.S. organizations doing business in Africa and has supported the financing of major projects in Nigeria, including an \$11.5 million loan to Drillog Petro Dynamics Ltd. of Rivers State, for the purchase of Well Logging Equipment and a \$4-million loan to support the sale of a thermal oil recovery system to Specialty Drilling Fluids Ltd. of Port Harcourt.

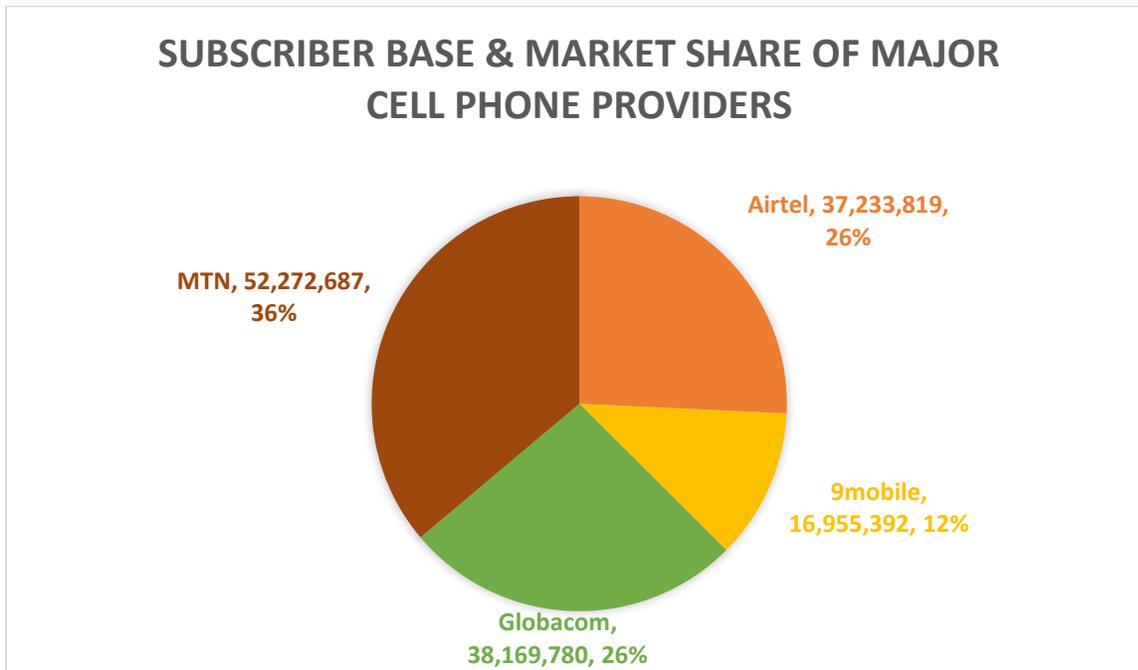
EXIM also has special initiatives to increase financing for goods and services that are related to medical technology and transportation security. We are confident that with the support of the Nigerian government, the EMS Transformation program will be an excellent candidate for EXIM support.

### 6.2 LONG-TERM SUSTAINABILITY

To achieve long-term sustainability of the nationwide EMS response system, we propose that the government grant the authority to levy a small fee on monthly cell phone subscriptions and prepaid

calling cards. There is a well-established international model for levying an EMS surcharge to phone subscribers to either fully or partially offset the expense of providing such services. A notable example of the phone surcharge model can be found in the United States 911 system, which is one of the most expansive and well-equipped in the world.

There is a natural rationale for the use of phone service surcharges: because the EMS system is typically activated by a phone call, the use of a phone service surcharge is perceived to appropriately target the likely users of the service without penalizing a person at the time they are actually calling for help.



Additionally, telecom company revenue provides a sizable pool from which to fund the program, making the prospect of relying on this source quite realistic. Nigeria has Africa’s largest mobile market, with about 150 million subscribers. The mobile market makes up a significant part of the Nigerian economy. In the second quarter of 2017 the industry generated about N1.54-trillion, representing 9.5% of the Nigerian gross domestic product.

A feasibility assessment of the Nigeria EMS Transformation program estimates a N7.5-billion monthly budget once the program is fully deployed. Based on the Nigerian cell phone subscriber base we are proposing a N50 surcharge for monthly data and call plans and a N10 surcharge for each N200 worth of prepaid minutes. The average Nigerian prepaid minutes user consumes about 1,000 minutes each month. Therefore, cell phone users will be fairly assessed about N50 each month regardless of whether they use subscription or prepaid plans. Based on our feasibility assessment and the available cell phone usage data, these surcharges will be adequate to fund the entire program. Any revenues above the operational requirements will be invested in research and development.

## 7 BENEFITS TO NIGERIA

---

At the heart of the EMS Transformation program, and the heart of the benefits to Nigeria, is the potential to improve outcomes for people during emergencies. These people include accident victims and the seriously ill, as well as victims of crimes, fires and natural disasters. The result of improved outcomes will be fewer deaths and fewer long-term severe disabilities, less loss of property and less disruption to the Nigerian economy.

In addition to humanitarian concerns for the quality of life for the victims themselves, preventable death and disability present significant unnecessary costs to society. Victims' families suffer loss of income and must provide care to the disabled, often for the remainder of their lives. By improving the outcomes, the opposite societal impacts occur, and the victims can return to productive lives.

A vibrant EMS system also generates substantial economic activity. The program will create an infrastructure of facilities, equipment and technology across the 774 local government areas. There will be dozens of new call centers and many hundreds of new ambulances. The program will see the creation of a new, highly trained workforce made up of paramedics, dispatchers, EMS systems administrators and other specialists. We estimate that the program will add between 10,000 to 100,000 new jobs to the Nigerian economy.

## 8 ABOUT VESTER'S EDGE MEDICAL ORGANIZATION AND MAECENAS HEALTH SYSTEMS

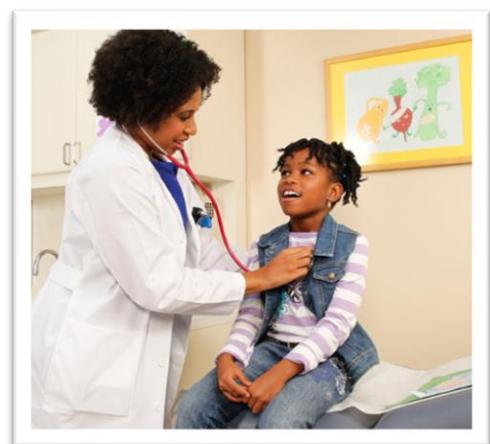
---

Vester's Edge Medical Organization is a non-governmental organization (NGO) based in Lagos, Nigeria. It was established for the express purpose of promoting EMS modernization in Nigeria. Vester's Edge has seen first-hand the preventable suffering and disability that results when EMS systems lack supporting infrastructure. The organization is committed to bringing effective, sustainable improvements by synthesizing the local expertise of medical and other emergency workers across Nigeria with the resources of the international community.

Vester's Edge has partnered with Maecenas Health Systems PC located in Southfield, Michigan, USA. Maecenas Health Systems is a comprehensive health service provider delivering a wide range of healthcare services without regard for socioeconomic status, including primary care, radiology, laboratory and rehabilitation.

The Maecenas Health Systems team is a diverse group of medical professionals spanning multiple disciplines, including licensed medical doctors trained and well versed in emergency medicine policy implementation.

Dr. Solomon C. Awusah is a distinguished member of the practice. Born in Nigeria, Dr. Awusah is an emergency medicine expert. He is ideally suited to lead the



development of emergency medicine protocols and an emergency medicine dispatch system that is tailored for the Nigerian landscape.