COMMENTARY

Operationalizing Public Health Skills to Resource Poor Settings: Is This the Achilles Heel in the Ebola Epidemic Campaign?

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ABSTRACT

Sustainable approaches to crises, especially non-trauma-related public health emergencies, are severely lacking. At present, the Ebola crisis is defining the operational public health skill sets for infectious disease epidemics that are not widely known or appreciated. Indigenous and foreign medical teams will need to adapt to build competency-based curriculum and standards of care for the future that concentrate on public health emergencies. Only by adjusting and adapting specific operational public health skill sets to resource poor environments will it be possible to provide sustainable prevention and preparedness initiatives that work well across cultures and borders. (*Diaster Med Public Health Preparedness*. 2015;9:44-46)

Key Words: Ebola, public health emergencies, epidemiology, disaster medicine, epidemics, resource poor settings, global health, global health security

We hear repeatedly from those in the field that the challenges of public health containment trump pure clinical responses in controlling the spread and overall outcomes in the Ebola epidemic. Outcomes, however, are only as good as the surveillance data and public health protections and infrastructure that are, we hope, sustained and unabated in both rural and urban areas. Slight shifts in the density of populations, the loss of competent nursing and other caregivers, inadequate infection control measures including the use of personal protective equipment, and how culture and local religions interpret infectious disease crises—to name but a few variables—can have immediate and devastating impact on disease transmission and outcomes.

Clinicians, including physicians, nurses, and paramedical personnel, often claim a knowledge base in public health. A direct inquiry into what exactly that experience practically entails, however, rarely follows. As an example, public health in a local or state department of health in a developed country deals primarily with disease control, health education, and statistical analyses of readily obtained epidemiologic data. All tasks are crucial, but they do not necessarily translate well into the critical skills necessary for "operationalizing public health" in a resource poor or constrained setting. In the United States, state and local directors of health, usually heavy with credentials in public health administration and policy, are vested in controlling diseases more than broad-public health preparedness. This characteristic was revealed as a crucial deficiency in the beginning days of the severe acute respiratory syndrome (SARS) and avian influenza outbreaks and launched the rush, with federal funding, to hire infectious disease specialists and epidemiologists in their health departments. A mixed bag of loss of support from resource allocators, policy makers and health leadership failed to retain their talents after federal funding ceased.[1-3] Multiple barriers to retention of the vital epidemiology workforce remain today.[4] Raw economic politics, at least in the United States at the local level, too often won out over preparedness and prevention leaving once again "operational responsibility unclear at the local community levels."[5] Prophetically, at the time of this writing, the CDC has already received 68 requests from hospitals or states seeking guidance or requests for blood testing on "suspected" Ebola cases.[6]

Yet, with a variety of emerging crises and disasters becoming more frequent, prolonged, and intense, the translation of public health principles into direct care protocols and operational skill sets needs more attention worldwide. The deficiencies in resources and skill sets among providers and multidisciplinary leadership are rarely recognized until a crisis occurs. With the emerging diversity and intensity seen in recent disasters, a sign of operational maturity is to work as a team in "trespassing professional boundaries." These events are

solved primarily through multidisciplinary leadership. In Wessely's *Lancet* review of Shephard's book *Headhunters: The Search for a Scientist of the Mind*, we are reminded that while decades ago "smart, ambitious scientists could cross disciplines with greater ease than they could cross oceans. For the most modern scientists it is now the other way around."[7]

THE DEMANDS OF OPERATIONAL PUBLIC HEALTH

The demands of operational public health require close scrutiny to multiple factors, all of which could become the unsuspecting Achilles heel. Performing and writing sound survey analyses is the first tool and product of operational public health. They are essential and rightly scrutinized; they must reflect the culture, language, and understanding of invisible infectious organisms as well as the knowledge of how the outbreak is interpreted and the motives and skills of health providers and local and national decision makers. Partnering early and often with local religious and cultural leaders is fundamental. In past outbreaks of Ebola and other exceptionally lethal hemorrhagic fevers in primarily Muslim areas of Africa, one of the most crucial public health assets for success were the local imams. Through a crash course in public health, the imans convinced the families of those who died that the traditional washing, touching, dressing, and keeping vigil over the bodies could be changed without jeopardizing the guarantee that their loved ones would still receive the benefits their Muslim faith demands.

While seemingly dated, the report by Sureau and colleagues, "Containment and surveillance of an epidemic of Ebola virus infection in Yambuku, Zaire, 1976," continues to be an excellent example of how "rapid organization of systematic active surveillance is possible" and constructed from the local level "even in areas with limited resources in skilled manpower and technology."[8] Problems are resolved, providing that basic logistic, transportation, and minimal sample and shipment requirements to high security laboratories along with necessary international collaboration are also solved.[8]

Today, team work with security personnel and food, water, and other public health essentials supplied from indigenous and international organizations are critical needs. Team building and gaining confidence from local staff must be culturally earned through considerable forethought to prevent mistrust and to mitigate unrest, riots, and outright conflict. In addition, talented nursing and other health personnel must feel secure in the knowledge that their families will be protected. For example, during the SARS pandemic, it was demonstrated that hospital and public health officials in Canada needed to know what responsibilities and needs each and every nurse had at home (eg, child care in their absence, direct health care access if they become ill) and ensure that those protections would be met on a daily basis, especially if the nurses themselves were quarantined.[9,10] In West Africa, the same uncomfortable but real triage issues should be addressed up front and early to guarantee compliance among the work staff for the long term. Once lost, those human resources rarely return.

MANAGEMENT OF RESOURCES AND PRIORITIES

It is obvious that triage management of resources and priorities have received scrutiny at the highest levels in government in Guinea, Sierra Leone, Liberia, and Nigeria. If governance itself is lost, the Ebola virus may spread unabated. Within the governments the fear of a coup from opposing forces inside and outside the country is real. Focusing resources to favor protections of the city capitals from threats are not imagined. As such, triage management may include special protection of government officials and the military. These are sovereign countries, and foreign medical teams (FMTs) are guests. Knowing the guaranteed international protection one has under international humanitarian law is as essential as any other predeployment education and training.

The tragedy of West Africa should not be seen as unexpected. Rapid unsustainable urbanization, the encroachment of people in crucial biodiversity sanctuaries (eg, the former habitat of Ebola in the jungles in the northern counties), has created a vulnerable environment. The predictable imbalance and spread of microorganisms that occur on unsuspecting virginal populations; increasing population densities from urbanization; food and water scarcity; decline in health access, availability, and essential public health protections; and increasing reliance on an unregulated bat-bushmeat industry are among the many foci for outbreaks that should have been no surprise to anyone. The current crisis serves as just one more example of how foreseeable global health insecurity expresses itself.

The World Health Organization and other speakers at the recent Hyogo Framework for Action meeting in Washington, DC, implored the conference audience to work for the long-term development of robust national medical teams that were specific to the region, country, and disaster.[11] While they did not deny the importance of FMTs, which today provide both primary health and surgical specialty care, they surmised that in a perfect world it would be hopeful if they were not needed. The Ebola epidemic has tragically revealed how limited country health assets are and how long it takes to recover and rehabilitate a destroyed public health infrastructure and health system. Liberia is still recovering from a prolonged civil war fostered by former Liberian President Charles Taylor, when physicians fled and nurses had to maintain a shaky health system for many years. No one denies the current need for FMTs, but more diversity and capacity are essential to rapidly transition efficiently and effectively to the more unfamiliar and life-saving public health operational skill sets, especially among emergency medicine and primary health care providers.

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In spite of initial pleas from WHO, offers of FMT assets that could immediately mimic the success and knowledge base that Médecins Sans Frontières (MSF) have accomplished were few. Both the International Committee of the Red Cross and MSF correctly appealed for supervised training in Ebola management before deployment. FMT planners knew their singular limitations, yet coordinated and collaborative order is emerging. Although initially delayed, "WHO and [United Nation] UN partner assets are now using MSF's model and camp design in building the required logistics and safe working environments necessary to massively scale up training and suitable Ebola treatment centers for incoming FMTs" (Ian Norton, MBChB, e-mail communication August 23, 2014). These tasks are not that much different from what was accomplished in Zaire in 1976. Developed country governments are now triaging potential FMT assets for the anticipated and coordinated missions they will have. The untreated global burden of disease mortality and morbidity is expectedly severe and must be served, but Ebola treatment centers are crucial as urban illness rates soar and district hospitals suffer.

For many contributing institutions, especially WHO, UN partners, and nongovernmental organizations, where exceptional knowledge lies but resources are scant, this epidemic presents a major learning curve. Education and training courses in all contributing academic-affiliated training centers will change worldwide, and national health teams and FMTs will have to adapt and diversify as new crises demand and their needs grow. Competency-based curriculum, the foundation of the current professionalization movement in humanitarian health education and training, must concentrate on emerging public health emergencies, adjusting and adapting "operational public health skill sets" to both resource-poor environments and diseases of incomparable etiology, to provide sustainable prevention and preparedness initiatives that work well across cultures and borders. This represents a good result.

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