

# Emergency Medical Service System in the Developing Nations: Kenyan Case

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**Abstract:** *Emergency medical services (EMS) is a critical component of the nation's emergency and trauma care system. Hundreds of thousands of EMS personnel provide more than 1million medical transports each year. These personnel deal with an extraordinary range of conditions and severity on a daily basis—from mild fevers to massive head traumas. The work they do is challenging, stressful, at times dangerous, and often highly rewarding. EMS encompasses the initial stages of the emergency care continuum. It includes emergency calls, dispatch of emergency personnel to the scene of an illness or trauma; and triage, treatment, and transport of patients by ambulance and air medical service. The speed and quality of emergency medical services are critical factors in a patient's ultimate outcome. For patients who cannot breathe, are in hemorrhagic shock, or are in cardiac arrest, the decisions made and actions taken by EMS personnel may determine the outcome as much as the subsequent hospital-based care - and may mean the difference between life and death.*

**Keywords:** Emergency Medical Service system, Golden Hour, Weak EMS Systems, Strengths, Patient outcome

## Summary

Emergency medical services (EMS) is a critical component of the nation's emergency and trauma care system. Hundreds of thousands of EMS personnel provide more than 1million medical transports each year. These personnel deal with an extraordinary range of conditions and severity on a daily basis—from mild fevers to massive head traumas. The work they do is challenging, stressful, at times dangerous, and often highly rewarding.

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## Strengths of the Current System

EMS care has made important advances in recent years. Emergency lines services now link virtually all ill and injured Kenyans to immediate medical response; through organized trauma systems, patients are transported to advanced, lifesaving care within minutes; and advances in resuscitation and lifesaving procedures yield outcomes unheard of a decade ago.

## Systemic Problems

Despite the advances made in EMS, sizable challenges remain. At the national policy level, government leadership in emergency care is fragmented and inconsistent. As it is currently organized, responsibility for prehospital and hospital-based emergency and trauma care is scattered across multiple agencies and departments. Similar divisions are evident at the national and local levels. In addition, the current delivery system suffers in a number of key areas:

**Insufficient coordination**—EMS care is highly fragmented, and often there is poor coordination among providers.

Multiple EMS agencies—some volunteer, some paid, some fire-based, others hospital or privately operated—frequently serve within a single population center and do not act cohesively. Agencies in adjacent jurisdictions often are unable to communicate with each other. In many cases, EMS and other public safety agencies cannot talk to one another because they operate with incompatible communications equipment or on different frequencies. Coordination of transport within regions is limited, with the result that the management of the regional flow of patients is poor, and patients may not be transported to facilities that are optimal and ready to receive them. Communications and handoffs between EMS and hospital personnel are frequently ineffective and omit important clinical information.

**Disparities in response times**—the speed with which ambulances respond to emergency calls is highly variable. In some cases this variability has to do with geography. In dense population centers, for example, the distances ambulances must travel are small, but traffic and other problems can cause delays, while rural areas involve longer travel times and sometimes difficult terrain. Determining the most effective geographic deployment of limited resources is an intrinsic problem in EMS. But speed of response is also affected by the organization and management of EMS systems, the communications and coordination between dispatch and EMS responders, and the priority placed on response time given the resources available.

**Uncertain quality of care**—Very little is known about the quality of care delivered by EMS. The reason for this lack of knowledge is that there are no nationally agreed-upon measures of EMS quality and virtually no accountability for the performance of EMS systems. While most Kenyans assume that their communities are served by competent EMS systems, the public has no idea whether this is true, and no way to know.

**Lack of readiness for disasters**—Although EMS personnel are among the first to respond in the event of a disaster, they are the least prepared component of community response teams. Most EMS personnel have received little or no disaster response training for terrorist attacks, natural

disasters, or other public health emergencies. Furthermore, EMS representation in disaster planning at the national level has been highly limited.

**Divided professional identity**—EMS is a unique profession, one that straddles both medical care and public safety. Among public safety agencies, however, EMS is often regarded as a secondary service, with police and fire taking more prominent roles; within medicine, EMS personnel often lack the respect accorded other professionals, such as physicians and nurses. Despite significant investments in education and training, salaries for EMS personnel are often well below those for comparable positions, such as police officers, firefighters, and nurses. In addition, there is a cultural divide among EMS, public safety, and medical care workers that contributes to the fragmentation of these services.

**Limited evidence base**- The evidence base for many practices routinely used in EMS is limited. Strategies for EMS have often been adapted from settings that differ substantially from the prehospital environment; consequently, their value in the field is questionable, and some may even be harmful. For example, field intubation, still widely practiced, has been found to do more harm than good in many situations. While some recent research has added to the EMS evidence base, a host of critical clinical questions remain unanswered because of limited government research support, as well as inherent difficulties associated with prehospital research due to its sporadic nature and the difficulty of obtaining informed consent for the research.

### **Achieving the Vision of A 21st-Century Emergency Care System**

While today's emergency care system offers significantly more medical capability than was available in years past, it continues to suffer from severe fragmentation, an absence of system wide coordination and planning, and a lack of accountability. To overcome these challenges and chart a new direction for emergency care, the committee envisions a system in which all communities will be served by well-planned and highly coordinated emergency care services that are accountable for their performance.

In this new system, dispatchers, EMS personnel, medical providers, public safety officers, and public health officials will be fully interconnected and united in an effort to ensure that each patient receives the most appropriate care, at the optimal location, with the minimum delay. From the patient's point of view, delivery of services for every type of emergency will be seamless. The delivery of all services will be evidence-based, and innovations will be rapidly adopted and adapted to each community's needs. Ambulance diversions—instances where crowded hospitals essentially close their doors to new ambulance patients—will never occur, except in the most extreme situations. Standby capacity appropriate to each community based on its disaster risks will be embedded in the system. The performance of the system will be transparent, and the public will be actively engaged in its operation through prevention, bystander training, and monitoring of system performance.

While these objectives involve substantial, system wide change, they are achievable. Early progress toward the goal of more integrated, coordinated, regionalized emergency care systems has become derailed over the last 20 years. Efforts have stalled because of deeply entrenched political interests and cultural attitudes, as well as funding cutbacks and practical impediments to change. These obstacles remain today, and they represent the primary challenges. However, the problems are becoming more apparent, and this provides a catalyst for change. The committee calls for concerted, cooperative efforts at multiple levels of government and the private sector to finally break through and achieve the goals