Military Medical Implications of Future Megacity Operations

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Introduction

Given global urbanization trends, the Army must be prepared to confront challenges arising in megacities to remain a relevant instrument of national power. Megacities are urban areas with populations exceeding 10 million. They are an emerging feature of the global landscape and figure prominently into future strategic planning of the United States (1) (2) (3) and in partner nations (4). There are over 20 megacities right now, and by 2025 global urbanization trends (5) will push that number to 40 (6). Some are highly integrated, amply resourced and well prepared to deal with challenges. Others are less integrated and struggling to provide infrastructure and services for rapidly growing populations. In some megacities a fragile balance exists between dynamics of friction (unchecked growth, resource scarcity, growing economic separation, hostile actors that use the urban environment as a safe haven, and environmental risks) and dynamics of capacity (resilience, and anti-fragility; the ability to get stronger after a setback) (7) (8). Military operations in these environments have the potential to tip that balance and therefore require deep analysis, appreciation and understanding of the nuances of each place. The challenge will be ensuring that strategic objectives are achieved while disruption is minimized or eliminated. To be sure, this challenge is incredibly broad and will ultimately touch every part of the Department of Defense from highest level policy makers to the tactical formations asked to operate in megacities.

Here, we explore how to take on this challenge within the United States Army Medical Department (AMEDD), an organization well positioned to lead Army efforts in megacities by way of medical diplomacy combined with the Regionally Aligned Forces concept.

Megacities present numerous medical aspects of particular interest, some negative, others positive. In less integrated megacities the sheer density of people, lack of sanitation, and limited health infrastructure may increase the risk of disease outbreaks. Globalization increases the likelihood that a megacity will act as a global hub to spread disease across the world. On a more positive note, the Regionally Aligned Forces concept combined with medical diplomacy represents a significant opportunity for the AMEDD to lead the way in a positive, non-threatening manner (9). These efforts could lead better regional understanding and represent a proactive step to establishing healthy positive relationships if and when security assistance is needed.

We believe that AMEDD, and other partner organizations will play an essential role in helping Joint,
Interagency, Intergovernmental and Multinational (JIIM) efforts to meet the challenges of global urbanization, and that some well-placed strategic initiatives now will bear fruit for many decades to come.

**Megacity Challenges and Opportunities: A Medical Perspective**

A defining feature of megacities is density; of people, buildings, transportation systems, economy and many other things. We tend to think of density in terms of the challenges it poses: how do we navigate through heavy vehicle traffic in a place where millions of people are going about their daily business? From a medical perspective the challenge of caring for the health of a significant volume and density of people is daunting, but it is something the medical community has considerable experience with. After all New York City has world class health infrastructure, and detailed local plans (10) for dealing with health hazards that are fully nested with broader state and federal plans (11) (12). Instead of acting as an incubator of public health crises, New York City acts as a hub of health care infrastructure and focal point for public health planning efforts.

But not every megacity is New York City, and many megacities lack the resources and governance structures that enable New York City to prepare for and respond to public health emergencies. To what extent each of the world’s megacities would be able to deal with different kinds of disease outbreaks, mass casualty events, natural disasters or other mega-sized health issues, and the resulting security challenges, is unknown in the aggregate and worth studying further. The unique resources that the Department of Defense might bring to bear in megacities, and under what circumstances they might be employed are also topics worth studying further. Such an analysis might give military planners a better idea of which megacities deserve more attention, and consequently which are more likely to require intervention in support of national and international security interests. More to the point from an Army Medicine perspective, we must ask if there are megacities where partnerships and medical diplomacy can have an outsized impact on the security and stability of the city and region. Anecdotally it seems like the answer is a resounding yes.

Take for example the recent case of Lagos, Nigeria and the role it played (or in this case the role it didn’t play) in the ongoing Ebola outbreak in West Africa. On July 20, 2014 an Ebola patient in Liberia boarded a plane and flew to Lagos, Africa’s largest city (population 21 million and counting). This happened before President Obama declared to the United Nations that Ebola was a regional and global security threat (13), and before he committed US Military personnel, as part of Operation United Assistance, to support US and global partners to assist in fighting the outbreak (14). Nigeria’s index case, Liberian-American Patrick Sawyer was symptomatic on the flight, indicating that he was capable of actively spreading the disease to those who came in contact with his bodily fluids. The flight contained roughly 50 other passengers. After landing in Lagos the man collapsed in the airport and was transported to a hospital (15). At this point a lit match had been dropped into a powder keg. Sawyer had brought Ebola to a megacity, he was contagious, and was surrounded by people traveling all over Africa and the rest of the world. The potential existed for a very bad situation to get far worse. Introducing a viral hemorrhagic fever into a place like Lagos might have been catastrophic, but in this case it wasn’t. Sawyer did spread his infection; 19 other cases were confirmed in Nigeria, and eight patients died of Ebola Hemorrhagic Fever, but widespread infection never took place, and the virus did not spread either regionally or globally. This is all the more surprising considering that Lagos’ doctors were on strike when Sawyer arrived (16). So what happened? How was Lagos able to repel this public health threat, and what can it teach us for how we should view megacities in the future? Preliminary analysis indicates that early diagnosis and a combination of the right people and infrastructure and some creative problem solving and hard work enabled Lagos to avoid disaster (17) (18).

Nigeria’s success reveals important factors such as swift quarantine and diagnosis, clear and effective
management of response elements and effective public communication (19). Additionally, quick coordinated action by top doctors, a robust contact-tracing campaign (nearly 1000 contacts were effectively traced in this case), and the benefit of an emergency command center built by the Gates Foundation to fight polio (20) all helped. If these factors represent the base level of infrastructure and coordinated effort needed to repel an outbreak, then we must ask ourselves if it is possible to ensure that every megacity has some equivalent capability. And if so, how can the US Military generally, and the US Army Medical Department specifically, help to build partner capacity in these critical areas?

Regionally Aligned Forces and Medical Diplomacy

Partnerships established by Army Medicine would not just help prevent pandemics, but could also help facilitate Army efforts to provide security assistance across a wide range of scenarios within megacities. Establishing partnerships is crucial to the Regionally Aligned Forces (RAF) construct. To incentivize those partnerships, Army Medicine provides a highly desirable capability that megacities’ security forces will welcome.

The RAF construct provides Combatant Commanders with forces that better understand cultures, geography, languages, and terrain where they might be called upon to operate (21). RAF hinges upon the Army’s engagement with host partners to prevent conflict and shape the environment, and to ensure better preparation if military intervention becomes necessary (22). Reflecting on the Army’s experience in Iraq, GEN Odierno said "We went in there with a complete misunderstanding, regionally and inside Iraq, of what was going on. I don't ever want that to happen again.” (23) This critical need for understanding will apply to navigating the incredible complexity of megacities, at least as much as it applied to Iraq.

Regional understanding requires gaining access and establishing relationships with the security forces operating inside megacities, not just with the armies defending their national borders. For obvious reasons, megacities’ security forces might welcome U.S. medical forces more readily than US combat forces during the early development of a partnership. This is not a novel idea and is already being utilized by our adversaries. Among US rivals, Cuba and China are already leveraging medical capabilities to gain access and foster relationships with potential allies (9).

Meanwhile, we have evidence that our partners welcome support provided by Army Medicine. A quick check reveals that many RAF engagements during 2014 were focused primarily on medical support and humanitarian assistance, especially in Africa, South America and across the Asia Pacific regions (21). In Iraq, anecdotal accounts suggest medical diplomacy has helped forge effective relationships with key leaders negotiating nonmedical issues (9).

Army Medicine is already playing an important but unheralded role in helping the Army gain access and build partnerships across the globe. For instance, just one unit, the 30th Medical Brigade, will complete engagements with 19 partner nations this year alone (24). The challenge moving forward will be refocusing this medical engagement into megacities to build partnerships that combatant commanders need to unlock RAF’s potential there.

Conclusion

We have sought to make the case that there are important medical aspects to the trend of global urbanization, and that the Army Medical Department will play an important role in the Army’s broader RAF and JIIM efforts to meet the challenges of this trend. We believe the next step is to develop a shared vision of how AMEDD capabilities can support RAF and JIIM efforts in megacities in the deep future, and charting out a course to make that vision a reality. The Army Surgeon General’s office is building a community of interest to conduct an urban-centric analysis of AMEDD capabilities. This analysis is
intended to take place with the full participation of all Army and JIIM partners. Ultimately, any AMEDD efforts in megacities will be in close coordination with host-nations, and excluding them from the discussion from the outset will result in a high risk of failure. We also intend to game out different megacity scenarios with a medical focus. This will allow for the identification of medical specific capability and partnership gaps that could be filled via the development of new or existing capabilities and the initiation of new partnerships.

This effort is in its earliest stages, and we look forward to seeing it unfold. We fully acknowledge that the complexity of the subject is such that it may take some time before concepts and lines of effort fully mature. We are very interested in the thoughts of the broader communities of interest on this effort and welcome suggestions.

The views expressed in this paper are those of the authors alone and do not represent the position of the Department of Defense, United States Army, or any subordinate organization.

References


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