

# International Health Regulations, Ebola, and Emerging Infectious Diseases in Latin America and the Caribbean

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The World Health Organization's determination of the Ebola virus disease outbreak as a public health event of international concern prompted nonaffected countries to implement measures to prevent, detect, and manage the introduction of the virus in their territories. The outbreak provided an opportunity to assess the operational implementation of the International Health Regulations' core capacities and health systems' preparedness to handle a potential or confirmed case of Ebola virus disease. A public health framework implemented in Latin America and Caribbean countries encompassing preparatory self-assessments, in-country visits, and follow-up suggests that the region should increase efforts to consolidate and sustain progress on core capacities and health system preparedness to face public health events with national or international repercussions. (*Am J Public Health*. 2016;106:279-282. doi:10.2105/AJPH.2015.302969)

**T**he current outbreak of Ebola virus disease in West Africa is showing the world that the work on communicable diseases is far from over and that the well-known epidemiological transition from communicable diseases to noncommunicable diseases should be taken with a grain of salt in many countries.<sup>1-3</sup> Latin America and the Caribbean is a diverse geographical region with low-, middle-, and high-income countries where both noncommunicable diseases and communicable diseases need the utmost attention of leaders and policymakers to ensure proper balance when allocating resources and to be able to face the growing threats. For the purposes of this article, "Latin America and the Caribbean" refers to 33 countries: Antigua and Barbuda, Argentina, Bahamas, Barbados, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominica, Dominican Republic, Ecuador, El Salvador, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica,

Mexico, Nicaragua, Panama, Paraguay, Peru, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago, Uruguay, and Venezuela.

While the risk of introducing Ebola virus disease in Latin America and the Caribbean has been considered low, the fact is that the region has all the ingredients to have imported cases of Ebola virus disease and of any other emerging and reemerging infectious diseases, with the potential of further spread if essential public health functions are not established, or maintained, as part of a dynamic preparedness process; this process should constitute a priority in the political and development agenda of the leaders of the region. Tourism, vibrant trading economies, porous borders, and

the globalized interconnected world we live in are some of the enabling factors that could lead to the Ebola virus disease reaching Latin America and Caribbean countries. A year ago nobody would have thought that Guinea, Liberia, and Sierra Leone were on their way to facing a devastating outbreak.

Latin America and the Caribbean are already confronting serious epidemics of dengue and chikungunya viruses, with negative socioeconomic and health consequences for the region.<sup>4,5</sup> Furthermore, the risk faced by the region with regard to emerging and reemerging infectious diseases may be illustrated in the increasing number of events of potential international public health concern. In 2014, 93 public health events of potential international concern were identified and assessed in Latin America and the Caribbean.<sup>6</sup> Of these 93 events, 47 (51%) were of substantiated international public health concern that affected 27 countries and territories. The largest proportion of these 47 events was attributed to infectious hazards (34 events, 72%), and the etiology most frequently recorded was chikungunya virus (20 events) followed by zoonotic hazards.

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## TESTING THE INTERNATIONAL HEALTH REGULATIONS' CORE CAPACITIES

The countries of Latin America and the Caribbean are signatories of the International Health Regulations, a legally binding treaty aiming

to prevent, protect against, control and provide a public health response to the international spread of disease in ways that are commensurate with and restricted to public health risks, and which avoid unnecessary interference with international traffic and trade.<sup>7</sup>

The International Health Regulations express the shared responsibility of countries for global public health through their commitment (1) to establish and maintain essential public health functions (“core capacity” detailed in Annex 1 of the International Health Regulations) to detect, assess, notify, report, and respond to public health events across the entirety of their territory; and (2) to promptly and transparently share information through established international channels regarding public health events that might have international implications. By June 15, 2014, 11 countries in the region had communicated to the World Health Organization (WHO) their self-determination that the core capacity was in place and could be maintained.

The 2015 report of the International Health Regulations Review Committee on extensions of the core capacity recognized that the continuous public health preparedness process requires a holistic approach to strengthening health systems to ensure that they are robust enough to allow the desired degree of flexibility to prepare for, and respond to, rapidly emerging risks in an interconnected world.<sup>8</sup> At the same

time, a more qualitatively and operationally oriented scheme for monitoring the implementation of the International Health Regulations—ensuring mutual accountability and sharing good practices among countries—will need to be developed.

The Ebola virus disease outbreak in West Africa has provided the opportunity to reconsider the actual operational meaning and practical public health implications of the commitment to establish and maintain the core capacity. Furthermore, it has presented the international community and, more importantly, nonaffected countries with the prospect of reassessing their health systems' actual level of preparedness to prevent, detect, and manage a potential or confirmed case of Ebola virus disease and to implement the temporary recommendations issued in August 2014, when the outbreak was determined a public health emergency of international concern.

## PREPAREDNESS AND RESPONSE IN LATIN AMERICA AND THE CARIBBEAN

To prevent the establishment of local transmission in Latin America and the Caribbean, considering the importation of a very limited number of potential or confirmed cases as the most likely scenario, the Pan American Health Organization (PAHO) implemented the following approach including 4 major components:

1. the creation of an internal Ebola virus disease task force comprised of senior officers to lead and coordinate the institutional response,
2. the activation of the Organization Emergency Operation Center under the leadership

- of an experienced incident manager,
3. the establishment of a regional stockpile of protective personal equipment, and
4. the preparation of an ambitious plan targeting national authorities at the highest political and technical levels.

The main goal of this plan was to place the threat of Ebola virus disease on the agenda of the heads of state or government to ensure full commitment to preparedness for, and response to, Ebola virus disease and any other unusual health event. While focusing on Ebola virus disease, the objectives of the Framework for Strengthening National Preparedness and Response for Ebola virus disease in the Americas<sup>9</sup> were to characterize the capacity of the countries to respond to any emerging or reemerging infectious disease hazard, to support countries in addressing and bridging gaps identified by suggesting and implementing corrective actions, and to define a joint technical cooperation work plan to support national preparedness efforts for emerging and reemerging infectious diseases.

The Framework for Strengthening National Preparedness and Response for Ebola virus disease in the Americas was tailored to the context of each country in various phases, including preparatory, implementation of in-country missions, and follow-up. The 3 phases required actions at both the political and technical organizational levels. The political phase aimed to foster country ownership through prospective missions, country commitment to mobilize all competent authorities from relevant sectors, and acceptance of the PAHO and partner recommendations on the basis of existing evidence, including

the mobilization of resources for their implementation.

The technical component promoted ongoing technical interactions between national authorities and the organizations' secretariat regarding Ebola virus disease–related documents developed at the national level (e.g., guidelines, protocols, and standard operating procedures) and their alignment with current PAHO- and WHO-related documents. These are available at a dedicated PAHO Ebola virus disease Web site and cover leadership and coordination, points of entry, case management and patient care, infection prevention and control, surveillance, contact tracing, laboratory, and risk communication. This phase also included revision and building on existing preparedness and response plans—including those developed in relation to avian and pandemic influenza, cholera, and chikungunya—by identifying, adding, refining, and focusing on the operationalization of those components of the response specific for Ebola virus disease.

Countries' self-assessment with regard to preparedness was facilitated through a WHO checklist for the potential introduction of an Ebola virus disease case and through the countries annual report to the World Health Assembly as part of the International Health Regulations Core Capacity Monitoring Framework.<sup>10</sup> Technical missions were conducted in 27 of 33 Latin American and Caribbean countries—in collaboration with experts from partner agencies and upon acceptance by the national authorities—to generate recommendations for strengthening areas in need of improvement. Countries not visited included Argentina, Belize, Brazil, Chile, Mexico, and

Venezuela because they did not request a mission. These countries, however, provided self-assessments and worked closely with PAHO country offices on the ground to address priority areas. In parallel, targeted multi-country training workshops for government-designated officials and expert consultations were conducted in several countries on clinical management, infection prevention and control, laboratory diagnostics, and risk communication.

The outcome of the missions indicated the need for further efforts and investment of resources, which were substantial in some cases (Table A, available as a supplement to the online version of this article at <http://www.ajph.org>). With few exceptions, the majority of countries visited need to enhance the awareness and ability of health care workers in health services across their territories to detect and report any unusual health event—including Ebola virus disease suspicions—and to manage them safely while the referral channels to the designated isolation area are activated. The role that well-trained health care workers play in ensuring the early warning function and rapid response still constitutes a major weakness in some countries. In addition, the refinement of contact tracing and monitoring procedures and tools are needed.

Most of the countries had identified designated isolation areas to manage a potential or confirmed Ebola virus disease case by adapting and modifying spaces in existing health care facilities. However, only a few were properly equipped to safely treat a case; a limited availability of protective personal equipment is an example of this. Of the 11 biosafety level-3 laboratories in Latin American and the

Caribbean only 6 had Ebola virus disease diagnostic capacity as of December 2014. The finalization of logistic and administrative arrangements for the international shipment of samples for confirmatory diagnosis to 1 of the 2 biosafety level-4 laboratories at the WHO collaborating centers (the Centers for Disease Control and Prevention in Atlanta and the Public Health Agency of Canada in Winnipeg) continues to be a challenge in a few countries.

Finally, although almost all visited countries had existing risk communication strategies and plans, the extent to which these plans were implemented remain unclear. Furthermore, although several of the International Health Regulations core capacities were self-assessed by the countries in their annual report to the 68th World Health Assembly, the technical missions suggested the need for improvements in most capacities (Table B, available as a supplement to the online version of this article at <http://www.ajph.org>).

There were also positive and encouraging findings. Considering the fact that few Latin American and Caribbean countries had actually faced the importation of a potential Ebola virus disease case, or had conducted functional simulation exercises, the dedication and commitment to prepare for the introduction of Ebola virus disease greatly enhanced the level of confidence and generated a higher level of awareness regarding public health risks among national authorities. The mechanisms activated or established to coordinate preparedness efforts in most of the countries showed signs of improvement, as underscored by the allocation of the leadership role to an institution or high-level committee and by the intra- and intersectorial

articulation of plans and procedures aimed at ensuring their interoperability. Follow-up missions, south-south and triangular cooperation, and a high-level dialogue tailored to each country according to its needs will be crucial to ensure progress and sustain the momentum.

## CONCLUSIONS

Recognizing the heterogeneity of the majority of countries across Latin America and the Caribbean, as well as across the different components of preparedness in general, our findings suggest that preparedness in the region is reasonable but that the majority of countries will need to make modifications and enhancements and, most importantly, strengthen their institutions. Although no one size fits all, the improvements needed in several of the countries visited, if properly addressed, will serve to respond to Ebola virus disease and to other unusual health events without unnecessarily stretching countries' capacities to the detriment of other health priorities.

The current epidemics of dengue and chikungunya in several countries of the region and the recent introduction of Zika virus in Easter Island and Brazil are some of the examples of health events that can also benefit from strong preparedness efforts across the region. Furthermore, sound preparedness efforts will mitigate the potential economic impact of such health events. Dengue illness in the Americas has been estimated to cost 2.1 billion dollars per year on average.<sup>11</sup> The chikungunya virus outbreak in Reunion Island incurred substantial medical expenses estimated at 43.9 million euros, of which 60% were attributable to direct medical costs related to consultations,

hospitalization, and drugs.<sup>12</sup> A study on the 2009 H1N1 influenza outbreak in Mexico estimated that by losing almost a million overseas visitors, the country lost approximately 2.8 billion dollars, suggesting that the wider economic implications of health-related emergencies need to be considered in preparedness planning.<sup>13</sup>

The degree of discrepancy between the gaps experts identified during the country missions and the core capacity score self-assessments highlights the need to refine the monitoring approach and the metrics related to implementation and application of the International Health Regulations. A methodological approach to monitoring the International Health Regulations that is more objective and focused on the functioning of the public health system would increase the relevance of the International Health Regulations as the framework for global health security, while informing the investment and allocation of resources by national authorities and the donor community.

The encouraging signals that the Ebola virus disease outbreak in West Africa is slowly being brought under control further reduces the risk of importation to Latin America and the Caribbean. Therefore, regional and country leaders should capitalize on the momentum resulting from Ebola virus disease preparedness activities to ramp up efforts to consolidate and sustain progress made. While doing so, they must honor their commitment to the international community expressed through the International Health Regulations. Responding to and controlling a public health event without entering into crisis mode every time an outbreak hits the shores of Latin America

and the Caribbean will be the best indicator that the region is better prepared to face public health events with national or international implications. Essential public health functions (core capacity detailed in the International Health Regulations) are an integral part of health systems, which must be resilient to ensure the achievement and sustainability of such capacities. **AJPH**

## CONTRIBUTORS

M. Espinal led the conceptualization, drafting, and revision of the article. S. Aldighieri and R. St. John contributed to drafting the article. S. Aldighieri, R. St. John, F. Becerra-Posada, and C. Etienne revised the article with critical content.

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## HUMAN PARTICIPANT PROTECTION

We did not seek institutional review board approval because the data were limited to country-level preparedness data for facing a potential outbreak of Ebola virus disease.

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