The Journal of Emergency Medicine, Vol. ■, No. ■, pp. 1–7, 2018

0736-4679/$ - see front matter

https://doi.org/10.1016/j.jemermed.2018.07.021

International Emergency Medicine

PUBLIC HEALTH RATIONALE FOR INVESTMENTS IN EMERGENCY MEDICINE IN DEVELOPING COUNTRIES – GHANA AS A CASE STUDY

Maame Yaa A. B. Yiadom, MD, MPH, MSCI,* Conor M. McWade, MD, MPH,† Koku Awoonor-Williams, MD, MPH, MPP, PHD,‡ Ebenezer Appiah-Denkyira, MD,§ and Rachel T. Moresky, MD, MPH, FACEP‖

*Department of the Emergency Medicine, The Emergency Department Operations Study Group (EDOSG); Director of the Emergency Care Health Services Research Data Coordinating Center (HSR-DCC), Institute for Medicine and Public Health, Vanderbilt University, Nashville, Tennessee, †University of California at Davis, Sacramento, California, ‡Policy, Planning, Monitoring and Evaluation, Ghana Health Services, Accra, Ghana, §Ghana Health Services, Accra, Ghana, and ‖sidHARTe Program – Strengthen Emergency Systems Program, International Emergency Medicine Fellowship, Population and Family Health & Emergency Medicine Departments, Columbia University Mailman School of Public Health & College of Physicians and Surgeons, New York, New York

Reprint Address: Maame Yaa A.B. Yiadom, MD, MPH, Department of Emergency Medicine, The Emergency Department Operations Study Group, Institute for Medicine and Public Health, Vanderbilt University, 1313 21st Ave South, Oxford House, Nashville, TN 37232

☐ **Abstract—Background: Ghana is a developing country that has strategically invested in expanding emergency care services as a means of improving national health outcomes. Objectives: Here we present Ghana as a case study for investing in emergency care to achieve public health benefits that fuel for national development. Discussion: Ghana's health leadership has affirmed emergency care as a necessary adjunct to its preexisting primary health care model. Historically, developing countries prioritize primary care efforts and outpatient clinic-based health care models. Ghana has added emergency medicine infrastructure to its health care system in an effort to address the ongoing shift in disease epidemiology as the population urbanizes, mobilizes, and ages. Ghana's investments include prehospital care, personnel training, health care resource provision, communication improvements, transportation services, and new health facilities. This is in addition to re-educating frontline health care providers and developing infrastructure for specialist training. Change was fueled by public support, partnerships between international organizations and domestic stakeholders, and several individual champions. Conclusion: Emergency medicine as a horizontal component of low- to middle-income countries' health systems may fuel national health and economic development. Ghana's experience may serve as a model.** © **2018 Elsevier Inc. All rights reserved.**

☐ **Keywords—emergency medicine; Ghana; developing country; public health; burden of disease**

INTRODUCTION

Ghana is a developing country recognizing the value of emergency care services to mitigate the impact of acute illness and injury. As it strives for middle-income status, investments in emergency medicine highlight the necessity of this approach in communities where medical care is most often sought in emergent situations. Clinic-based and disease-specific primary care services have historically been major pillars of health improvement efforts in developing countries (1). Access to emergency care is an underemphasized, yet essential, horizontal component of basic health services in developing nations. Health policy should include the development of emergency medicine as a means of improving health care outcomes. We use Ghana as an example of a developing country prioritizing this approach within its own unique context. This case illustrates that 1) emergency care services are a

RECEIVED: 7 February 2018; FINAL SUBMISSION RECEIVED: 5 July 2018;
ACCEPTED: 20 July 2018

necessary component of health care for the acutely injured or ill; 2) it is a necessary adjunct to historically prioritized primary care services needed in developing countries; and 3) supporting emergency care services requires re-education of frontline primary care providers in addition to the development of new infrastructure.

BACKGROUND

Prior work comparing the health status of developing and developed countries has demonstrated that communities with more resources have improved individual and population health (1–4). Increased economic status improves living conditions and reduces rates of infectious disease and injury. In more recent decades, however, the role of improved health as fuel for a community's economic engine has been better studied. As described by health economist David Mirvis, "Poor overall population health … impairs the economic wellbeing of the entire community or nation beyond the cumulative impacts on individuals and specific businesses. The aggregate or macroeconomic effects of improved health … impact everyone in a community–not just those who are ill" (4).

The economic importance of emergency medical services in maintaining health has been long recognized. In a landmark 1993 report on the impact of health investments, The World Bank identified six basic interventions as its minimum package of recommended cost-effective health services. Emergency care for medical and surgical conditions was one of the interventions and has since been recognized as paramount to economic gains (5,6). According to the World Health Organization (WHO), there are three fundamental functions of a health care system: 1) improve the health of the population; 2) respond to the expectations of the people served; and 3) provide protection against financial ruin from health care costs (7). Emergency care is a critical component of each.

Historically, low- and middle-income countries (LMICs) have prioritized primary prevention efforts over emergency delivery systems due to the belief that emergency care was costly and ineffective at mitigating the burden of infectious diseases. Due to shifting health needs, improvements in emergency medicine practice, and the recognized efficacy of modern emergency care systems, many experts have been calling for emergency care investments in developing countries (8). In 2007, the World Health Assembly passed Resolution 60.22, which highlighted the lead role emergency care systems can play to reduce the increasing burden of acute illness and injuries (8,9). The WHO and United Nations Children's Fund followed by placing an emphasis on emergency-oriented care management to address contemporary population health in developing nations (10,11).

The global burden of disease is shifting, and the types of health needs addressed by emergency medicine compose a substantial share of the current and future burden (2,10–12). In 2013, injuries accounted for over 10% of deaths worldwide. The top categories of injury were road traffic injuries (RTIs), self-harm, falls, and interpersonal violence (12). More than 90% of these deaths occur in LMICs (13). Acute injuries account for more deaths worldwide than human immunodeficiency virus (HIV), cancer, diarrheal diseases, tuberculosis, and malaria (14). For every death from acute injury, an estimated range of 10 to 50 people are permanently disabled (15). With the increasing rates of noncommunicable chronic diseases (such as cardiovascular disease, diabetes, cerebrovascular disease, and respiratory disease), the frequency of acute exacerbations of chronic diseases are on the rise. Urbanization, violence, and regional conflicts have contributed to increasing injury rates (16). Most disturbing is that acute injuries are the leading cause of death among those ages 5–44 years, an age demographic representing a country's future and those currently working to support families and the economy (17). Yet, annual global estimates for funding per daily adjusted life year is $85.21 for HIV/acquired immune deficiency syndrome and only $0.83 for acute injuries (8).

In November 2013, the African Federation for Emergency Medicine held an international consensus conference where emergency care leaders outlined medical conditions for priority infrastructure development along with associated providers skills and equipment requirements. Given the need to integrate these resources into existing health delivery systems to facilitate access via referrals, they concluded that work to advance emergency care "must occur in the context of a national health system" (18).

DISCUSSION

Ghana's Health and Development

Ghana is an English-speaking parliamentary democracy that claimed its independence in 1957. Its early history involved a series of destabilizing coup d'états, but it has experienced stable governance through the last five democratic presidential elections. Twenty-nine percent of its 27.5 million citizens live below the international poverty line of < $1.25 per day (19). In its heavily agrarian economy, agriculture accounts for 22% of the gross domestic product (GDP) and provides employment for 44.7% of the labor force (20). The country's dependency ratio, or the ratio of population dependent (ages 0–14 and > 64 years) to those of working age (ages 15–64 years), is currently 73% (down from 88% in 1990) and reflecting a growing adult population (20).