

Implementation of the International Health Regulations (2005)

Report of the Review Committee on the Role of the International Health Regulations (2005) in the Ebola Outbreak and Response

Report by the Director-General

The Director-General has the honour to transmit to the Sixty-ninth World Health Assembly the report of the Review Committee on the Role of the International Health Regulations (IHR) in the Ebola Outbreak and Response (see Annex).

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The following provided responses to the open electronic consultation survey:

Missions to the UN: Argentina, Cambodia, Colombia, Denmark, France, Islamic Republic of Iran, Latvia, Laos, Malaysia, Mauritius, Mexico, Mongolia, Montenegro, Netherlands, Pakistan, Peru, Russian Federation, Singapore, Sri Lanka, Uganda, Venezuela, and Viet Nam; Intergovernmental organizations: Asian Development Bank, Australian Medical Association; and Nongovernmental organizations: Management Sciences for Health; Save the Children, International Medical Corps and the African Field Epidemiology Network.

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PREFACE

The International Health Regulations (2005) (IHR) were being developed in 2003 when severe acute respiratory syndrome (SARS) abruptly awakened the world to the reality that globalisation means a higher risk of rapid international spread of public health threats. The adoption of the IHR in 2005 by States Parties was a significant step towards improved global solidarity in the protection of public health.

The influenza A (H1N1) 2009 pandemic, occurring at a time when many countries were still in the early stages of implementing the IHR, was the first major test for the revised IHR. This initial implementation work helped countries and the World Health Organization (WHO) prepare for, and respond to, the pandemic. In its 2011 report, the IHR Review Committee insisted, however, that a more active approach to implementation of the IHR was urgently needed to ensure that countries are able to quickly detect public health risks, communicate that information to other States Parties as well as WHO, and use guidance from WHO and other key stakeholders in the health and humanitarian sectors to determine the appropriate response.

Notwithstanding Middle East respiratory syndrome coronavirus (MERS-CoV) and polio as significant events which benefited from coordination under the IHR, the Ebola epidemic in West Africa was the second major test for the revised IHR. The Review Committee carefully considered whether flaws in the IHR itself or poor implementation of the IHR were contributing factors to the failures in the global response. The Committee arrived at the conclusion that the IHR text is robust and needs to be implemented rather than amended. The Committee believes that the Ebola crisis proved a telling substantiation of the earlier assessment that “the world was ill-prepared to respond to a global, sustained and threatening public-health emergency.”¹

Recommendations to improve the implementation of the IHR have been made before. This Review Committee has focused on ensuring that this new set of recommendations is pragmatic enough to result in improved implementation of the IHR. These recommendations are a combination of the obvious – such as the need to have adequate resources and financing to deliver on IHR obligations – and the innovative, such as a mechanism to facilitate early warning, to improve decision-making and to better trigger responses.

If we are serious about equipping the world to prepare and respond rapidly and effectively in the future, it is critical to make implementation of the IHR a priority, to address the inequities inherent in the global responses so far, and to strengthen the role of the WHO Secretariat in coordinating and supporting the implementation of the IHR.

Global public health threats, either from known pathogens or from new emerging diseases, are a real and potentially imminent danger. The sole consolation of the Ebola disaster is that it has galvanised the world into analyzing the failures and ensuring that it is better prepared for the next global health threat. Crisis is hardship but also opportunity.

¹ Implementation of the International Health Regulations (2005). Report of the Review Committee on the Functioning of the International Health Regulations (2005) in relation to Pandemic (H1N1) 2009. Report by the Director-General. Geneva: World Health Organization; 2011 (A64/10) (http://apps.who.int/gb/ebwha/pdf_files/WHA64/A64_10-en.pdf?ua=1).

The Review Committee is of the view that much of what has to be done must be done rapidly. The momentum created by Ebola to better prepare for the next global health threat is likely to be short-lived. Ebola resulted in the loss of too many lives. The world owes it to those people to ensure that it does everything possible to prevent such avoidable devastation again.

Didier Houssin (Chair)

Karen Tan (Vice-Chair), Helen Rees (Rapporteur)

Salah Al Awaidy, Preben Aavitsland, Hanan Balkhy, Marion Bullock DuCasse, Rupa Chanda, Supamit Chunsuttiwat, Thomas Cottier, Andrew Forsyth, John Lavery, Louis Lillywhite, Brian McCloskey, Babacar Ndoeye, Samba Sow

IHR Review Committee

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EXECUTIVE SUMMARY

1. The Ebola outbreak that began in West Africa in December 2013 was the largest epidemic of the disease ever recorded, resulting in high morbidity and mortality and considerable economic impact on countries hardest hit. Ebola virus disease was responsible for the death of more than 11,000 people in Guinea, Liberia, and Sierra Leone, affected seven additional countries, and stretched national and global response capacities far beyond their limits. Involving the participation of multiple civilian and humanitarian organizations, the emergency led to the deployment of foreign military forces from several countries, as well as the first-ever United Nations emergency health mission – the UN Mission for Ebola Emergency Response (UNMEER). Ebola starkly revealed the fact that we still remain ill-prepared in the face of a major public health emergency.

2. The global response to Ebola, the failures of which mirrored those documented during the 2009 response to the influenza A (H1N1) pandemic, highlighted flaws in the operational mechanisms and strategic framework of the International Health Regulations (2005) (IHR), which function to improve global solidarity to protect public health. The IHR, which entered into force in June 2007 in the aftermath of severe acute respiratory syndrome (SARS), are a global legal agreement aimed at preventing and responding to the international spread of disease while avoiding unnecessary interference with traffic and trade. The Regulations are legally binding on States Parties¹ and the World Health Organization (WHO). They place an explicit obligation on States Parties to assess, strengthen and maintain core capacities for surveillance, risk assessment, reporting and response and set out a global leadership role for WHO. The first Review of the functioning of the IHR, published in May 2011, reported that although the IHR provide a workable approach to global health emergencies, there remained serious failures in global preparedness. Both the severity and lengthy duration of the Ebola epidemic have, in unprecedented ways, further challenged the functioning of the IHR, and consideration must now be given to ensuring realistic and practical ways forward to further strengthening its implementation.

3. In May 2015, at its Sixty-eighth Session, the World Health Assembly requested that the WHO Director-General establish a Review Committee to examine the role of the IHR in the Ebola outbreak and response, with the following objectives:

- to assess the effectiveness of the IHR (2005) with regard to the prevention, preparedness and response to the Ebola outbreak, with a particular focus on notification and related incentives, temporary recommendations, additional measures, declaration of a public health emergency of international concern, national core capacities, and context and links to the Emergency Response Framework and other humanitarian responsibilities of the Organization;
- to assess the status of implementation of recommendations from the previous Review Committee in 2011 and related impact on the current Ebola outbreak; and
- to recommend steps to improve the functioning, transparency, effectiveness and efficiency of the IHR(2005), including WHO response, and to strengthen preparedness and response for future emergencies with health consequences, with proposed timelines for any such steps.

¹ States Parties are those countries that are bound by the IHR in accordance with the WHO Constitution and the IHR. There are currently 196 States Parties, which includes all 194 Member States of the WHO.

Findings and conclusions

4. The Review Committee interviewed a wide spectrum of people with relevant backgrounds and experience in the Ebola response, in the wider issues of IHR implementation and functioning, and in the relationships between agencies involved in emergency response. This evidence, supported by analysis of pertinent documents and reports, informed the Committee's deliberations and the evolution of the key themes that have shaped the Committee's recommendations.

The Review Committee identified the following key themes:

- The failures in the Ebola response did not result from failings of the IHR themselves, but rather from a lack of implementation of the IHR.
- Full implementation of the IHR must be the urgent goal of all countries as this is the collective means to improve global public health preparedness and improve the safety of the world's population.
- Full implementation of the IHR, however, cannot be achieved without significantly greater funding and, despite the urgency of the task, cannot be achieved in a very short timeframe because of the systemic improvement required in many States Parties.
- Partnerships – with communities, between countries, within regions, with development and aid organizations, and with WHO – are critical to implementing the IHR and improving global public health preparedness and response.
- Implementation of the IHR should not be seen as an end point in a process, but rather as a cycle of continuous improvement in public health preparedness, in which the development and maintenance of IHR core capacities are embedded in essential health systems strengthening.

5. The IHR remain an important and valuable international legal framework that provide the backbone to any future response to a public health threat. The Committee has concluded that amendments to the IHR text are not required. The most important priority is to rapidly improve implementation of the IHR, and the Review Committee has focused on developing innovative and realistic recommendations to drive this.

6. Countries need to recognise and prioritise the IHR and fully implement core capacities, including effective surveillance, detection, and response capacities, as per their commitments. The Review Committee noted that many countries are yet to achieve core capacity targets; increased funding and collaboration between countries and development agencies will be needed. Strengthening IHR core capacities in many of the world's less well-resourced countries, including those hardest hit by the Ebola epidemic, must go hand-in-hand with overall strengthening of the health system itself. States Parties' compliance with IHR requirements during the Ebola emergency, including timely notification and information-sharing, was extremely weak. The global community's ability to respond to major health threats will be dependent on our ability to strengthen this essential component of the IHR.

7. The Review Committee has concluded that it is imperative to prioritise the implementation of the IHR in all countries and to develop and roll-out an overarching global strategic improvement plan. The plan must be adequately resourced and balance the urgent need to make progress on

implementation with the reality that many countries will require technical and financial support to achieve this. The Committee believes that this plan must deliver significant improvements in IHR implementation within the first three years, but that it may take 10 years to deliver the health systems strengthening that is needed.

8. The Committee has recommended that a key element of the strategic improvement plan must be a cycle of assessment, action and re-assessment. The Committee believes that WHO has a critical role in facilitating this cycle; independent external evaluation, using the WHO IHR Monitoring and Evaluation Framework, will add considerable constructive value to the process.

9. The Review Committee, noting WHO's essential role in leading, coordinating, and ensuring local, regional and global implementation efforts, in close collaboration with countries and other key stakeholders, has recommended strengthening WHO's capacity to fulfil this role.

10. The Committee acknowledges that the IHR must be, and be seen to be, equitable across countries and that all countries must be equally committed to full compliance, including not implementing measures beyond those recommended by WHO that are detrimental to countries reporting public health events.

11. The IHR are the collective means to ensure the protection of the world's population from public health threats, but this collective benefit will only be delivered if there is collective commitment to implementation.

Recommendations

12. Our recommendations are organized into two groups: (i) a strategy to ensure implementation of the IHR based on new proposals (Recommendations 1–6); and (ii) improved delivery of the IHR by reinforcing existing approaches in IHR implementation (Recommendations 7–12). The following headline recommendations are supported by detailed recommendations addressed to WHO, States Parties and other stakeholders.

1. Implement rather than amend the IHR

There is neither the need for, nor benefit to be drawn from, opening up the amendment process for the IHR, at this time.

2. Develop a Global Strategic Plan to improve public health preparedness and response

The WHO Secretariat should lead the development of a Global Strategic Plan to improve public health preparedness, in conjunction with States Parties and other key stakeholders, to ensure implementation of the IHR, especially the establishment and monitoring of core capacities. The Global Strategic Plan should inform the development of regional office and national plans.

3. Finance IHR implementation, including to support the Global Strategic Plan

WHO, States Parties and international development partners should urgently commit to providing financial support at the national, regional and international levels for the successful implementation of the Global Strategic Plan.

4. Increase awareness of the IHR, and reaffirm the lead role of WHO within the UN system in implementing the IHR

Awareness and recognition of the IHR is improved within the UN system through the designation of an advocate. The key role of WHO in leading and governing implementation of the IHR should be reaffirmed.

5. Introduce and promote external assessment of core capacities

Self-assessment, complemented by external assessment of IHR core capacities, becomes recognised best-practice to monitor and strengthen the implementation of the IHR.

6. Improve WHO's risk assessment and risk communication

WHO establishes a standing advisory committee, which would have the primary purpose of regularly reviewing WHO's risk assessment and risk communication; creates an intermediate level of alert via a new category of risk that requires specific follow-up, called an International Public Health Alert (IPHA); and develops an updated communication strategy.

7. Enhance compliance with requirements for Additional Measures and Temporary Recommendations

States Parties should ensure that the public health response measures they implement comply with the IHR. To this end, WHO should increase transparency about Additional Measures adopted by States Parties, and publicity about Temporary Recommendations, and develop partnerships with international travel and trade organizations, and engage with other relevant private stakeholders.

8. Strengthen National IHR Focal Points

National IHR Focal Points should be centres with sufficient staff with experience, expertise and seniority, and should be supported with the required resources (administrative, logistical and financial) to carry out all of their mandatory coordination and communication functions – as well as any other functions assigned by the State Party.

9. Prioritise support to the most vulnerable countries

WHO must prioritise support in establishing core capacities and the detection of public health risks to those countries that are either extremely low-resource, are in the midst of conflict, or those that are considered fragile.

10. Boost IHR core capacities within health systems strengthening

WHO and States Parties should ensure that all programmes to strengthen health systems specifically address IHR core capacities.

11. Improve rapid sharing of public health and scientific information and data

WHO champions the open sharing of information on public health risks, and expands guidance on global norms for sharing data to biological samples and gene sequence data during public health emergencies.

WHO and States Parties should ensure that sharing of samples and sequence data is balanced with benefit-sharing on an equal footing.

12. Strengthen WHO's capacity and partnerships to implement the IHR and to respond to health emergencies

WHO's ability to implement the IHR is strengthened through Secretariat reform and stronger partnerships, and significantly increased financial support from States Parties and other key stakeholders.

1. INTRODUCTION AND BACKGROUND

1.1 A BRIEF HISTORY OF THE IHR

1. Protecting the health and well-being of people is a formidable challenge. The global community is regularly confronted by the emergence and re-emergence of infectious disease threats; the rise and spread of alarming rates of antimicrobial resistance coupled with lagging development of effective drugs and vaccines; civil conflicts resulting in the collapse of essential infrastructures and large-scale cross-border migration; the potential for rapid spread of disease through a far-reaching web of international travel and trade; changing patterns of weather and climate; the occurrence of natural disasters with important health implications; and the intentional or unintentional release of biological agents and radiation.

2. The concept of global health security attained through international cooperation is not new, as evidenced by measures taken to prevent the international spread of the Black Death several hundred years ago. The origins of WHO and the IHR (2005)¹ are grounded in this fundamental concept. International Sanitary Conferences, first convened in the mid-late 1800s, led to agreements that sought to reduce the international spread of cholera, plague and yellow fever through quarantine measures, while minimizing the impact on international trade.^{2,3} Prior to WHO's founding in 1948, institutions such as the International Sanitary Bureau (the precursor to the Pan-American Health Organization [PAHO]) and the League of Nations Health Organization, established other essential public health functions such as surveillance and notification for some diseases.⁴ The International Sanitary Regulations, adopted in 1951 by the fourth World Health Assembly, and the IHR (1969) were direct precursors to the IHR (2005).

3. The stunning spread of SARS in 2003 and its associated health, transportation and economic impacts were potent motivators for States Parties⁵ to accelerate revision and adopt the IHR (2005) as a framework for managing public health threats. This strategy, the product of 10 years of complex development and negotiations, is one of only two legal instruments binding on all States Parties and WHO. The scope of the revised Regulations extends beyond infectious diseases to include a broad spectrum of contemporary public health risks (biological, chemical or radio-nuclear in origin).

4. The IHR (2005) have two over-arching objectives (Article 2): first, to strengthen the preparedness and capacities of countries so they can proactively detect, assess, report and address acute public health threats early and second, to set out obligations and mechanisms for "a public health response to the international spread of disease in ways that are commensurate with and restricted to

¹ International Health Regulations (2005). Second edition. Geneva: World Health Organization; 2008, (<http://www.who.int/ihr/publications/9789241596664/en/>).

² Clift C. The role of the World Health Organization in the international system. Working Group on Governance: Paper 1. In: *Centre on Global Health Security Working Group Papers*. London, Chatham House, February 2013 (https://www.chathamhouse.org/sites/files/chathamhouse/public/Research/Global%20Health/0213_who.pdf).

³ Plotkin BJ, Hardiman M, Gonzalez-Martin F, Rodier G. Infectious disease surveillance and the International Health Regulations. In: M'ikanatha NM, Lynfield R, Van Beneden CA, de Valk H, eds. *Infectious Disease Surveillance*, 2008 (<http://onlinelibrary.wiley.com/book/10.1002/9780470692097>).

⁴ *Ibid.*

⁵ States Parties are those countries that are bound by the IHR in accordance with the WHO Constitution and the IHR. There are currently 196 States Parties, which includes all 194 Member States of the WHO.

public health risks, and which avoid unnecessary interference with international traffic and trade.” Implementation of the IHR is the joint responsibility of 196 States Parties and WHO.

5. Since the IHR came into force in June 2007, many public health events have tested its operational mechanisms and overall strategic framework.¹ On balance, the Regulations have proved a workable approach for the early detection of, and effective response to, public health events of potential international concern. Demonstrable progress on implementation of the IHR has been made in the establishment of a global 24/7 network of National IHR Focal Points (NFPs); increased transparency in reporting events by States Parties; more systematic use of public health early warning systems; better communication and collaboration between the animal and human health sectors; coordinated collective efforts of countries and partners to build core capacities; and improved regional and global coordination.

6. The influenza A H1N1 (2009) pandemic was the first major test of the revised IHR. In May 2010, the World Health Assembly determined that a first review of the functioning of the IHR would take place and that it would also assess the global response to the A H1N1 (2009) pandemic. The review concluded that although the IHR had improved global preparedness for public health emergencies, essential core capacities at national and local levels were far from fully operational. This, coupled with other serious deficiencies in global preparedness, left the world “... ill-prepared to respond to a severe influenza pandemic or any similarly global sustained and threatening public health emergency.”² The Ebola virus disease (EVD) epidemic in West Africa was the second major test of the revised IHR. Its severity and duration challenged the IHR in unprecedented ways. It has shone a bright light on just how ill-prepared and vulnerable the global community remains.

1.2 EBOLA AS A MAJOR TEST FOR PREPAREDNESS AND RESPONSE

7. The Ebola epidemic that began in West Africa in December 2013 was the most intense and prolonged epidemic of the disease ever recorded. As of 13 March 2016, there have been 28,603 confirmed, probable or suspect cases of EVD in Guinea, Liberia and Sierra Leone; 11,301 people in these three countries have died.³ Seven additional countries experienced small numbers of cases and deaths. During the Ebola epidemic, the reduction in access to healthcare services in the most affected countries also resulted in substantial increases in deaths due to other diseases; one analysis estimated that more than 10,000 additional deaths occurred due to malaria, HIV/AIDS and tuberculosis.⁴ The loss of life has been compounded by a significant economic impact in the three most affected

¹ Implementation of the International Health Regulations (2005). Responding to public health emergencies. Report by the Director-General. Geneva: World Health Organization; 2015 (A68/22) (http://apps.who.int/gb/ebwha/pdf_files/WHA68/A68_22-en.pdf).

² Implementation of the International Health Regulations (2005). Report of the Review Committee on the Functioning of the International Health Regulations (2005) in relation to Pandemic (H1N1) 2009. Report by the Director-General. Geneva: World Health Organization; 2011 (A64/10) (http://apps.who.int/gb/ebwha/pdf_files/WHA64/A64_10-en.pdf?ua=1).

³ Ebola Situation Report – 16 March 2016. Geneva: World Health Organization; 2016 (<http://apps.who.int/ebola/current-situation/ebola-situation-report-16-march-2016>).

⁴ Parpia AS, Ndeffo-Mbah ML, Wenzel NS, Galvani AP. Effects of response to 2014–2015 Ebola outbreak on deaths from malaria, HIV/AIDS, and tuberculosis, West Africa. *Emerg Infect Dis.* 2016;22:433-1. doi: <http://dx.doi.org/10.3201/eid2203.150977>.

countries; the World Bank Group estimated that the gross domestic product (GDP) loss for these countries was US\$ 2.2 billion.¹

8. This unprecedented event stretched national and global response capacities far beyond their limits, and revealed major weaknesses in disease detection and diagnosis, clinical response and infection control. Significant gaps in these capacities across the world contributed to the acceleration of the Global Health Security Agenda (GHSa)² launched in February 2014 and to the initiation of the Commission on a Global Health Risk Framework;³ both of which function to promote implementation of the IHR.

9. The response to the epidemic led to the involvement of an array of international and domestic civilian/humanitarian actors as well as foreign military forces from several countries.⁴ The first-ever United Nations (UN) emergency health mission – the UN Mission for Ebola Emergency Response (UNMEER) – was formed following the adoption of resolutions by the UN General Assembly and the Security Council. UNMEER was in operation between 19 September 2014 and 31 July 2015.

10. Several independent assessments of the shortcomings of the response to Ebola and proposals for reinforcing preparedness and response have been undertaken.^{5,6,7,8,9} The importance and urgency of a global strategy – the core of which are the IHR – to prepare for, and respond to, public health events and emergencies, as well as to strengthen health systems and capacities, has emerged as a consistent and fundamental finding from these reviews.

¹ World Bank Group Ebola Response Fact Sheet. Washington DC: The World Bank, February 2016 (<http://www.worldbank.org/en/topic/health/brief/world-bank-group-ebola-fact-sheet>).

² Heymann DL, Chen L, Takemi K, Fidler DP, Tappero JW, Thomas MJ, et al. Global health security: the wider lessons from the west Africa Ebola virus disease epidemic. *Lancet*. 2015;385:1884-1901. doi: [http://dx.doi.org/10.1016/S0140-6736\(15\)60858-3](http://dx.doi.org/10.1016/S0140-6736(15)60858-3).

³ Dzau VJ, Rodin J. Creating a Global Health Risk Framework. *N Engl J Med*. 2015;373:991-993.

⁴ University of Sydney. Saving Lives: The civil-military response to the 2014 Ebola outbreak in West Africa. Interim Report. Sydney: University of Sydney, 2015 (<http://sydney.edu.au/mbi/PDFs/saving-lives.pdf>).

⁵ Report of the Ebola Interim Assessment Panel. Geneva: World Health Organization; July 2015 (<http://www.who.int/csr/resources/publications/ebola/report-by-panel.pdf>).

⁶ Moon S, Sridhar D, Pate MA, Jha AK, Clinton C, Delaunay S, et al. Will Ebola change the game? Ten essential reforms before the next pandemic. The report of the Harvard-LSHTM Independent Panel on the Global Response to Ebola. *Lancet*. 2015;386:2204-21. doi: [http://dx.doi.org/10.1016/S0140-6736\(15\)00946-0](http://dx.doi.org/10.1016/S0140-6736(15)00946-0).

⁷ Gostin LO, DeBartolo MC, Friedman EA. The International Health Regulations 10 years on: the governing framework for global health security. *Lancet*. 2015;386:2222-6. doi: [http://dx.doi.org/10.1016/S0140-6736\(15\)00948-4](http://dx.doi.org/10.1016/S0140-6736(15)00948-4).

⁸ Protecting Humanity from Future Health Crises. Report of the High-level Panel on the Global Response to Health Crises. 25 January 2016. (http://www.un.org/News/dh/infocus/HLP/2016-02-05_Final_Report_Global_Response_to_Health_Crises.pdf).

⁹ Commission on a Global Health Risk Framework for the Future. The neglected dimension of global security: a framework to counter infectious disease crises. Washington, DC. National Academy of Medicine, January 2016 (<http://nam.edu/wp-content/uploads/2016/01/Neglected-Dimension-of-Global-Security.pdf>).

1.3 THE MANDATE AND THE REPORT OF THIS REVIEW COMMITTEE

11. Decision WHA68 (10) of the Sixty-eighth World Health Assembly set forth the mandate of the Review Committee as follows:¹

1. “Requested the Director-General to establish a Review Committee under the International Health Regulations (2005) to examine the role of the International Health Regulations (2005) in the Ebola outbreak and response, with the following objectives:

(a) to assess the effectiveness of the International Health Regulations (2005) with regard to the prevention, preparedness and response to the Ebola outbreak, with a particular focus on notification and related incentives, temporary recommendations, additional measures, declaration of a public health emergency of international concern, national core capacities, and context and links to the Emergency Response Framework² and other humanitarian responsibilities of the Organization;

(b) to assess the status of implementation of recommendations from the previous Review Committee in 2011³ and related impact on the current Ebola outbreak;

(c) to recommend steps to improve the functioning, transparency, effectiveness and efficiency of the International Health Regulations (2005), including WHO response, and to strengthen preparedness and response for future emergencies with health consequences, with proposed timelines for any such steps;

2. Requested the Director-General to convene the International Health Regulations (2005) Review Committee as provided by the International Health Regulations (2005) in August 2015, and to report on its progress to the Sixty-ninth World Health Assembly in May 2016.”

12. This report sets forth the Review Committee’s findings and recommendations to improve the implementation of the IHR and better secure our collective preparedness and response against future global health threats.⁴

¹ Resolution WHA68(10). 2014 Ebola virus disease outbreak and follow-up to the Special Session of the Executive Board on Ebola. In: Sixty-eighth World Health Assembly, Geneva: World Health Organization; 2015 (A68/DIV./3; paragraphs 3–5).

² Resolution WHA65.20. In: Sixty-fifth World Health Assembly, Geneva: World Health Organization; 2012.

³ Implementation of the International Health Regulations (2005). Report of the Review Committee on the Functioning of the International Health Regulations (2005) in relation to Pandemic (H1N1) 2009. Report by the Director-General. Geneva: World Health Organization; 2011 (A64/10) (http://apps.who.int/gb/ebwha/pdf_files/WHA64/A64_10-en.pdf?ua=1).

⁴ Names and affiliations of Review Committee members are listed in Appendix I.

2. METHODS OF WORK

13. The Review Committee held meetings in August, October, November and December 2015, and in February and March 2016 at WHO's headquarters in Geneva. These meetings were supplemented by more than a dozen teleconferences and by a visit of some members of the Committee to the WHO Regional Office for Africa (AFRO). A portion of each meeting was open to States Parties, the UN and its specialized agencies and other relevant intergovernmental organizations (IGOs) and nongovernmental organizations (NGOs) in official relations with WHO. During each of these meetings, the Review Committee held deliberative sessions, open only to members of the Committee and the WHO IHR Review Committee Secretariat.

14. The methods of work of the Review Committee are detailed in Appendix II and summarised briefly as follows. The Committee began its work by conducting a systematic analysis of the IHR, highlighting areas considered not to be functioning effectively and possible reasons for this. As specified in its Terms of Reference, the Committee assessed the effectiveness of the IHR as related to the Ebola epidemic and the status of implementation of recommendations of the previous IHR Review Committee in 2011. The Committee decided to review the status of implementation of recommendations from the 2014 IHR Review Committee on Second Extensions for Establishing National Public Health Capacities and on IHR Implementation¹ as these recommendations built on the 2011 recommendations. The Committee also addressed the recommendations directed to it by the Ebola Interim Assessment Panel² and the UN High-level Panel on the Global Response to Health Crises.³

15. The Committee interviewed or received written inputs from nearly 90 informants; reviewed key documents and reports including the findings of other independent assessments of the global response to Ebola published in 2015–2016; examined initiatives underway to protect global public health; and sought information from the WHO Secretariat and others at headquarters, as well as WHO regional and country offices. The Review Committee actively sought input from States Parties and representatives of the UN and its specialized agencies, and other relevant IGOs and NGOs in official relations with WHO through both interviews and an electronic open consultation process.

16. The Executive Board was briefed on the Review Committee's progress in January 2016. States Parties were presented with the Review Committee's draft recommendations at an open session of the March 2016 meeting.

¹ Implementation of the International Health Regulations (2005). Report of the Review Committee on Second Extensions for Establishing National Public Health Capacities and on IHR Implementation. Geneva: World Health Organization; 2015 (A68/22 Add.1) (http://apps.who.int/gb/ebwha/pdf_files/WHA68/A68_22Add1-en.pdf).

² Report of the Ebola Interim Assessment Panel. Geneva: World Health Organization; July 2015 (<http://www.who.int/csr/resources/publications/ebola/report-by-panel.pdf>).

³ Protecting Humanity from Future Health Crises. Report of the High-level Panel on the Global Response to Health Crises. 25 January 2016. (http://www.un.org/News/dh/infocus/HLP/2016-02-05_Final_Report_Global_Response_to_Health_Crises.pdf).

3. ASSESSMENT

17. This chapter is broadly organized to address the first two objectives of the Review Committee's mandate: to assess the effectiveness of the IHR with regard to the Ebola epidemic and to assess the status of the implementation of recommendations from the 2011 IHR Review Committee and the related impact on the Ebola epidemic.

18. The first objective, assessing the functioning of the IHR, is considered from the perspective of States Parties (section 3.1) and the WHO Secretariat (section 3.2). This is followed by an examination of progress made in implementing the 2011 IHR Review Committee recommendations (Section 3.3); an analysis of the status of the 2014 IHR Review Committee is also included in this section. The chapter concludes with a summary assessment of the Committee's findings (Section 3.4) and sets the stage for the Recommendations that follow in Chapter 4.

3.1 THE EFFECTIVENESS OF IHR IMPLEMENTATION IN THE EBOLA EPIDEMIC: THE ROLE OF STATES PARTIES

3.1.1. Country preparedness: IHR core capacities

19. The IHR obliges all States Parties to establish and maintain core capacities for surveillance, risk assessment, reporting and response to public health risks and emergencies. These capacities need to be operational at national and subnational levels as well as at designated points of entry and exit (Fig. 1).

20. The Regulations specified that all States Parties were to have core capacities in place by June 2012; however, by this date, only 42 (21%) of 193¹ States Parties declared that they had met their minimum core capacity requirements.

21. States were allowed to request a two-year extension of the initial deadline to June 2014 and, in exceptional circumstances, a second two-year extension to June 2016. Although the number of countries with minimum core capacities rose to 65 by 18 November 2015, many countries clearly have a long way to go. Of 193 States Parties, 84 (43%) requested and have been granted an additional two-year extension of the implementation deadline (68 States Parties have submitted a plan for implementation); and 44 (22%) have not communicated their intentions to WHO.

¹ An additional three States became Parties to the IHR after June 2007 and have different timeframes for implementation of core capacities and are excluded from these analyses.

Box 1. WHO IHR Monitoring Framework Components, 2015

Core capacities

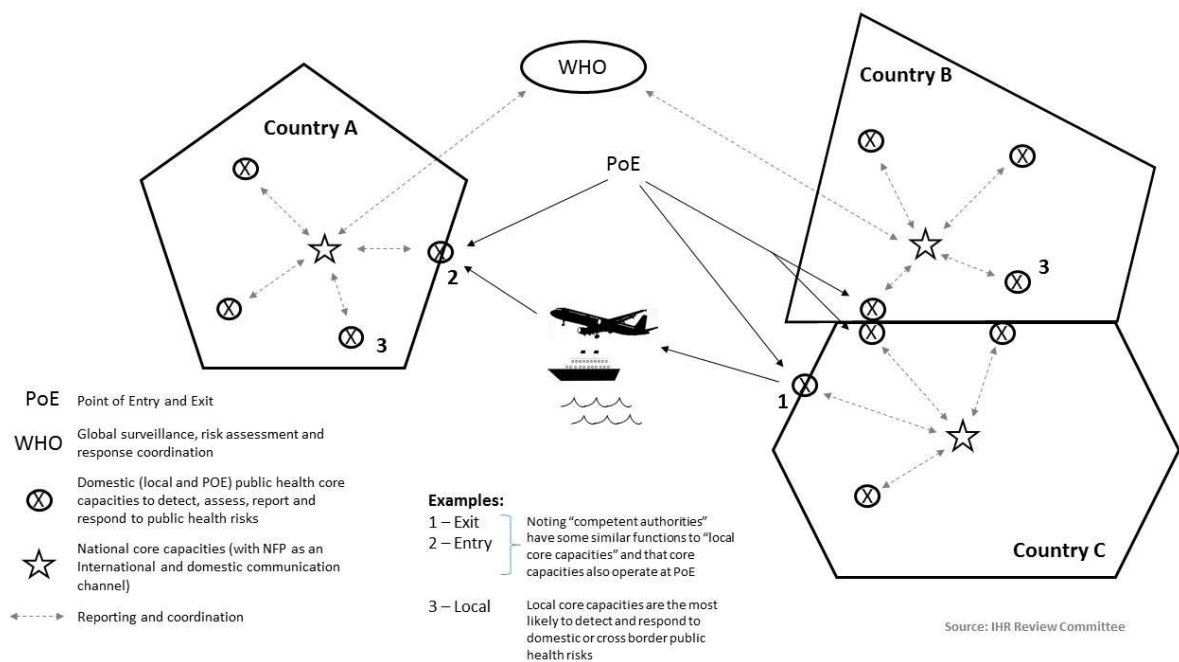
- National legislation, policy and financing
- Coordination and National Focal Point communications
- Surveillance
- Response
- Preparedness
- Risk communication
- Human resource capacity
- Laboratory

Points of Entry

IHR-relevant hazards

- Zoonotic events
- Food safety
- Chemical events
- Radiation emergencies

Fig. 1. Containment of disease spread through core capacities at local and national levels and at Points of Entry and Exit, under the IHR (2005)



Legend to Fig. 1: The IHR (1969) focused on health measures for selected diseases at Points of Entry. The IHR (2005) address a broader concept of public health risk and require States Parties to establish and maintain specific essential public health functions at both Points of Entry and Points of Exit. Core capacities for surveillance, risk assessment, reporting, and response must operate at the local level within countries, at the national level and at Points of Entry and Exit. Local capacities (e.g. response measures) are coordinated at the country level where authorities maintain formal communications with WHO (and other States Parties) via the NFPs. These multiple layers of public health capability work in conjunction to prevent or mitigate national and international disease spread.

22. Many observers have interpreted high rates of non-compliance as a failure of the State or WHO, resulting from a lack of political or institutional will. For many countries, however, non-compliance often results from a severe lack of financial, human and logistical resources as well as a lack of understanding and awareness of the IHR.

23. This is a critical point in understanding how to increase core capacity implementation: the primary reason that the Ebola epidemic spun out of control was not the sole lack of IHR implementation, but a range of other factors, including a lack of adequate healthcare systems, shortages of trained healthcare personnel, poor transport and communications infrastructure, low levels of literacy, and a lack of engagement with the community. Extreme financial shortages can mean that countries cannot even provide basic primary health care, and are therefore highly unlikely to be able to invest in outbreak alert systems.

24. Conflict, migration and mobile populations are additional major challenges for IHR implementation. Local and national capacities for surveillance, alert and response may be weak or absent in geographical areas where governments do not exercise full authority. For mobile or refugee populations, especially, the interruption of basic public health infrastructure and services lead to an increased risk for outbreaks of infectious diseases. These are challenges to implementation of core capacities that require special attention.

25. Ensuring that more countries have basic core capacities will require a more realistic financing plan that accommodates countries of different socio-political and economic capacities, prioritization of core capacity strengthening, and maximizing opportunities to build IHR capacities within other programmes, such as those for health system strengthening.

3.1.1.1 Independent assessment of core capacities

26. States Parties are required to report annually on their establishment and maintenance of core capacities. This requirement serves several purposes: it should motivate States to move towards compliance because they will be required to transparently report their progress, or lack thereof, towards compliance; it should give confidence to other States that appropriate capacities are in place; it should provide an accurate picture of areas where public health threats might arise unseen or late, or where control would be difficult; and it should assist in detailed planning of the global response to a public health emergency.

27. Following the entry into force of the IHR in 2007, WHO developed a monitoring framework.¹ It is structured as a questionnaire with a checklist of indicators that States Parties use to self-assess their progress in implementing the required capacities; the components of the 2015 monitoring questionnaire for 2015 are listed in Box 1.² Capacity scores for each country, stratified by WHO region, are reported to the World Health Assembly each year.

28. Self-assessment of core capacities was the approach adopted in the first few years after the IHR came into force; many countries were in the early stages of building and strengthening capacities and the Regulations were new and untested. However, exclusive use of this approach is no longer appropriate; it does not always yield reliable and accurate information and may undermine the confidence of States Parties in the capacities of other States.

29. The IHR Review Committee on Second Extensions for Establishing National Public Health Capacities and on IHR Implementation noted in November 2014 that "... it is essential to have better information on the robustness of States Parties' core capacities" and recommended that the annual self-assessment process be strengthened and supplemented with external evaluations.³ Interviews that the Review Committee conducted with informants, interventions from States Parties and other entities, and every review of the global response to the Ebola epidemic have emphasised that over-reliance on self-assessment has led to incomplete and unreliable reporting of core capacities.

30. The experience of the WHO Regional Office for the Eastern Mediterranean (EMRO) suggests that independent assessments are a viable option. EMRO conducted independent evaluations in all its States Parties (with the exception of Oman and the United Arab Emirates) in late 2014 to assess national preparedness and response to the Ebola epidemic.⁴ These assessments revealed that many countries, that had previously reported to WHO that they met the obligations for core capacities under the IHR, in fact had major gaps in readiness for a health emergency such as Ebola. Crucially, the independent evaluations demonstrated a significant distance between a country's own assessment of its functioning and the reality. Key areas of insufficiency included emergency incident command systems, national infection prevention and control programmes, surveillance systems capable of detecting threats in real time and the ability to report those risks to the appropriate entities, diagnostic capacity to quickly identify emerging pathogens, and risk communication capability.

31. Despite these unfavourable findings, countries welcomed this additional level of insight, especially since EMRO followed up the assessments with a 90-day plan of financial and technical support to plug urgent gaps. Moreover, as a result of these assessments, and with strong country support, EMRO passed a resolution in October 2015 to establish an independent regional assessment commission of experts from States Parties and WHO to evaluate implementation and advise countries

¹ Hardiman MC. World Health Organization perspective on implementation of International Health Regulations. *Emerg Infect Dis.* 2012;18:1041-6. doi: <http://dx.doi.org/10.3201/eid1807.120395>.

² International Health Regulations (2005). IHR Core Capacity Monitoring Framework: questionnaire for monitoring progression of the implementation of IHR capacities in States Parties. Geneva: World Health Organization; 2015 (WHO/HSE/GCR/2015.8) (http://apps.who.int/iris/bitstream/10665/163737/1/WHO_HSE_GCR_2015.8_eng.pdf?ua=1).

³ Implementation of the International Health Regulations (2005). Report of the Review Committee on Second Extensions for Establishing National Public Health Capacities and on IHR Implementation. Geneva: World Health Organization; 2015 (A68/22 Add.1) (http://apps.who.int/gb/ebwha/pdf_files/WHA68/A68_22Add1-en.pdf).

⁴ WHO. Implementation of the IHR 2005 in the Region with focus on Ebola virus disease. *EMHJ.* 2015;21:773-5. (<http://www.emro.who.int/emhj-volume-21-2015/volume-21-issue-10/implementation-of-the-ih-2005-in-the-region-with-focus-on-ebola-virus-disease.html>).

on specific issues.¹ The WHO Regional Offices for the Western Pacific (WPRO) and for South-East Asia (SEARO) have undertaken a more limited independent evaluation of progress under the bi-regional Asia Pacific Strategy for Emerging Diseases (APSED), which provides a framework to support compliance with the IHR.²

32. The WHO Secretariat has developed a new framework for monitoring, assessing and reporting core capacities after 2016, as recommended by the IHR Review Committee on Second Extensions for Establishing National Public Health Capacities and on IHR Implementation.³ The framework has four components: a self-administered assessment tool; after-action review; simulation exercises; and independent, external evaluation for which the Secretariat has developed an IHR Joint External Evaluation Tool. All six WHO Regional Committees have reviewed and support the new framework, which will be submitted to the Sixty-ninth World Health Assembly in May 2016.⁴

33. The Review Committee notes that this new approach represents a paradigm shift, from viewing attainment of core capacities as a finished task to be met no later than 2016, to maintaining and strengthening capacities as an ongoing quality improvement process. It should not be assumed that IHR core capacities, once achieved, will be maintained indefinitely. Conflict, natural disasters or re-prioritisation of resources, for example, may result in previously compliant States slipping into non-compliance.

3.1.1.2 National IHR Focal Points

34. NFPs are critical to the implementation of the IHR as they are the designated point of contact between WHO and States Parties (Article 4). WHO established a secure web-based platform – the IHR Event Information Site (EIS) – for communications with NFPs. WHO and NFPs use the EIS to provide information and alerts about health events with possible global implications.

35. Although the IHR define the role, functions, responsibilities and operational requirements of the NFP, the State Party defines the exact structure, organization and location of its NFP. There is tremendous variability in how States have approached this. NFPs are often misinterpreted as a single individual rather than a function of States Parties' governments. Of 196 NFPs, 194 are located in health-related structures; 83% are hosted by the Ministry of Health or equivalent; and 15% are national centers or institutes. Although it is appropriate that IHR implementation is led by those in public health, the location of the NFP can often result in a lack of intersectoral collaboration with other key sectors such as food or agriculture, and poor understanding of the IHR in non-health sectors.

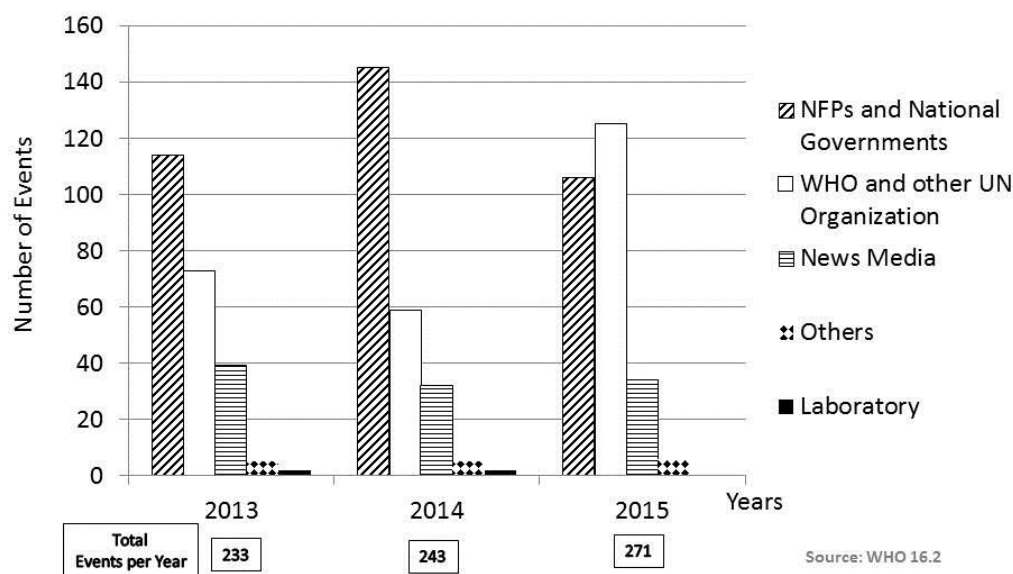
¹ WHO Regional Committee for the Eastern Mediterranean_resolution EM/RC62/R.3. Assessment and monitoring of the implementation of the International Health Regulations (2005). Cairo: WHO Regional Office for the Eastern Mediterranean; 2015 (http://applications.emro.who.int/docs/RC62_Resolutions_2015_R3_16576_EN.pdf?ua=1).

² Asia Pacific Strategy for Emerging Diseases: 2010. Geneva: WHO Regional Office for the Western Pacific and WHO Regional Office for South-East Asia; 2010 (http://www.wpro.who.int/emerging_diseases/documents/docs/ASPED_2010.pdf?ua=1).

³ Development, monitoring and evaluation of functional core capacity for implementing the International Health Regulations (2005): Concept note. Geneva: World Health Organization; 2015 (http://www.who.int/ihr/publications/concept_note_201507/en/).

⁴ Implementation of the International Health Regulations (2005). Report to the Director-General (EB138/19). Geneva: World Health Organization; 2016 (http://apps.who.int/gb/ebwha/pdf_files/EB138/B138_19-en.pdf).

Fig. 2. Events documented in the WHO Event Management System by initial source of information, 2013–2015



36. Informants from States Parties and WHO regional offices and headquarters consistently reported that many NFPs lack the authority, capacity, training and resources to effectively carry out their mandate as stated in Article 4. Although legislation to support IHR activities may not be explicitly required under the State Party's legal system, it can help facilitate their performance, including that of the NFP.¹ Experience during the 2009 H1N1 pandemic and the Ebola epidemic has shown that States need to position NFPs at a level that ensures both technical and political capacities to apply the IHR, including access to other sectors and the political system, when necessary, at the highest level. Lack of political and government authority can lead to delays in information-sharing, notification and other reporting, which are the core functions of the NFPs under the IHR.

37. While recognising the valuable role they play, both the 2011² and 2014³ IHR Review Committees have cited the lack of resources and authority among NFPs as critical shortcomings in the

¹ International Health Regulations (2005). Toolkit for implementation in national legislation. The National IHR Focal Point. Geneva: World Health Organization; 2009 (WHO/HSE/IHR/2009.4) (http://www.who.int/ihr/NFP_Toolkit.pdf).

² Implementation of the International Health Regulations (2005). Report of the Review Committee on the Functioning of the International Health Regulations (2005) in relation to Pandemic (H1N1) 2009. Report by the Director-General. Geneva: World Health Organization; 2011 (A64/10) (http://apps.who.int/gb/ebwha/pdf_files/WHA64/A64_10-en.pdf?ua=1).

³ Implementation of the International Health Regulations (2005). Report of the Review Committee on Second Extensions for Establishing National Public Health Capacities and on IHR Implementation. Geneva: World Health Organization; 2015 (A68/22 Add.1) (http://apps.who.int/gb/ebwha/pdf_files/WHA68/A68_22Add1-en.pdf).

effective implementation of the IHR. Establishing operational relationships between NFPs and national security or national disaster risk reduction focal points will be of benefit.

38. Although much could be improved about NFP positioning, NFPs remain an element of the Regulations that functions well. They are an important source of early warning of events captured in WHO's internal web-based information management tool – the Event Management System (EMS) – (Fig. 2) and are critical in WHO's response to an outbreak.

3.1.1.3 Strengthening IHR core capacities through prioritization and linkages with other frameworks

39. For most countries, strengthening all IHR core capacities is a financial and human resource challenge. Since most States Parties have not yet established minimum core capacities, it is clear that prioritization of IHR core capacity strengthening is required. This is not specifically addressed in the IHR, since it was deemed that countries would define their own priorities.

40. ASPED has developed a practical approach for prioritising the strengthening of core capacities, while maintaining a broad focus on generic public health capacities. Countries are encouraged to prioritise eight areas: (i) surveillance, risk assessment and response; (ii) zoonoses and collaboration with the animal health sector; (iii) laboratories; (iv) infection prevention and control; (v) risk communication; (vi) regional planning and preparedness; (vii) generic public health emergency capability; and (viii) monitoring and evaluation to inform/prioritise ongoing capacity building and facilitate access to funding and technical support.¹

41. Although they are “centre-stage”, the IHR were never envisaged as the only framework to facilitate capacity building. The “One Health” approach, for example, emphasizes that the health of humans is inextricably linked to the health of animals and the environment at local, national and global levels. The prevention and control of zoonoses is a shared responsibility of human and veterinary public health authorities. WHO, in collaboration with the World Organisation for Animal Health (OIE) and the World Bank, has developed a framework for global health governance at the human–animal interface.² Other plans and frameworks, e.g., pandemic preparedness plans, the Pandemic Influenza Preparedness (PIP) Framework,³ and national emergency response plans offer synergistic approaches for strengthening countries' prevention, response and control of public health threats. Nigeria's rapid containment of Ebola, for example, has been credited in part to polio-eradication investments in infrastructure, operations, staffing, and basic public health fundamentals.⁴

¹ Asia Pacific Strategy for Emerging Diseases: 2010. Geneva: WHO Regional Office for the Western Pacific and WHO Regional Office for South-East Asia; 2010 (http://www.wpro.who.int/emerging_diseases/documents/docs/ASPED_2010.pdf?ua=1).

² WHO-OIE Operational Framework for good governance at the human-animal interface: Bridging WHO and OIE tools for the assessment of national capacities. Geneva: World Health Organization and Rome, World Organisation for Animal Health; 2014 (http://www.oie.int/fileadmin/Home/fr/Media_Center/docs/pdf/WHO_OIE_Operational_Framework_Final2.pdf).

³ Pandemic influenza preparedness Framework for the sharing of influenza viruses and access to vaccines and other benefits. Geneva: World Health Organization; 2011 (http://apps.who.int/iris/bitstream/10665/44796/1/9789241503082_eng.pdf).

⁴ Centers for Disease Control and Prevention. Ebola virus disease outbreak – Nigeria, July–September 2014. *MMWR*. 2014; 63:867-72.

However, such capacities can be threatened when funding for targeted programmes such as for polio eradication is withdrawn.

3.1.1.4 Optimizing the building of IHR core capacities within health system strengthening

42. Weak health systems contributed to the undetected and later unchecked spread of Ebola in the post-conflict states of Liberia, Sierra Leone and Guinea. Many other countries do not have a sufficient number of functioning clinical facilities and trained staff, robust programmes for infection control, and epidemiological and laboratory surveillance and reporting systems. In these same settings, basic infrastructure, such as safe running water, reliable electricity and roads, is often lacking as well.¹ Given the high rates of transmission of Ebola virus in healthcare settings, the Committee noted the need to raise the standards of infection prevention and control in medical units in order to mitigate the spread of infection in healthcare settings. Guidance on the management of isolation units and quarantine facilities to prevent the inadvertent spread of disease is also necessary.

43. The IHR are largely silent on health services and systems during public health events, yet without these, effective responses are barely possible. Strengthening IHR core capacities is intrinsically linked to strengthening of health systems. This was one of the key themes to emerge from the high-level partner and stakeholder meeting on Building Health Security Beyond Ebola convened by WHO and the government of South Africa in Cape Town in July 2015.² Health system strengthening, including safe, essential treatment services (particularly primary health care), workforce development, health information systems and building management and governance capability, is often the most effective way to promote frontline IHR core capacities.

44. An increased focus on IHR core capacities as part of health system strengthening is likely to occur within the context of wider progress towards addressing the Sustainable Development Goals. Universal health coverage and integrated health systems underpin all of the Sustainable Development Goals.³ One of the targets of Sustainable Development Goal 3 on health – Ensure healthy lives and promote the well-being for all at all ages – speaks directly to the need to build IHR core capacities, namely “Strengthen the capacity of all countries, in particular developing countries, for early warning, risk reduction and management of national and global health risks.”⁴ How this is to be achieved in conflict-affected areas not under the control of States Parties remains undefined, however.

45. International development partners may view IHR core capacities as another “vertical” programme, weakly related to health systems strengthening. Implementation of the IHR, however, can be a concrete way to strengthen health systems, and stronger health systems, in turn, will support the implementation of the IHR. Involving international development partners in annual reviews of States Parties’ progress in implementing the IHR can help foster this idea.

¹ Executive Board Special Session on Ebola. Building resilient health systems in Ebola-affected countries. Geneva: World Health Organization; 2015 (EB136/INF./5) (http://apps.who.int/gb/ebwha/pdf_files/EBSS3/EBSS3_INF2-en.pdf).

² Implementation of the International Health Regulations (2005). Report by the Director-General. Geneva: World Health Organization; 2016 (EB138/19) (http://apps.who.int/gb/ebwha/pdf_files/EB138/B138_19-en.pdf).

³ Health in the 2030 Agenda for Sustainable Development. Report by the Secretariat. Geneva: World Health Organization; 2015 (EB138/14) (http://apps.who.int/gb/ebwha/pdf_files/EB138/B138_14-en.pdf).

⁴ *Ibid.*

3.1.1.5 Moving beyond the health sector to engage communities

46. Civil society can be represented by key stakeholders within communities such as community leaders, traditional groups, and religious leaders. Informants stressed that engagement with NGOs and key community leaders are of paramount importance for early detection of and response to public health events. The global polio eradication initiative, for example, relies on informal and non-traditional approaches for surveillance and outbreak response capacities in areas affected by conflict or with weak health systems. Community-based pharmacists, traditional healers and clerics play an important role in the detection and reporting of cases in such settings. Formalized arrangements for enhanced cooperation between WHO and IGOs and other humanitarian organizations could facilitate early identification and notification of public health events, particularly in areas where the State's mandate is weak, and NGOs or IGOs are a key source of data. Community workers and volunteers need to be well trained, however, and receive the right tools and support to help carry out preparedness and response activities, such as surveillance.

47. During the Ebola response, difficulties in engaging communities resulted in distrust of clinical and public health workers, resistance to prevention and control measures such as patient isolation and safe burial practices, and stigmatization of patients. Médecins Sans Frontières (MSF) and other organisations effectively partnered with local communities to educate the public and to trace contacts.¹ Anthropologists also had a critical role in shaping a socially and culturally appropriate response in the Ebola epidemic; in future responses, the use of anthropologists should be given serious consideration.

48. Many informants emphasized the importance of involving civil society organizations (CSOs) in preparedness planning for pandemics and other acute public health events. In addition to their work on the ground, CSOs are critical observers of how WHO and others prepare for, and respond to, health emergencies.

3.1.1.6 Financing the implementation of IHR core capacities

49. In addition to the weakness related to self-assessment of core capacities, the Review Committee and informants from States Parties, all levels of WHO, and NGOs identified the lack of predictable and sustainable funding as the other main obstacle to implementation of the IHR.

50. Few data, however, are available to estimate the cost of implementing IHR core capacities in countries. One study estimated the one-time capital and operating costs for establishing from scratch and subsequently maintaining the IHR core capacities for a "generic" South-East Asia country of 60 million inhabitants as US\$ 79.3 million and US\$ 151.3–203.5 million per year, respectively.² These estimated costs were over and above the costs of developing and sustaining adequate essential health services. In another study, the World Bank estimated that the "funding needs to bring the major zoonotic disease prevention and control system in developing countries up to OIE and WHO

¹ Gostin LO, Friedman EA. A retrospective and prospective analysis of the west African Ebola virus disease epidemic: robust national health systems at the foundation and an empowered WHO at the apex. *Lancet*. 2015;385:1902-1909. doi: [http://dx.doi.org/10.1016/S0140-6736\(15\)60644-4](http://dx.doi.org/10.1016/S0140-6736(15)60644-4).

² Katz R, Hate V, Kornblet S, Fischer JE. Costing framework for International Health Regulations (2005). *Emerg Infect Dis* 2012;18:1121-7. Doi: 10.3201/eid1807.120191.

standards”¹ range from US\$ 1.9–3.4 billion per year for 60 low- and 79 middle-income countries;² these costs comprised the largest component of the Commission on a Global Health Risk Framework for the Future’s estimate that US\$ 4.5 billion per year is needed to enhance the global response to a future pandemic.³

51. The Ebola Interim Assessment Panel recommended that a prioritised and costed plan to develop core capacities in all States be prepared with financing to be done in partnership with the World Bank. In some countries, such costs can be met by domestic funding, provided that the necessary political will is in place. A strong country-relevant return on investment evidence will be needed to convince some governments of the value of investing domestic resources on IHR implementation.

52. While countries must take ownership of financing core capacities, for many countries, however, some form of external assistance is required. Possible sources of financial assistance to countries include States Parties, the World Bank, the regional development banks, development partners/agencies/organizations, philanthropic organizations, and the private sector. Leveraging of existing or new funding streams may be possible.^{4,5}

53. The Review Committee is encouraged by recent efforts, such as the World Bank’s Pandemic Emergency Facility (PEF),⁶ the July 2015 Cape Town meeting⁷ and the October 2015 G7 meeting in Berlin,⁸ to help garner much needed financial support to strengthen health systems and IHR core capacities. In addition, the GHSA’s expanding partnership of nearly 50 countries has resulted in significant financial and technical resources to assist countries. WHO could act as a broker to bring together development funders and low-resource countries and encourage bilateral cooperation between States.

54. Lessons regarding the financing of country needs can be drawn from the experiences of global health initiatives such as the Gavi Alliance and the Global Fund to Fight AIDS, Tuberculosis and Malaria. These initiatives employ results-based financing, i.e. funding based on meeting key indicators, as well as co-financing of domestic and external resources.

¹ Specific tasks identified for prevention and control in the human health sector requiring funding included: surveillance and early warning systems; diagnostic laboratory services; investigation and rapid response; and vaccination and hygiene programmes, as well as other unspecified general activities.

² People, pathogens and our planet: volume 2 – the economies of One Health, Washington, DC, World Bank, 2012.

³ Commission on a Global Health Risk Framework for the Future. The neglected dimension of global security: a framework to counter infectious disease crises. Washington, DC. National Academy of Medicine, January 2016 (<http://nam.edu/wp-content/uploads/2016/01/Neglected-Dimension-of-Global-Security.pdf>).

⁴ Protecting Humanity from Future Health Crises. Report of the High-level Panel on the Global Response to Health Crises. 25 January 2016. (http://www.un.org/News/dh/infocus/HLP/2016-02-05_Final_Report_Global_Response_to_Health_Crises.pdf).

⁵ National Academies of Sciences, Engineering, and Medicine. Global health risk framework: Pandemic financing: Workshop summary. Washington, DC: The National Academies Press; 2016 (doi: 10.17226/21855, accessed 31 March 2016).

⁶ Pandemic Emergency Facility: Frequently asked questions. Washington, DC, World Bank, 2016 (<http://www.worldbank.org/en/topic/pandemics/brief/pandemic-emergency-facility-frequently-asked-questions>).

⁷ Implementation of the International Health Regulations (2005). Report by the Director-General. Geneva: World Health Organization; 2016 (EB138/19) (http://apps.who.int/gb/ebwha/pdf_files/EB138/B138_19-en.pdf).

⁸ Declaration of the G7 Health Ministers. In: *G7 Germany, Berlin, 8–9 October 2015*. (http://www.bmg.bund.de/fileadmin/dateien/Downloads/G/G7-Ges.Minister_2015/G7_Health_Ministers_Declaration_AMR_and_EBOLA.pdf).

3.1.2. Notification and data sharing

55. Early detection of public health events, followed by timely risk assessment and sharing of accurate information is critical during a major public health emergency.

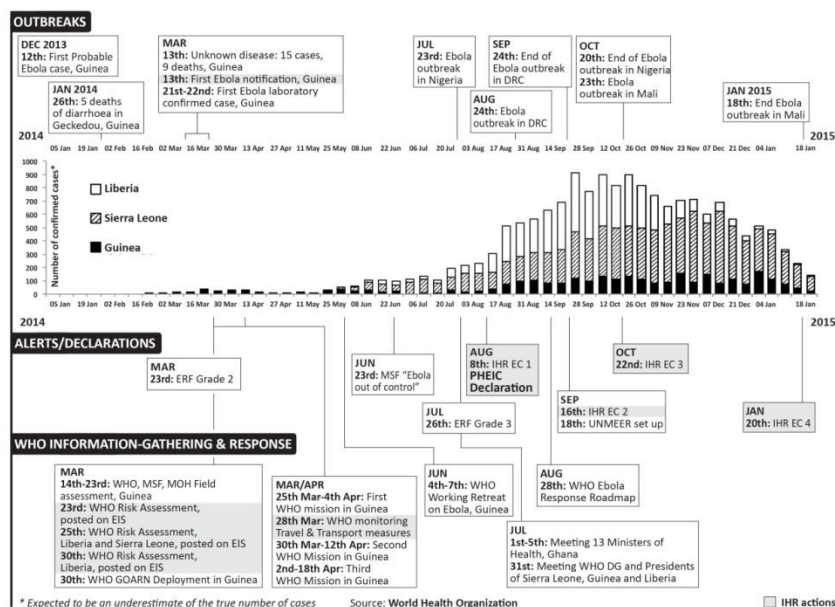
The Ebola epidemic: early detection, risk assessment and notification to WHO

56. The information WHO needs for its global surveillance and risk assessment functions comes through a variety of official and unofficial sources.

57. Under the IHR, States Parties are required to notify WHO of all events that are assessed as possibly constituting a public health emergency of international concern (PHEIC). These notifications must occur within 24 hours of assessment by the country; this prescribed timeframe poses challenges as the assessment might take days depending on the availability of technical information and resources and the capacity of the State Party, including the strength and seniority of the NFP. Concerns about negative economic or political consequences often play a role as well. Depending on the circumstances of the event, “Notification” (Article 6) can be seen as a significant step by States Parties. The IHR recognize this, and seek to address it by providing for “Consultations” (Article 8) and authorising WHO to follow-up on matters that have come to its attention from other, e.g. informal, sources (Article 9).

58. The Review Committee reviewed events related to the initial detection and reporting of Ebola in West Africa, as well subsequent risk assessment and response activities (Fig. 3). WHO has previously described the early evolution of the epidemic which is briefly summarized as follows.¹

Fig. 3. Timeline of Ebola epidemic-related events recorded in the WHO Event Management System, January 2014–January 2015



¹ One year into the Ebola epidemic: a deadly, tenacious and unforgiving virus. Geneva: World Health Organization; 2015 (<http://www.who.int/csr/disease/ebola/one-year-report/introduction/en/>).

59. Retrospective investigations determined that the index case for the Ebola epidemic occurred in a remote rural village in Guinea in late December 2013. By mid-January several family contacts of the case became ill and died. On 24 January, the head of the local health post informed district health officials of five deaths associated with severe diarrhoea, vomiting and dehydration. A team from MSF travelled to the area on 27 January. Samples from patients showed bacteria which supported a working diagnosis of cholera as the cause. Following the team's visit, other deaths occurred, but they were neither reported nor investigated. Cases continued to spread, including to the capital city, Conakry. However, they went undetected by local and national surveillance systems.

60. The first formal report entered into the EMS about this event of undetermined aetiology was from the WHO Country Office, Guinea, on 13 March 2014. This triggered the usual verification process including an investigation involving staff from the Ministry of Health, the regional office and MSF from 14 to 23 March. On 21 March, the Institut Pasteur in Lyon, France, a WHO Collaborating Centre, identified a filo virus as the causative agent which was subsequently confirmed as the Ebola Zaire virus on 22 March. National authorities alerted WHO that same day, at which time a total of 49 cases including 29 deaths (case fatality ratio: 59%) had been reported. On 23 March, WHO posted a preliminary risk assessment on the WHO secure website, EIS, and publically announced the rapidly evolving outbreak on its website. By 25 March, suspected cases in Liberia and Sierra Leone were being investigated with confirmation of Ebola in Liberia on 30 March; WHO posted updated risk assessments on EIS on each of these days. WHO's role in risk assessment during the Ebola outbreak in West Africa is discussed in section 3.2.

61. Weaknesses in IHR core capacities, at national and subnational levels, were certainly a key factor in the unchecked spread of Ebola. Delays in notification also likely played a part. The Ebola Interim Assessment Panel concluded that "clear disincentives for countries to report outbreaks quickly and transparently as they are often penalized by other countries as a result ... was a significant problem in the Ebola outbreak."¹ The Panel recommended that the Review Committee consider incentives for encouraging countries to notify public health risks to WHO, including innovative financing mechanisms such as insurance triggered to mitigate adverse economic effects.

62. Countries need to be motivated to detect, assess and officially notify events in a timely manner. There is scope, for example, to link timely notification with enhanced technical or financial assistance, or with assistance in accessing essential medicines, supplies, equipment and diagnostics. Establishing epidemic insurance, as envisaged in the World Bank's PEF, could potentially provide incentives for countries to report events. Such funds would need to be disbursed quickly, however, and consideration could be given to adjusting the cost of insurance premiums to a country's level of preparedness. While a global insurance mechanism could encourage notification, it could also discourage some countries from investing in IHR core capacity building (see also Appendix III).

Data and specimen sharing in the context of a public health emergency

63. Article 6 of the IHR obligates States Parties to continue to share "sufficiently detailed public health information" about the notified event including case definitions, laboratory results, number of cases and deaths, conditions affecting the spread of the disease and the health measures employed ...". It is important to emphasize that data and specimens belong to the country that generated it. Collaborative research is to be encouraged in the setting of public health emergencies. Regrettably, this did not always occur during the Ebola epidemic or in other high-profile events such as the 2009

¹ Report of the Ebola Interim Assessment Panel. Geneva: World Health Organization; July 2015. (<http://www.who.int/csr/resources/publications/ebola/report-by-panel.pdf>).

pandemic or MERS; worse yet are instances where scientists in affected countries are not appropriately credited for access to data and specimens.¹ Restricting wider dissemination of data and specimens, however, can result in missed opportunities for more enriched analyses and the development of effective diagnostics, drugs and vaccines.

64. In May 2015, WHO convened a “Summit on Ebola Research and Development” that also addressed data sharing and access to early information on epidemiology and results of clinical trials.² A WHO consultation was subsequently held in September 2015 on “Developing Global Norms for Sharing Data and Results during Public Health Emergencies.” It identified a number of issues with the potential to inhibit data and results sharing.³ There was consensus that “... the default option is that data should be shared (i.e. opt-out policy) to ensure that the knowledge generated becomes global public good.”⁴ Representatives from major biomedical journals who attended the meeting released a consensus statement affirming their stance that: (i) journals should not delay access to information relevant to public health emergencies; and (ii) pre-publication of key findings relevant to public health will not negatively impact subsequent journal publication. To facilitate rapid and wide distribution of information the WHO Bulletin has set up a Zika open page where it publishes papers under the PHEIC context, free for unrestricted use.⁵

65. Lessons learned from the research and development (R&D) response to the West African Ebola epidemic have contributed to the ongoing development of a comprehensive Blueprint for Research and Development Preparedness in the context of global public health infectious threats.⁶ The 2015 World Health Assembly requested that WHO develop a framework for improved “R&D preparedness” for diseases which are prone to result in epidemics and for which there are no, or insufficient, preventive or curative solutions. The Blueprint will also address how to create an environment for research and development that can be more effectively implemented during an outbreak. The current draft of the Blueprint focuses on research related to the development of vaccines and therapeutics; it is largely silent on research needed during an outbreak to improve understanding of the epidemiology and transmission of pathogens. WHO, in consultation with a range of partners and experts, is actively exploring new and innovative funding models for R&D preparedness and response.⁷ The Commission on a Global Health Risk Framework for the Future recommended “targeting incremental spending of \$1 billion per year for 15 years.”⁸

¹ Heymann DL, Liu J, Lillywhite L. Partnerships, not parachutists, for Zika research. *NEJM*, 2016, doi: 10.1056/NEJMp1602278.

² WHO Ebola Research and Development Summit. Meeting report. Geneva: World Health Organization; 2015 (WHO/EVD/Meet/HIS/15.3) (http://www.who.int/medicines/ebola-treatment/WHO_EVD_Meet_HIS_15.3_report/en/).

³ Developing global norms for sharing data and results during public health emergencies. Statement arising from a WHO Consultation held on 1–2 September 2015. Geneva: World Health Organization; 2015 (http://www.who.int/medicines/ebola-treatment/blueprint_phe_data-share-results/en/).

⁴ Developing Global Norms for Sharing Data and Results during Public Health Emergencies. WHO Consultation 1–2 September 2015: Summary and Key Conclusions. Geneva: World Health Organization; 2015 (http://www.who.int/medicines/ebola-treatment/data-sharing_phe/en/#).

⁵ Bulletin of the World Health Organization. Zika Open (http://www.who.int/bulletin/online_first/zika_open/en/).

⁶ An R&D blueprint for action to prevent epidemics. Accelerating R&D and saving lives. Geneva: World Health Organization; 2015 (http://www.who.int/csr/research-and-development/r_d_blueprint_brochure2015.pdf).

⁷ Outcome document: Financing of R&D Preparedness and Response to Epidemic Emergencies, October 29–30, 2015, Oslo, Norway. Geneva: World Health Organization; 2015 (<http://www.who.int/medicines/ebola-treatment/Outcome.pdf?ua=1>).

⁸ Commission on a Global Health Risk Framework for the Future. The neglected dimension of global security: a framework to counter infectious disease crises. Washington, DC. National Academy of Medicine, January 2016 (<http://nam.edu/wp-content/uploads/2016/01/Neglected-Dimension-of-Global-Security.pdf>).

66. The Review Committee noted that sharing of biological substances and diagnostic specimens, including associated genetic sequence data, has become much more important than what was envisaged when the IHR were adopted in 2005. Access to gene sequence data is often critical to the response to public health emergencies because it can facilitate the development of effective diagnostic tests, vaccines and drugs.

67. There are a number of international instruments and initiatives that relate to sharing of pathogens and related genetic sequence data. Elements of the PIP Framework Agreement¹ and the Nagoya Protocol² are of relevance to the IHR (Box 2), in particular the timely sharing of pathogens, genetic sequence data and other information in global public health emergencies and access by countries in need to relevant benefits. The Review Committee noted that at Member States' request during the 2016 Executive Board, the WHO Secretariat is preparing a paper on the public health implications of the Nagoya Protocol, for presentation at the 2017 Executive Board. The possible expansion of the PIP Framework to include infectious agents other than influenza warrants exploration. Sharing of benefits must underpin any increased access to, and sharing of, materials and data.

**Box 2. International instruments for the
sharing of pathogens and genetic sequence data**

Pandemic Influenza Preparedness (PIP) Framework

- Adopted in 2011 by 64th World Health Assembly
- Links sharing of influenza viruses with human pandemic potential with benefit-sharing for countries in need; e.g. access to pandemic antivirals and vaccines and assistance with capacity building in areas that are closely related to IHR core capacities
- Genetic sequence data (GSD) are covered under the Framework
- The 2016 Review of the PIP Framework to include GSD and its handling under the Framework as well as linkages to the Nagoya Protocol and to the IHR

Nagoya Protocol

- 2010 supplementary agreement to the 1992 Convention on Biological Diversity (CBD)
- Applies to genetic resources covered by the CBD, and to the benefits arising from their utilization
- Does not obligate countries to share pathogens
- Preamble notes that Parties are “mindful of the IHR (2005) and importance of ensuring access to human pathogens for public health preparedness and response purposes”.

¹ Pandemic influenza preparedness Framework for the sharing of influenza viruses and access to vaccines and other benefits. Geneva: World Health Organization; 2011 (http://apps.who.int/iris/bitstream/10665/44796/1/9789241503082_eng.pdf).

² Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity: Text and annex. Montreal, Secretariat of the Convention on Biological Diversity, 2011 (<https://www.cbd.int/abs/doc/protocol/nagoya-protocol-en.pdf>).

3.1.3 WHO temporary recommendations, additional measures and restrictions

68. Temporary recommendations are non-binding, time-limited, risk-specific advice issued by WHO in response to a PHEIC. They aim to prevent or reduce the international spread of disease while limiting unnecessary restrictions on trade and travel. Under the IHR (Article 43), States Parties have the right to introduce additional measures on international travel and trade, but these should not be “more restrictive or intrusive than reasonably available alternatives” and must be based on scientific principles and scientific evidence. If a country implements additional health measures that “significantly interfere with international traffic,” the State Party is required to notify WHO within 48 hours of their implementation and to provide WHO with the public health rationale and relevant scientific information for such measures. WHO may ask a country to reconsider the application of the additional measures, and States Parties implementing additional measures must review them within 3 months. In practice, very few countries inform WHO about the implementation of additional measures and few justify or reconsider enacted measures, even when asked to do so.¹ This shows an unacceptable disregard for their obligations under the IHR. Such measures can compound the social and economic consequences of disease outbreaks.

69. At each of its meetings beginning in August 2014, the IHR Emergency Committee on the Ebola outbreak in West Africa has advised the Director-General that there should be no general ban on international travel or trade. The Director-General has endorsed the Committee’s advice on this as well as other Ebola-related issues and issued them as Temporary Recommendations.

70. WHO systematically monitors reports of additional measures during major public health events and emergencies and actively investigates reports of measures that do not comply with WHO recommendations. Despite WHO’s recommendation against any ban on international travel or trade, a large number of non-affected countries, nonetheless, imposed travel measures and restrictions. As of 1 April 2015, there were 570 reports or rumours of such measures, involving 69 countries;² a sharp increase was associated with the 8 August 2014 declaration of a PHEIC (Fig. 4A).

¹ IHR and Ebola. Special Session of the Executive Board on the Ebola Emergency. Geneva: World Health Organization; 2015 (EB136/INF./7) (http://apps.who.int/gb/ebwha/pdf_files/EBSS3/EBSS3_INF4-en.pdf).

² 2014 Ebola virus outbreak: current context and challenges; stopping the epidemic; and preparedness in non-affected countries and regions. Report by the Secretariat. Geneva: World Health Organization; 2015 (A68/24) (http://apps.who.int/gb/ebwha/pdf_files/WHA68/A68_24-en.pdf).

WHO monitoring of Ebola-related travel and transport measures, March 2014–March 2015

Fig. 4A. WHO monitoring of Ebola-related travel and transport rumours

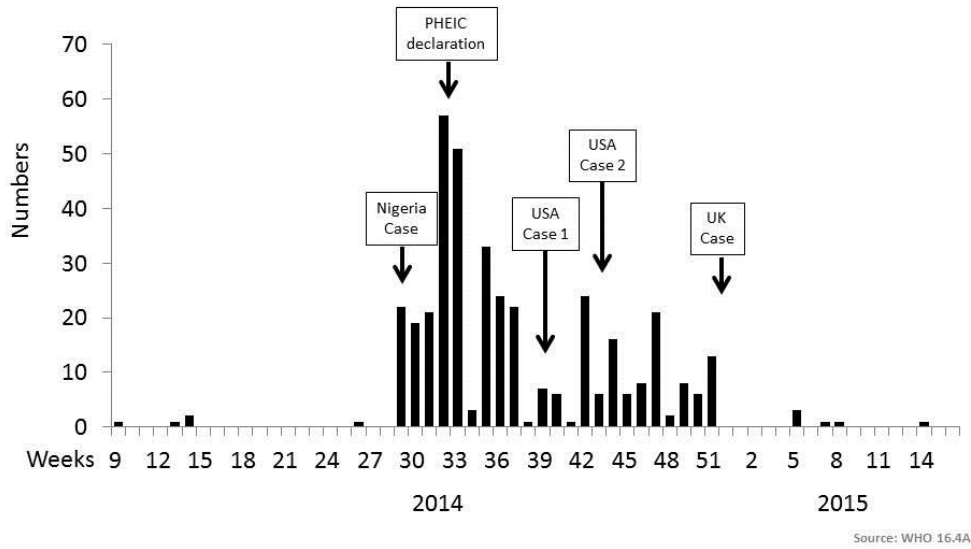
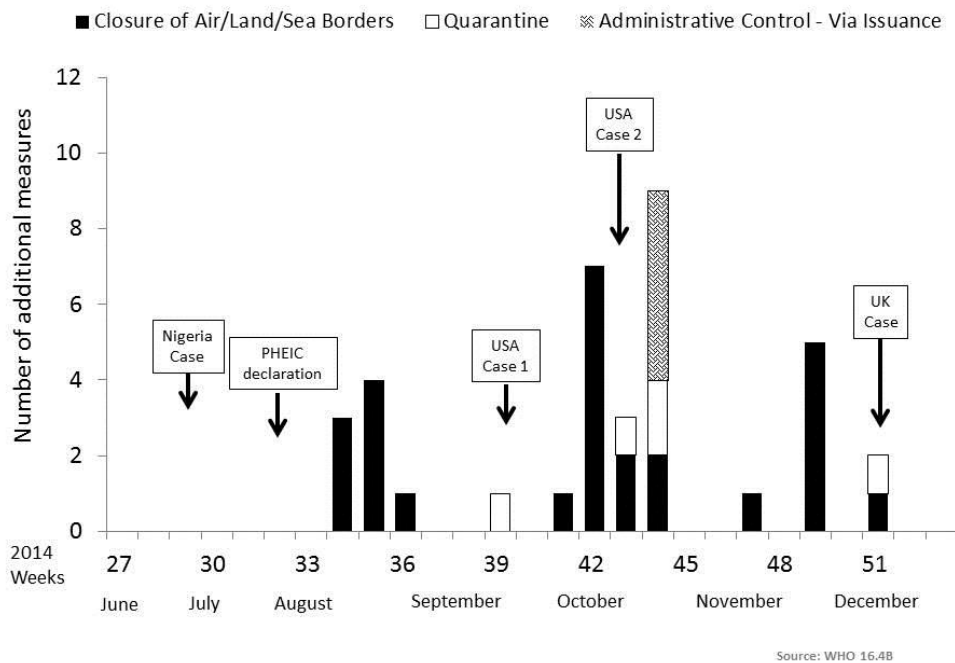


Fig. 4B. WHO monitoring of Ebola-related additional health measures interfering with travel and transport



71. WHO determined that more than 470 of these rumours about additional measures, including temperature checks, questionnaires, self-monitoring, screening methods and other *ad hoc* measures, did not require follow-up; such measures were assessed as not interfering with travel and transport. As recommended by the IHR Emergency Committee for the three most affected countries, exit screening is an appropriate public-health approach to help reduce disease spread. The Review Committee noted, however, that many States focused on entry screening as a way to protect their population from cross-border transmission, likely reflecting a political desire to be seen as “taking action.” Also, in some resource-poor countries without core capacities for surveillance and detection and weak health systems, entry screening was the only way to approach disease control.

72. Of the 100 rumours about additional measures that did require follow-up, 41 were perceived as interfering with travel and transport including compulsory quarantine of travellers, refusal of entry visas, cancellation of flights and closure of air, land or sea borders. Most of the countries that adopted such measures were in Africa and Central America; the majority were implemented in October 2014 (Fig. 4B). Although WHO sent requests for verification of additional measures perceived as excessive, only 40% of States Parties responded. Quarantine (a “health measure”) was rarely applied, whereas suspension of flights and visas were frequently applied. When WHO requested States Parties to provide a rationale, WHO was told that the measures were not “health-related” and hence did not fall under the IHR. This requires clarification.

73. Most of the additional health measures that were imposed on ports and vessels were not country-level decisions but decisions made on an *ad hoc* basis for specific ports or vessels. Some countries, for example, imposed a three month-quarantine on any ship that had visited a West African port.

74. The IHR Emergency Committee on Ebola advised the Director-General to call for the lifting of excessive measures and noted their negative impact on “impeding the recruitment and return of international responders” and their “harmful effects on local populations by increasing stigma and isolation, and by disrupting livelihoods and economies.”¹ Although some improvements have been observed, as of 18 December 2015, 34 countries continued to enact disproportionate measures.²

75. Transport was mostly disrupted by airline flight cancellations to and from affected countries. The Secretariat reported that nine airlines discontinued service for some period of time during the height of the epidemic and not all have resumed service. The Review Committee explored this in more detail and interviewed representatives of airlines that did and did not suspend flights to West Africa, commercial companies that provide health services overseas, and relevant professional organizations and agencies. These interviews identified several issues. First, the lack of a centralized, clear and efficient communication channel between relevant travel and transport entities and public health authorities resulted in inconsistent, inappropriate and delayed information/guidance. Second, non-affected countries instituted multiple and variable restrictions or requirements such as specific entry requirements for passengers and the reading of on-board notices. One informant reported that 20 different requirements were instituted during a two-week period and most were not consistent with

¹ Statement on the 4th meeting of the IHR Emergency Committee regarding the 2014 Ebola outbreak in West Africa. Geneva: World Health Organization; 21 January 2015 (<http://www.who.int/mediacentre/news/statements/2015/ebola-4th-ihc-meeting/en/>).

² WHO. Statement on the 8th meeting of the IHR Emergency Committee regarding the 2014 Ebola outbreak in West Africa. Geneva: World Health Organization; 18 December 2015 (<http://www.who.int/mediacentre/news/statements/2015/ihc-ebola-8th-meeting/en/>).

WHO guidance. Restrictions related to recent travel to affected countries made rostering of operations and crew increasingly complex for both commercial and air ambulance providers. Third, airlines were unable to guarantee medical care either in-country or via aeromedical evacuation for crew and ground staff who developed routine but significant health problems. Fourth, some countries required authorization to overfly their territory or denied flights permission to land for refuelling or transit, even when no infected or exposed passengers were on board; this made evacuation of people with illnesses other than Ebola, e.g. malaria, gastroenteritis, appendicitis, very difficult. Fifth, in some instances, persons who appeared ill or febrile during exit screening were isolated in unhygienic conditions or with Ebola patients.

76. Informants suggested that a standing Task Force should be established and replace the current approach of constituting an event-specific *ad hoc* Travel and Transport Task Force, as was done for the Ebola epidemic.¹ The Task Force should be tasked with addressing the non-IHR reasons for the cessation of travel during the Ebola epidemic and making recommendations to enable commercial aircraft and ships to continue to operate during future outbreaks. It could then be reactivated when needed and be better positioned to facilitate response actions and communication messages quickly. It was also suggested that the current informal relationship between WHO and the International Civil Aviation Organization (ICAO) be formalised, and extended to the maritime equivalent, the International Maritime Organization (IMO). Informants noted that protection and regulation of the movement of patients across international borders is needed.

3.1.4 Improving States Parties' compliance with the IHR

77. The Review Committee considered what could be done to further “move the needle” on improving countries' compliance with the IHR. Sanctions would be inappropriate and of little value, however a number of other approaches are available to maximize compliance with the IHR.

78. One incentive-based approach is for WHO to provide or facilitate technical and financial support. Incentivizing compliance of countries through collaboration and support is a feature that the IHR share with a large number of other instruments and multilateral treaties. Innovative funding sources within the WHO context could improve implementation of the IHR. For example, a number of States Parties and the International Federation of Pharmaceutical Manufacturers pointed favourably to the PIP Framework. Under the PIP Framework, influenza vaccine, diagnostic and pharmaceutical manufacturers who use the WHO Global Influenza surveillance and Response System (GISRS) – a WHO-coordinated network of public health laboratories – pay an annual cash contribution to WHO. WHO uses the funds to strengthen influenza preparedness and response capacities in countries that require such support. Manufacturers also agree to provide benefits such as pandemic influenza vaccines, antiviral medicines and other pandemic related products or technologies at the time of a pandemic.

79. Innovative funding sources could also be developed outside the WHO context to support countries. The Ebola Interim Assessment Panel recommended that the Review Committee look at the idea of an “insurance triggered to mitigate adverse economic effects”. The World Bank is working with WHO and others to design the PEF that would rapidly respond to future outbreaks by delivering money to countries in crisis. The idea is to issue “pandemic bonds” to investors which would be deemed to default in the event of an epidemic, assuring the availability of resources to respond before the epidemic takes on pandemic proportions. Of note is that one of the World Bank's three financing

¹ Statement from the Travel and Transport Task Force on Ebola virus disease outbreak in West Africa. Geneva: World Health Organization; 7 November 2014 (<http://www.who.int/mediacentre/news/statements/2014/ebola-travel/en/>).

instruments, the “Program-for-Results” instrument focusses on behavioural and institutional changes in countries.¹

80. Another approach is based upon the notion that “States’ reputational concerns are actually the principal mechanism for maintaining a high level of treaty compliance.”² Numerous multilateral instruments have transparency-creating rules that are similar to those of the IHR. Such rules facilitate compliance because the risk of being publicly identified as non-compliant is a strong disincentive. Transparency also supports implementation of the IHR in a more positive way; it gives countries and WHO an opportunity to engage in a constructive dialogue on IHR implementation and to draw lessons from the experience of other countries. IHR provisions that foster transparency include the annual report to the World Health Assembly on the status of implementation of the IHR (Article 54.1) and countries’ notification and reporting of events (Articles 6–11). Article 43(3) obliges countries to report, and the Secretariat to share with other countries, certain information it receives on “additional measures” implemented by countries which significantly interfere with international traffic. Such sharing is independent of the consent of the sending country and following the recommendation of the IHR Review Committee on Second Extensions, the Secretariat has recently begun to share it through the EIS.

81. On the whole, the WHO Secretariat’s authority to distribute information received from States to other States Parties has so far been mostly conditioned by the consent of the State Party providing the information. The Secretariat can, under limited circumstances, make information received from States Parties and “other reports” available to other countries and even to the public without the consent of the concerned State Party (Articles 10 (4) and 11). Taking into account the sensitivities of States Parties in such matters, the Secretariat has so far applied these provisions cautiously. Evidence was heard that some of the detrimental decisions made by non-state actors, such as commercial entities, might have been mitigated or avoided if WHO could have been more proactive in providing information. Increased transparency is clearly needed with regard to compliance with the IHR.

82. Various options may exist to further disincentivise countries’ non-compliance with the IHR. For example, building on the reporting systems mentioned above, the WHO Secretariat could be given a stronger role in assessing countries’ compliance with the IHR and making this information public or at least accessible to other countries. This is the approach recently taken by EMRO (see section 3.1.1). The OIE evaluation system regarding its “Terrestrial Animal Health Code” (standards on the quality of veterinary services) gives a strong role to the OIE Secretariat. A Member Country can request OIE to evaluate its veterinary services and has the right to request an evaluation of the services of another Member Country with which it is engaging in trade. The evaluations of the veterinary services are undertaken by experts endorsed by the World Assembly of OIE Delegates. Evaluation reports are produced in consultation with the veterinary services of the country. With the agreement of the country, the evaluation reports can be made available to international development partners, and posted on the OIE website.^{3,4}

¹ Program-for-results financing: an overview. Washington, DC, World Bank, 2015 (See http://siteresources.worldbank.org/PROJECTS/Resources/40940-1244163232994/6180403-1340125811295/PforR_Overview_update2015.pdf).

² Downs GW, Jones MA. Reputation, compliance and international law. *JLS*. 2002;31(supplement):S95-114.

³ OIE PVS Pathway for effective Veterinary Services. PVS Evaluation Missions. State of play - as at 1 Dec 2015. Paris, World Organisation for Animal Health, 2015 (<http://www.oie.int/support-to-oie-members/pvs-evaluations/status-of-missions/>).

⁴ OIE PVS Evaluation Reports. Paris, World Organisation for Animal Health (<http://www.oie.int/support-to-oie-members/pvs-evaluations/oie-pvs-evaluation-reports/>).

83. The Ebola Interim Assessment Panel recommended that the Review Committee consider disincentives to discourage countries from taking measures that interfere with traffic and trade beyond those recommended by WHO. In this regard, the Committee noted that although Article 56 allows for the settlement of disputes between two or more States Parties concerning the interpretation or application of the IHR, States have never used this article, likely reflecting that both States would have to agree to engage in dispute settlement procedures.

84. WHO should consider using Article 16 to avoid unnecessary additional measures. In addition, the Committee explored World Trade Organization (WTO) law as a possible mechanism for States Parties affected by an infectious or non-infectious event to seek recourse if faced with unfair restrictions on goods and services imposed by other States. WTO law, unlike the Article 56, does not depend upon the consent of Parties to the dispute and is accompanied by effective trade sanctions in the case of non-compliance. The key to linking the two systems – WTO and IHR – could potentially be achieved by the development of Standing Recommendations under Article 16 of the IHR.¹ These Standing Recommendations could cover, for example, foodborne disease outbreaks. They could arguably be recognised as standards under WTO law and other agreements regulating international trade. WHO Secretariat and the WTO should actively pursue establishing this linkage.

3.2 THE EFFECTIVENESS OF IHR IMPLEMENTATION IN THE EBOLA EPIDEMIC: THE ROLE OF WHO

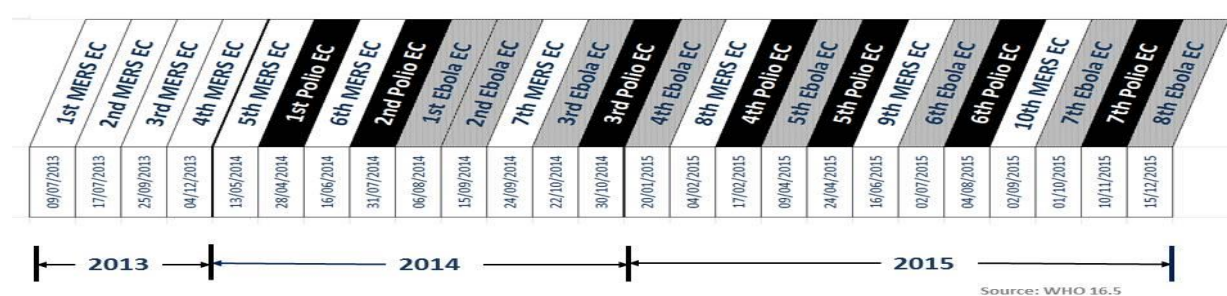
85. Implementation of the IHR is the joint responsibility of States Parties and WHO. Other entities, such as NGOs, international and national agencies, and regional and international networks, play a key role in accelerating the establishment of core capacities and enhancing the response to public health events.²

86. WHO has an integral role in assisting countries to develop, strengthen and maintain their core capacities (Box 3). Under the IHR, it serves as the global directing and coordinating authority during international health events, including PHEICs. This leadership role is underpinned by WHO Secretariat's surveillance, verification and risk assessment activities.

¹ Standing Recommendations are non-binding advice issued by WHO for specific ongoing public health risks regarding appropriate health measures for routine or periodic application needed to prevent or reduce the international spread of disease and minimize interference with international traffic.

² Accelerating Implementation of the International Health Regulations (2005). A Summary Report. Key points and recommendations from the IHR stakeholders meetings on mapping of unmet needs. Geneva: World Health Organization; 2013 (http://www.who.int/ihr/publications/WHO_HSE_GCR_2013_5/en/).

Fig. 5. Meetings of the Emergency Committees on MERS, polio and Ebola, 2013–2015



87. During the early stages of the Ebola epidemic, insufficient leadership at both the national and international level may have contributed, at least in part, to the trajectory of the epidemic.

88. The weaknesses of the WHO Secretariat infrastructure was also exposed at all levels, driven by systemic underfunding, lack of skilled human resources, absence of surge capacity, weak linkages and low prioritization. These weaknesses were accentuated by the fact that the Ebola epidemic occurred at a time when the international response capacity was already overburdened by other major outbreaks, including MERS, polio, and avian influenza H5N1 and H7N9 virus infections. Convening an Emergency Committee consumes significant human resources in the Secretariat, and during 2014 and 2015, a small number of people were required to convene several concurrent Emergency Committees for three public health risks (Fig. 5).

3.2.1 Risk assessment and risk management: the role of WHO

89. Under the IHR the WHO Secretariat and States Parties have complementary responsibilities for risk assessment, risk management and risk communication.

90. States Parties are responsible for the detection of events and assessing these against the criteria for notification (or other reporting) to WHO. States conduct these activities at local and national levels as part of routine public health intelligence. WHO is able to share some of its software with States Parties to assist them with their own public health intelligence functions. This would promote risk assessment capacity-building at a country level and interoperability between States Parties and the WHO Secretariat. States Parties are also charged with managing events within their territory; this can involve a range of actions including further investigation, deciding on and implementing response measures and developing risk communication messages to inform the public and other stakeholders about the event, how it may affect them, precautions they should take and what is being done. WHO can provide technical advice and operational assistance to States Parties as needed to help support their risk management activities.

Box 3. Key obligations for WHO under the IHR (2005)*

- Conduct global public health surveillance and assessment of significant public health events, and disseminating public health information to countries
- If required, determine if a particular event constitutes a PHEIC, with advice from external experts
- If a PHEIC is declared, develop and recommend critical health measures (with advice from external experts)
- Offer technical assistance to countries in their response to public health risks and PHEICs
- Support countries to assess their existing national public health structures and resources, as well as to develop and strengthen the core public health capacities for surveillance and response, and for designated points of entry
- Monitor the implementation of IHR (2005) and update guidelines so that they remain scientifically valid and consistent with changing requirements

* Adapted from: World Health Organization. Frequently asked questions about the International Health Regulations (2005); see <http://www.who.int/ihr/about/FAQ2009.pdf?ua=1&ua=1>.

91. On a global scale, WHO routinely monitors hundreds of infectious and non-infectious events, both from official notification from States Parties via NFPs and unofficially through the media, news aggregators such as ProMed, or other sources. Unimportant or unsubstantiated events are filtered and discarded; for the remaining events, WHO undertakes a risk assessment.¹ For the most significant events, the WHO Secretariat convenes an Emergency Committee to advise on whether the event constitutes a PHEIC. When a PHEIC is declared, the Director-General coordinates the overall management of the global response through issuance of temporary recommendations and other coordination and operational activities.

92. WHO uses two web-based tools to manage information about public health events. The EMS is used by all three levels of the organization, as a single platform for information about a given event to support risk assessment and risk management. WHO established the EIS as a secure site accessible only by NFPs, to facilitate the sharing of information between WHO and States Parties.

93. As noted previously (see section 3.1.2), WHO conducted and published three risk assessments about the Ebola epidemic on EIS in late March. These assessments were associated with the initial identification of the Ebola virus in Guinea and its subsequent rapid detection in Sierra Leone and Liberia.

94. During international outbreaks, WHO coordinates with the Global Outbreak Alert and Response Network (GOARN). GOARN is comprised of more than 200 partner institutions and networks with a diverse array of technical and logistical skills which can be deployed for rapid identification, assessment and response to outbreaks of international importance.² More than 1000 experts were deployed during the Ebola response. Information available through GOARN can contribute to WHO's risk assessment.

¹ See <http://www.who.int/csr/alertresponse/en/>.

² See http://www.who.int/ihr/alert_and_response/outbreak-network/en/.

Criteria for convening an Emergency Committee and declaring a PHEIC

95. Under the IHR, in a major health event, the Director-General can convene a committee of experts – an Emergency Committee – to advise on whether an event should be determined as a PHEIC.¹ In accordance with Articles 47 and 48 of the IHR, WHO maintains an IHR Expert Roster from which the Director-General selects members of the Emergency Committee, and, where appropriate, from other WHO expert advisory panels and committees. Selection of members is based primarily on their technical ability and experience in the relevant fields of expertise. The Director-General aims to ensure that members of the IHR Emergency Committee have the broadest possible geographical representation, and reflect diverse knowledge, practical experience and approaches. Informants commented that the Emergency Committee should include representation from governments of affected countries, the military, NGOs, the private sector and relevant sectors other than health.

96. We found that beyond the provisions in the IHR themselves, WHO has no further operational criteria for convening an Emergency Committee and declaring a PHEIC. In summary, WHO assesses whether a public health event is:

- (1) Extraordinary, including whether it:
 - is serious (e.g. has a high case fatality rate, epidemic potential, or multiple transmission routes);
 - is unusual or unexpected (e.g. unknown source, unusual symptoms or the event itself is unusual);
 - has a risk of international spread;
 - may, rightly or wrongly, create a risk of interference to traffic and trade.
- (2) Likely to require an internationally coordinated response.

In making these assessments, WHO uses scientific principles and considers:

- the available evidence (including information gaps and uncertainty);
- information provided by the affected States Parties;
- advice from the Emergency Committee;
- other matters specified in, or otherwise relevant to, Annex 2 – including concomitant factors such as population density/mobility, tourism, natural disasters, armed conflict, the public health capacities of the affected countries.

97. Of the thousands of events notified to WHO since the IHR came into force in 2007, only five events have resulted in the Director-General convening an Emergency Committee, and, of these, four have resulted in a PHEIC: polio, H1N1, Ebola, and Zika.

¹ IHR procedures concerning public health emergencies of international concern (PHEIC). Geneva: World Health Organization; (<http://www.who.int/ihr/procedures/pheic/en/>).

98. The declaration of a PHEIC has potent political currency for several reasons. First, it gives WHO Secretariat the mandate to share critical information about the event, and provide the world with temporary recommendations. Second, the declaration of a PHEIC is an important tool for securing leadership and coordination, but the implications of the declaration must be clear to all relevant stakeholders.

Declaring a PHEIC for the Ebola epidemic

99. Following the first formal reports of Ebola in March 2014, nearly 5 months elapsed before the Emergency Committee was convened and a PHEIC declared (Fig. 3). This delay may reflect challenges in surveillance and information-sharing, over reliance on experience with previous outbreaks of EVD, most of which had shown high case fatality rates but had ultimately been self-limiting, and concerns about the implications for the three most affected countries.

100. The Review Committee observed that a number of steps were taken during this time, including: the regular sharing of updated risk assessments with NFPs via the EIS; initiating (March 2014) and then escalating the GOARN deployment (June 2014); and upgrading the event to Grade 3,¹ as defined in the WHO's Emergency Response Framework (ERF) (July 2014) (Box 4).

101. The Ebola Interim Assessment Panel report maintained that a PHEIC was declared too late for Ebola. The report provides a concise and frank overview of the multiple and complex issues that were in play, including poor communication between senior staff within WHO, WHO's concerns about challenging States Parties and also the previous criticism that WHO received for declaring a PHEIC for pandemic influenza H1N1.²

102. In its response to the Ebola Interim Assessment Panel report, WHO said "Any determination of a Public Health Emergency of International Concern (PHEIC) under the IHR is made on the basis of the criteria outlined in the IHR. The timing of the determination of PHEIC during the Ebola epidemic was based on application of the IHR criteria following international spread of Ebola from the epidemiological zone of the three affected countries (Guinea, Liberia, Sierra Leone) to Nigeria, noting that WHO had earlier declared the outbreak a 'Grade 3' (highest level) emergency under the ERF."³

103. From a global perspective, in July 2014, the spread of the Ebola virus outside the "epidemiological zone of the three affected countries" might be seen as point of transition to an event of international concern. From the perspective of States Parties, however, the spread of the virus from Guinea to Sierra Leone and then to Liberia by the end of March 2014, was cause for international concern.

¹ WHO's Emergency Response Framework provides for an internal grading system. A grade 3 event is defined as: a single or multiple country event with substantial public health consequences that requires a substantial WHO Country Office (WCO) response and/or substantial international WHO response. Organizational and/or external support required by the WCO is substantial. An Emergency Support Team, run out of the regional office, coordinates the provision of support to the WCO (See <http://www.who.int/hac/about/erf/en/>).

² Report of the Ebola Interim Assessment Panel. Geneva: World Health Organization; July 2015. (<http://www.who.int/csr/resources/publications/ebola/report-by-panel.pdf>).

³ WHO Secretariat response to the Report of the Ebola Interim Assessment Panel. Geneva: World Health Organization; August 2015 (<http://www.who.int/csr/resources/publications/ebola/who-response-to-ebola-report.pdf>).

Box 4. Timeline of WHO actions during Ebola, 2014*

13 March	First formal report from WHO Country Office in Guinea into the EMS
23 March	First report on Ebola outbreak in Guinea published on WHO website, describing measures by Guinea Ministry of Health and WHO to control the outbreak
25 March – 4 April	First WHO mission to Guinea
28 March	WHO begins monitoring travel and transport measures and contacting countries implementing additional measures
30 March	WHO GOARN deployment to Guinea
30 March – 12 April	Second WHO mission to Guinea
2 – 18 April	Third WHO mission to Guinea
8 April	WHO press conference telling the world it was “one of the most challenging Ebola outbreaks that we have ever faced”
16 April	African Union and WHO meeting in Angola. WHO AFRO Regional Director says “epidemic rife, but hopeful it will be contained and overcome shortly”
19 May	Guinea minister of health briefed WHO on results of Ebola response. He said field investigations yielded “encouraging results” and that five of the six foci of intense transmission were coming under control
4–7 June	WHO working retreat on Ebola, Guinea
Early June	WHO introduces cross-border surveillance in the geographical “hot zone” where the three country borders overlapped
23 June	High-level meeting in Conakry: President of Guinea, Special Representative of AFRO Regional Director, WHO Representative to Guinea, US Ambassador to Guinea, and CDC
23 July	First case of Ebola entering a country (Nigeria) via international air travel confirmed
25 July	Director-General (DG) requests an EC to be convened
26 July	DG declares Ebola an ERF Grade 3 event
31 July	DG meets Presidents of Guinea, Sierra Leone, and Liberia
6 August	Ebola Emergency Committee convened
8 August	PHEIC declared
* Derived in part from: http://www.who.int/csr/disease/ebola/one-year-report/who-response/en/ .	

The need for an intermediate level of alert

104. The Committee noted that the binary construct of a PHEIC, in which an event is either declared a public health emergency or not, can be problematic. The period leading up to the declaration, during which WHO is intensifying its risk assessments and preparing to convene an Emergency Committee, can be one of apparent stasis in which States Parties and other stakeholders are either unsure what to do in the absence of guidance from WHO, or issue guidance that may not be in accordance with WHO advice. It should be noted, however, that WHO provides pre-PHEIC risk assessment information and advice to States through its communications with NFPs using the EIS.

105. A declaration of a PHEIC is the only mechanism to trigger the considerable financial and human resources that are required to respond to a global emergency, whether in regard to personnel who need to be deployed, to access to diagnostics and drugs, or to the R&D needed for a vaccine.

106. The Ebola Interim Assessment Panel recommended that this Committee consider an intermediate level of alert that would alert the world and “facilitate preparedness, preventive action, and dedication of resources, which could avert an escalation of the situation.”¹ The Review Committee agreed with the Panel’s view of the need for an early warning mechanism to alert the global community about events that fall between “routine” public health risks and those that result in the declaration of a PHEIC. The Committee also recognised that when such an early alert is issued, it must be accompanied by a clear statement of why the alert is issued and what actions should follow.

107. Noting that there are thousands of events every year, and only five Emergency Committees have been convened since the IHR came into force, the Review Committee considered whether earlier convening of event-specific Emergency Committees by using a lower threshold of criteria would enable WHO to alert the world to threats more quickly. However, this may risk global fatigue and dilution of the impact of the Emergency Committee process, and the resources and cost involved would be disproportionate to the potential benefit achieved.

108. In the Committee’s view, the establishment of a standing advisory committee could serve to advise WHO on when an intermediate level is required. The creation of such a committee is aligned with WHO’s mandate to give expert public health advice, and is consistent with the IHR.

109. The Committee also considered that the meaning of a PHEIC declaration is not universally understood. Thus, it is critical that WHO communicates clearly with all relevant stakeholders about what actions should be triggered when an Emergency Committee is convened, and when a PHEIC is declared. It is also critical to clearly communicate the differences and relationships between the alerts generated by the IHR mechanism, those generated by the WHO ERF, and those generated in the humanitarian sector by the Inter-Agency Standing Committee (IASC). This point was consistently underscored by informants. As recommended by the Ebola Interim Assessment Panel, the alert system needs improved coordination and harmonization. There is also a need for WHO to respond better to misinformation, inaccurate information, and in some circumstances, develop an appropriate communications strategy.

¹ Report of the Ebola Interim Assessment Panel. Geneva: World Health Organization; July 2015. (<http://www.who.int/csr/resources/publications/ebola/report-by-panel.pdf>).

3.2.2 Engagement with humanitarian and other actors

3.2.2.1 Humanitarian

110. During the Ebola epidemic, NGOs such as MSF had an ongoing presence in West Africa, delivering a range of front-line health services. These made a vital contribution to health outcomes before and during the early stages of the epidemic, and in helping to raise awareness in the wider international community, which spurred international partners such as WHO into action. Partly as a result of NGO awareness-raising, by the end of March 2014, GOARN and the Centers for Disease Control and Prevention (CDC) had teams on the ground to support the response, supplemented by in-country laboratory capacity.

111. In theory, WHO's links with key players in humanitarian action are strong; the organization is mandated to lead the Global Health Cluster¹ of 48 international humanitarian health organizations to harmonize the work of different actors that operate within the IASC, a mechanism for inter-agency coordination of humanitarian assistance.

112. The ERF outlines WHO's roles and responsibilities in emergencies arising from a wide range of hazards.² The ERF sets out quite clearly WHO's commitments in emergency response, and the steps that it must take in risk assessment and communication. The IHR are closely intertwined with the ERF – in effect, the ERF operationalizes the legal framework of the IHR; the IHR underpins the ERF since the core capacities ensure that countries are able to implement the ERF.

113. In practice, however, the Review Committee heard evidence from those in the humanitarian sector that, while the guidance laid out in the ERF and the IHR are clear, implementation on the ground is often poor, and political priorities or issues with competing hierarchies of staff on the ground, versus in headquarters, can supersede scientific or humanitarian principles. A key issue also raised was WHO's lack of operational urgency, deriving in large part from its lack of flexibility and agility in emergency response. Informants from the humanitarian community encouraged WHO to better utilize the IASC and the Global Health Cluster³ mechanism as well as to develop a cadre of operational emergency leaders who can act as humanitarian coordinators and drive the existing humanitarian architecture, when needed. Different views were expressed about the value of the Memorandum of Understanding (MOU). Some informants considered MOUs and agreements helpful to clarify division of roles. Simulation exercises were proposed as a useful tool to test potential strengths and weaknesses of the collaboration.

3.2.2.2 Private commercial sector

114. Depending on their location, capabilities and type of operation, the private sector can and should contribute both directly and indirectly to the identification of infectious disease outbreaks. The continuation of trade is essential to the economic wellbeing of most countries, and effort needs to be given to the continuation of such economic activity during disease outbreaks.

¹ See http://www.who.int/hac/global_health_cluster/about/en/.

² Emergency Response Framework (ERF). Geneva: World Health Organization; 2013 (<http://www.who.int/hac/about/erf/en/>).

³ Questions and answers about WHO's role in Humanitarian health action. Geneva: World Health Organization; (<http://www.who.int/hac/about/faqs/en/index3.html>).

115. Some commercial organizations will contribute to responses, for example those manufacturing vaccines, drugs and personal protective equipment (PPE) or maintaining health and other essential life support services.

116. Commercial concerns with a large workforce, particularly in remote or sparsely populated areas, often have a significant health presence which includes a public health element. The Committee heard evidence on how mining operations continued uninterrupted on the Guinea/Liberian border owing to the introduction of various processes and protocols at the mine; surveillance and healthcare of its workers, their families and the communities from which they came; and the development and production of a variety of culturally appropriate educational material to minimise the probability of infection and facilitate early treatment if it occurred. Other large commercial entities, such as oil and gas and steel production, also continued to operate successfully in the affected countries.¹ For example, Firestone Liberia, Inc., in response to the first Ebola case inside their Liberian rubber tree plantation in March 2014, initiated a number of actions to help protect their 8500 employees, dependents and the local population. The company utilized an incident management system to coordinate a broad spectrum of response measures which included active and passive surveillance to detect possible cases, including tracing and follow-up of contacts; infection control measures in health care and other settings; locally-tailored procedures and facilities for isolation and voluntary quarantine of patients and contacts, respectively; a programme to facilitate re-integration of survivors into the community; and a strong programme of risk communication and social mobilization.²

117. The Committee noted that the many independent reviews of the Ebola epidemic, including the UN High-Level Panel, addressed the role of the private commercial sector. Yet it is clear that in some circumstances, and the Ebola epidemic was one of them, they can contribute to surveillance and to the management of outbreaks, and can be important, if not essential, in contributing to the ongoing viability of government and to the economic health of the country during its recovery phase. The Committee also considered that some of the processes and procedures used to sustain mining operations might provide a template for ensuring that airport operations continued uninterrupted during a future public health event.

3.2.2.3 Military

118. The global response to Ebola required a significant military response from a number of States Parties. While the military response included logistics, engineering, communications, information management, command and control and medical training, the Committee addressed only healthcare aspects.

119. The most significant medical contribution by military health services was to provide high quality medical care and evacuation facilities. This was necessary to provide the reassurance required to facilitate the deployment of civilian health services. They, therefore, acted as a “force multiplier” without which the eventual response would have remained inadequate. The military medical deployment was, however, not without its problems. The Committee heard that some of the first military medical teams to deploy only accepted responsibility for the care of volunteers and civilians from their own nations. Until the policy was changed to extend care to all health workers, the

¹ Heron RJL. Ebola – what have we learned from the recent outbreak? *Occup Med (Lond)*. 2016;66:4-7. doi: 10.1093/occmed/kqv163.

² Reaves EJ, Mabande LG, Thoroughman DA, Arwady MA, Montgomery JM. Control of Ebola virus disease – Firestone District, Liberia. *MMWR*. 2014;63:959–65 (<http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6342a6.htm>).

deployment of willing and available African volunteer teams was limited as there was no effective alternative care and evacuation plan. The deployment of the military medical teams was also somewhat delayed owing, at least in part, to the necessity of pre-deployment training and in part to the need to procure and integrate appropriate PPEs.

120. It is clear that there are a large number of individuals who are prepared to volunteer to work in areas affected by highly infectious diseases. However, they need reassurance that if, as a consequence, they become infected there is a plan to provide them with an adequate level of care. Providing such a capacity within a short time may require using military medical staff, which are as a matter of course ready to deploy at short notice. For a future major infectious disease outbreak similar to Ebola, such a deployment would be facilitated if some military medical personnel were trained and equipped in advance to deploy at short notice.

121. The presence of military medical staff in public health and humanitarian responses can be highly sensitive in some situations. Thus, the deployment of military medical staff in humanitarian emergencies must be carefully managed, so as not to detrimentally affect the civilian nature of the humanitarian response. Nor should reliance on military medical staff weaken the global, regional and country investment into creating a robust global health emergency workforce that is ready to deploy rapidly to a health emergency.

3.2.2.4 Regional collaboration

122. As the scale of the Ebola epidemic became apparent, neighbouring countries and countries in the region, together with key regional institutions, were early and critically important responders to the crisis. Many countries, including Uganda, Nigeria, Ghana and South Africa among others, sent teams of health care workers and critical health care supplies to support the decimated health services. Countries, such as Senegal and South Africa, provided vital laboratory support including infrastructure, personnel, training and logistic support. (Ghana kept its borders open, which proved to be critical in facilitating the flow of essential supplies and personnel to the affected countries. The African Union coordinated large contingents of military personnel and health care workers for the affected countries. The private sector of regional neighbours sent donations of vehicles, motorbikes, gloves and other essential supplies.

123. Support of neighbouring countries is strongly recommended under Article 44 of the IHR. While countries might have been aware of this commitment, it is likely that these generous contributions were motivated by compassion and solidarity with the citizens and governments of the Ebola-affected countries, rather than compliance with this requirement. The lesson from the Ebola epidemic for future emergencies is that the rapid response of geographical neighbours and of regions must be prioritised, as this could not only make a difference to affected citizens, but importantly could contribute to the containment and elimination of an outbreak.

3.2.3 WHO's capacity and organizational reform

124. The resourcing of the WHO Secretariat during Ebola was a crucial point. The Committee learned that the core global public health surveillance and risk assessment role was performed by only a very small team in WHO headquarters (4 staff) with support provided by regional offices. However, even 10 to 12 staff, and the ability to call on other technical teams within WHO for specific expertise, is an inadequate level of human resourcing to perform a vital global public health function. Resourcing of the Secretariat should allow for the ability to detect, verify, assess and monitor multiple events,

including multiple simultaneous events, 365 days a year; during major events such as Ebola, WHO must have contingency plans to supplement financial and human resource requirements.

125. Alongside increasing the number and capacity of its own staff, WHO should also increase its use of independent experts and networks such as GOARN to assist with aspects of its surveillance and risk assessment role. As noted previously, a standing advisory committee could be useful to assist WHO in these areas. It would allow for a broader frame of reference for analysis that considers the social, economic, ethical and cultural dimensions of the event, without compromising WHO's impartiality or the confidentiality of the risk assessment process.

126. WHO is working to strengthen and modernize its emergency response programme. As part of this reform, the WHO Director-General convened a high-level Advisory Group to provide advice for designing and establishing a Platform across the three levels of the WHO Secretariat to manage risk assessment, risk characterization, risk communication and risk management; optimizing the Organization's response to outbreaks and emergencies with health and humanitarian consequences; and supporting WHO so that it is equipped to coordinate Member States, the United Nations, and operational partners during outbreaks and emergencies.¹ The Review Committee welcomed this reinforcement of the WHO Secretariat with regard to health emergencies which was presented to the Executive Board in January 2016,² and stressed that this programme should be urgently implemented.

127. WHO's new programme must be adequately resourced at all levels. In particular, the scale-up of emergency-related capacities that will be required in many WHO regional and country offices is substantial. WHO is considering various options for the additional financial resources that will be required. Leveraging of capacities and resources with other United Nations and partner agencies is one approach. The Advisory Group on the Reform of WHO's Work in Outbreaks and Emergencies recommended, for example, that WHO maximize its use of the Central Emergency Relief Fund managed by the Emergency Relief Coordinator on behalf of the UN Secretary-General.³ Informants in general were supportive of increasing Member States' assessed contributions to WHO to help strengthen its capacity in this area. This approach has also been proposed by other review panels.^{4,5,6} Other possible avenues for support, that informants proposed, included mobilization of key foundations and engagement with the private sector.

¹ Terms of Reference for the Advisory Group on Reform of WHO's Work in Outbreaks and Emergencies with Health and Humanitarian consequences. Geneva: World Health Organization; (http://www.who.int/about/who_reform/emergency-capacities/advisory-group/tor/en/).

² 2014 Ebola virus disease outbreak and issues raised: follow-up to the Special Session of the Executive Board on the Ebola Emergency (resolution EBSS3.R1) and the Sixty-eighth World Health Assembly (decision WHA68(10)): High-level design for a new WHO health emergencies programme. Geneva: World Health Organization; 2016 (EB138/55) (http://apps.who.int/gb/ebwha/pdf_files/EB138/B138_55-en.pdf).

³ Second Report of the Advisory Group on Reform of WHO's Work in Outbreak and Emergencies. Geneva: World Health Organization; January 2016 (http://www.who.int/about/who_reform/emergency-capacities/advisory-group/second-report.pdf?ua=1).

⁴ Report of the Ebola Interim Assessment Panel. Geneva: World Health Organization; July 2015. (<http://www.who.int/csr/resources/publications/ebola/report-by-panel.pdf>).

⁵ Commission on a Global Health Risk Framework for the Future. The neglected dimension of global security: a framework to counter infectious disease crises. Washington, DC. National Academy of Medicine, January 2016 (<http://nam.edu/wp-content/uploads/2016/01/Neglected-Dimension-of-Global-Security.pdf>).

⁶ Protecting Humanity from Future Health Crises. Report of the High-level Panel on the Global Response to Health Crises. 25 January 2016. (http://www.un.org/News/dh/infocus/HLP/2016-02-05_Final_Report_Global_Response_to_Health_Crises.pdf).

128. To further augment its response capacities, WHO is establishing (1) a global health emergency workforce,¹ as was recommended by the 2011 IHR Review Committee, and a Contingency Fund for Emergencies. The Contingency Fund has a target capitalization of US\$ 100 million and is intended to finance WHO's initial response to an emergency. It will allow WHO to deploy surge human resources to coordinate emergency medical teams, establish information technology systems, address risk communications gaps, and procure and deliver medical supplies.²

3.2.4 WHO's communications strategy

129. Notwithstanding WHO's extensive communications activities during the Ebola epidemic, many informants were critical of WHO's capacity to provide timely, relevant, and evidence-based information to key decision-makers for considered precautionary and response measures. There are diverse stakeholders with different information needs such as in preparing media briefs, and to dispel rumours. The number and variety of organizations requiring timely and relevant information was extensive, including for example trade unions, occupational health services, airlines, the media, and NGOs. Matters were exacerbated by State Parties issuing different advice (e.g. notices to be read out on aircraft) and instructions and distrust of non-WHO health authorities, for example Trades Unions did not entirely trust the advice provided by their own occupational health services as it was not supported by formal statements by WHO. In the absence of authoritative information, organizations used the internet and other organizations. This absence of timely information from WHO was exacerbated by a general lack of awareness and understanding of the IHR within Member States, and this extended to international organizations, commercial entities and to communities.

130. The general view was that the WHO is the most reliable source of information in public health emergencies. Hence, if such information had been forthcoming in a timely and reliable manner from WHO, it would have been influential and may possibly have changed critical decisions (e.g. on the continuation or otherwise of flights to West Africa). Delivery of a consistent message was especially problematic in the months preceding the declaration of a PHEIC, with for example, a Geneva-based news journalist claiming that they were unable to gain access to any technical expert on Ebola until the end of the World Health Assembly in May 2014, with only WHO spokespersons being available before then.

131. In the view of the Review Committee, the lack of timely information from WHO may have in part reflected the hesitations within the WHO Secretariat about its risk assessment of the complex and evolving situation. In part it also appeared to be due to a reluctance to issue any information, or respond to requests, until it was certain that the response was scientifically justified. The Review Committee fully appreciates the reputational risk to WHO of issuing communications that have later to be changed or withdrawn. However, in today's interconnected world organizations and individuals can now obtain information immediately from multiple communication channels, and the cost of inaccurate and delayed information and the failure to proactively counter wrong information in a timely manner can be very high. It can result in unduly protective policies by organizations, spread panic among the public, and can have severe economic and social consequences for countries and communities.

¹ Decisions and list of resolutions. Sixty-eighth World Health Assembly. Geneva: World Health Organization; 5 June 2015 (A68/DIV./3). (http://apps.who.int/gb/ebwha/pdf_files/WHA68/A68_DIV3-en.pdf, (accessed 10 October, 2015).

² Contingency Fund for Emergencies. Geneva: World Health Organization; 2015 (http://www.who.int/about/who_reform/emergency-capacities/contingency-fund/Contingency-Fund-Emergencies.pdf?ua=1).

132. There were other instances of sub-optimal information. The declaration of a PHEIC was not accompanied by a clear statement of what WHO was going to do in response, where responsibility and leadership sat within WHO, and what was expected from other agencies, e.g. United Nations agencies, the Global Health Cluster, IGOs, and NGOs. In interviews with IHR Emergency Committee chairs, one proposal put forward was that, when providing temporary recommendations, the Emergency Committee should specify obligations of development partners and agencies, with a requirement to report back to WHO. Such a declaration should also trigger WHO's emergency response protocols and the institution of a clear chain of command and communication within the WHO Secretariat. It should be accompanied by a clear explanation of the communication and liaison arrangements put in place for the emergency.

133. The Committee was also told that WHO could have made greater use of the Global Disaster Alert and Coordination System (GDACS) which is used by national emergency coordinators, both to obtain health intelligence and to provide timely and authoritative information. GDACS was used during the Ebola epidemic to alert and mobilise United Nations Disaster Assessment and Coordination teams to Ghana, Liberia and Mali. For example, the online discussion to deploy the team to Liberia included 978 disaster managers from 155 countries and organizations and reviewed the Ebola response in detail; this would have provided an excellent platform for WHO to both gain and contribute information, as well as clarify and educate the wider humanitarian and State system.

134. WHO's risk communication was found to be inadequate during the Ebola epidemic. Numerous witnesses confirmed that they were unable to obtain from WHO the information required to facilitate decision making, to prepare media briefs, dispel rumours, or provide reassurance. The general view was that the WHO is the most reliable source of information in public health emergencies. Hence, if such information had been forthcoming in a timely and reliable manner from WHO, it would have been influential and may possibly have changed critical decisions (e.g. on the continuation or otherwise of flights to West Africa). Instead, organizations that lacked the necessary authority (e.g., Trade Unions, occupational health services, airlines, the media, and NGOs) in some cases became more prominent sources of information during Ebola. It was also found that despite WHO's presence on GDACS which is used by national emergency coordinators, some organizations directly involved in the humanitarian response did not receive sufficient information from WHO. Organizations and individuals can now obtain information immediately from multiple communication channels, and the cost of inaccurate and delayed information and the failure to proactively counter wrong information in a timely manner can be very high. It can result in unduly protective policies by organizations, spread panic among the public, and can have severe economic and social consequences for countries and communities.

3.3 ASSESSMENT AND LESSONS LEARNT FROM THE IMPLEMENTATION OF PREVIOUS RECOMMENDATIONS ABOUT THE IHR

135. Two previous reviews of the IHR^{1,2} made recommendations to improve the functioning and utilization of IHR. The Review Committee reaffirms the continued importance and relevance of these recommendations to the future of IHR implementation. Some countries have responded by strengthening the core capacities required for an effective response to public health threats. Yet the Ebola epidemic showed that many countries remain unable or unwilling to meet their obligations under the IHR. Resource constraints, conflict, and lack of political understanding or political will have all impacted on their ability to deliver on their obligations. Many countries still struggle with weak health systems and weak laboratory capacity, which are essential for the functioning of the IHR. In addition, many States Parties implemented response measures with insufficient public health rationale, resulting in unnecessary disruption to travel and trade, which in turn compounded the impact of the epidemic. In the case of the Ebola epidemic, these actions greatly reduced the speed and effectiveness of the global response to the emergency in preventing the spread across borders and loss of lives.

3.3.1 Status of the implementation of the 2011 Review Committee recommendations

136. The report from Review Committee on the Functioning of the International Health Regulations (2005) in Relation to Pandemic (H1N1) 2009 made 15 recommendations for action, defined the timeframe in which each recommendation would be implemented, and assigned responsibility for implementation to WHO, countries or to both jointly. The table provides a summary overview of the status of the implementation of the 2011 Review Committee's recommendations by level of achievement, demonstrating the failure to fully implement many of the recommendations.

137. Of the 15 recommendations, six of them could possibly have reduced the impact of the Ebola epidemic if they had been fully implemented: two country-led recommendations related to acceleration of the IHR core capacities and improvements in the functioning of NFPs; two WHO-led recommendations related to strengthening internal capacity for sustained response and reinforcing evidence-based decisions on international travel and trade; and two jointly-led recommendations to establish a global public health reserve workforce and a contingency fund for public health emergencies. Four of these six recommendations have been only "partially achieved" nearly five years after publication of this report.

138. While the lack of core capacities has been highlighted by the Ebola epidemic in the three most-affected countries in West Africa, it is clear that the failure is much more widespread and many countries are at similar risk of being unable to detect early and respond effectively to such public health emergencies. More needs to be done as well to establish effective NFPs. Secretariat support to this recommendation has focused on training opportunities and materials, while plans for stronger advocacy activities have not been implemented.

¹ Implementation of the International Health Regulations (2005). Report of the Review Committee on the Functioning of the International Health Regulations (2005) in relation to Pandemic (H1N1) 2009. Report by the Director-General. Geneva: World Health Organization; 2011 (A64/10) (http://apps.who.int/gb/ebwha/pdf_files/WHA64/A64_10-en.pdf?ua=1).

² Implementation of the International Health Regulations (2005). Report of the Review Committee on Second Extensions for Establishing National Public Health Capacities and on IHR Implementation. Geneva: World Health Organization; 2015 (A68/22 Add.1) (http://apps.who.int/gb/ebwha/pdf_files/WHA68/A68_22Add1-en.pdf).

139. The proactive identification of States Parties' implementation of trade and travel measures and follow-up with States Parties is now an established element of the Secretariat's response to public health emergencies. However, as was noted in 2011, the IHR do not provide WHO with any authority to exercise enforceable sanctions when States Parties put unjustified measures in place. In addition, the evidence on which to base decisions on trade, travel and border measures during health emergencies remains weak despite efforts to review the experience of recent events.

140. The response to the Ebola epidemic has reinforced the need for more fundamental and extensive reform of WHO's emergency response. As is discussed elsewhere in this report (section 3.2.3), establishment of a new WHO health emergencies programme is underway, as part of the WHO Secretariat emergency reform process established in 2015.^{1,2} Elements of the programme address the global health emergency workforce and Contingency Fund, both of which are being taken forward.³

141. The Review Committee considered why the carefully reasoned recommendations formulated in 2011 were only partially implemented in subsequent years. A first observation is that if the IHR are the foundational strategy for global health security, its role was in fact largely unrecognised and poorly supported. Weak political will and limited awareness and understanding of the IHR and its requirements at the highest levels of national governments are at the core of the problem of insufficient implementation of the IHR. This factor, coupled with inadequate financial resources and expertise to establish the core capacities, has made implementation of the IHR an insurmountable challenge for most countries. In addition, its construct as an international legal instrument makes the IHR difficult to promote and has contributed to its low level of recognition among political leaders and decision makers, public health and clinical professionals, and civil society and other stakeholders.

142. A second observation can be made about the context. These recommendations were formulated after the H1N1 (2009) influenza pandemic which had a moderate public health impact. WHO was accused of having overreacted, wasting resources and having insufficient procedures for managing potential conflicts of interest among its Emergency Committee members. Such a context was probably not favourable to a full and rapid implementation of the 2011 recommendations made by the IHR Review Committee.

3.3.2 Status of the implementation of the 2014 Review Committee recommendations

143. The report of the 2014 Review Committee on Second Extensions for Establishing National Public Health Capacities and on IHR Implementation built on the findings and recommendations of the 2011 Review Committee and made recommendations relating to the future implementation of the IHR. For this reason, the Review Committee elected to comment on the 2014 report, although it was not specifically referred to in the Committee's Terms of Reference.

¹ Follow-up to the World Health Assembly decision on the Ebola virus disease outbreak and the Special Session of the Executive Board on Ebola: Roadmap for Action. Geneva: World Health Organization; 2015 (http://www.who.int/about/who_reform/emergency-capacities/WHO-outbreaks-emergencies-Roadmap.pdf).

² 2014 Ebola virus disease outbreak and issues raised: follow-up to the Special Session of the Executive Board on the Ebola Emergency (resolution EBSS3.R1) and the Sixty-eighth World Health Assembly (decision WHA68(10)): High-level design for a new WHO health emergencies programme. Geneva: World Health Organization; 2016 (EB138/55) (http://apps.who.int/gb/ebwha/pdf_files/EB138/B138_55-en.pdf).

³ Second Report of the Advisory Group on Reform of WHO's Work in Outbreak and Emergencies. Geneva: World Health Organization; January 2016 (http://www.who.int/about/who_reform/emergency-capacities/advisory-group/second-report.pdf?ua=1).

144. In its report, the 2014 Review Committee on Second Extensions for Establishing National Public Health Capacities and on IHR Implementation, noted a number of short- and longer-term actions to accelerate development of IHR capacities. The Committee highlighted the critical importance of having better information on the robustness of States Parties' core capacities and recommended a more "action-oriented approach to periodic evaluation of functional capacities."¹ In the context of the Ebola epidemic, the implementation of these recommendations has led to improvements in the assessment of IHR core capacities. As discussed elsewhere in this report, WHO is actively pursuing a programme to strengthen assessment of core capacities which has been well received by all the WHO regional committees. EMRO, in particular, has been focused in driving reforms related to assessment of core capacities. The Committee also noted that robust approaches to assessment, including external assessment which is the norm in many other sectors, have been the hallmark of the GHSA initiative (see section 3.1.1).

¹ Implementation of the International Health Regulations (2005). Report of the Review Committee on Second Extensions for Establishing National Public Health Capacities and on IHR Implementation. Geneva: World Health Organization; 2015 (A68/22 Add.1) (http://apps.who.int/gb/ebwha/pdf_files/WHA68/A68_22Add1-en.pdf).

Table: Level of achievement of the 2011 IHR Review Committee recommendations¹

Recommendations	No progress	Only partially achieved	Substantial progress	Almost fully achieved	Fully achieved
<i>1. Accelerate implementation of core capacities required by the IHR (country led/long term)²</i>					
<i>2. Enhance the WHO Event Information Site (WHO led/1 year)</i>					
<i>3. Reinforce evidence-based decisions on international travel and trade (WHO led/long term)</i>					
<i>4. Ensure necessary authority and resources for all National IHR Focal Points (Country led/2 years)</i>					
<i>5. Strengthen WHO's internal capacity for sustained response (WHO led/1 year)</i>					
<i>6. Improve practices for appointment of an Emergency Committee (WHO led/1 year)</i>					
<i>7. Revise pandemic preparedness guidance (WHO led/2 years)</i>					
<i>8. Develop and apply measures to assess severity (WHO led/2 years)</i>					
<i>9. Streamline management of guidance documents (WHO led/1 year)</i>					
<i>10. Develop and implement a strategic, organization-wide communications policy (WHO led/1 year)</i>					
<i>11. Encourage advance agreements for vaccine distribution and delivery Jointly led/within 2 years)</i>					
<i>12. Establish a more extensive global, public-health reserve workforce (Jointly led/within 2 years)</i>					
<i>13. Create a contingency fund for public-health emergencies (Jointly led/within 2 years)</i>					
<i>14. Reach agreement on sharing of viruses and access to vaccines and other benefits (Country led/1 year)</i>					
<i>15. Pursue a comprehensive influenza research and evaluation programme (Jointly led/long term)</i>					

¹ This assessment is based on the current status and not on the timeframe proposed for completion by the Review Committee.

² Long term is defined as beyond 2 years.

3.4 FROM ASSESSMENT TO RECOMMENDATIONS

145. The conclusion of the Review Committee's assessment is that, since the IHR (2005) came into force in 2007, only a minority of countries have strengthened the core competencies required to prepare for, and effectively respond to, public health threats with the majority of States Parties unable or unwilling to meet their obligations under the IHR. Resource constraints, conflict and lack of political understanding or will have all impacted on countries' ability to deliver on their obligations.

146. The Ebola epidemic revealed profound weaknesses in the implementation of the IHR at country, regional and global levels, including with regard to equitable access to health services, consideration of vulnerable population groups, socioeconomic conditions, the "dignity, human rights and fundamental freedoms of persons" called for in Article 3, and transparency and absence of discrimination (Article 42). Nowhere was this more apparent than in the African region (Box 5).

147. In addition, many States Parties and stakeholders elected to disregard one of the principal objectives of the IHR and implemented measures constraining the movement of people and goods. These actions negatively impacted on the speed and effectiveness of the global response.

148. Ebola demonstrated that the failure to implement the IHR's requirements in even one country jeopardizes the global ambition of being able to rapidly and effectively respond to global public health emergencies. The weakness of WHO's infrastructure required for an effective response was exposed at all levels, driven by systemic underfunding, lack of skilled human resources and lack of prioritization.

149. If the implementation of the IHR and the broader global public health response is to be effective, urgent action is needed.

150. The next step must be to focus on a strategy for the implementation of the IHR and on the strengthening of WHO Secretariat at all levels and in its partnerships. These actions will facilitate early warning of the international community about public health threats and improve risk assessment, risk management and risk communication.

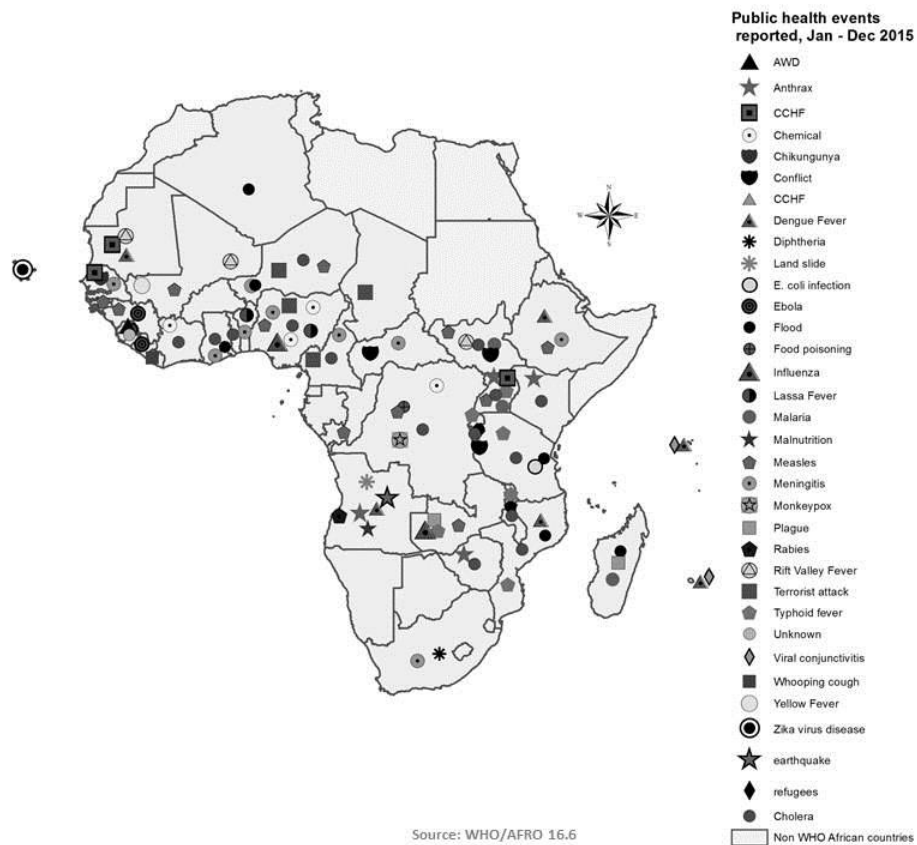
Box 5. The African reflection on the Ebola response

During the 2015 Cape Town meeting, "Building Health Security Beyond Ebola",¹ Dr Victor Asare Bampoe, Vice Minister of Health of Ghana, summarised the failings that exposed the limitations of many national health systems in Africa and beyond: "In these countries, many IHR functions are not operational or not adequately reflected in the national health systems. Poor coordination, poor community engagement leading to distrust in the health services, poor infection prevention and control in health facilities, and a shortage of health-care workers continue to prevent many countries from being adequately prepared to face health security risks." Lack of health care worker training programmes and failure to retain skilled staff further weakened the region's ability to respond to emergencies and to establish effective surveillance systems. Providing these countries with strong institutions for health safety, with the necessary material and human resources should be a priority for the entire international community.

¹ Implementation of the International Health Regulations (2005). Report by the Director-General. Geneva: World Health Organization; 2016 (EB138/19) (http://apps.who.int/gb/ebwha/pdf_files/EB138/B138_19-en.pdf).

A health minister from West Africa highlighted a second major weakness in the global response to Ebola. This was the avoidable isolation of affected West African countries by airlines and by some developed countries, with disastrous effects on the humanitarian aid effort and on the economies of these countries. Seeking to fix IHR compliance in poor countries without similarly insisting that all countries adhere to the IHR when it comes to inappropriate travel restrictions and isolation of countries, risks the IHR being seen as an inequitable tool whose implementation protects the needs of richer countries without equal consideration for the needs of poorer countries. At its worst, this could result in poorer countries being reluctant to report public health threats for fear of potential and far-reaching social and economic consequences. To avoid this, there must be a shared global understanding and commitment to the implementation of the IHR. Africa experiences some 100 public health events each year which affect many countries, often cross borders and are multisectoral in nature (Fig. 6). The guarantee of appropriate resource allocation before, during and after an emergency, together with the avoidance of unjustified travel restrictions, are essential for the IHR to have maximal global impact, without which global public health cannot be assured.

Fig. 6. Public health events reported in Africa, 2015*



4. RECOMMENDATIONS

151. If the world is serious about wanting to prepare for and respond rapidly and effectively to public health emergencies in the future, it must increase the priority given to the IHR, address the inequities in the global response to Ebola, and strengthen the role of WHO in coordinating the implementation of the IHR.

152. Our recommendations are grouped into two: (i) a strategy to ensure implementation of the IHR based on new proposals (Recommendations 1–6); (ii) improved delivery of the IHR by reinforcing existing approaches in IHR implementation (Recommendations 7–12).

153. A response to the recommendations addressed to this Review Committee by the Ebola Interim Assessment Panel and by the UN High Level Panel is presented in Appendix III.

Recommendation 1: Implement rather than amend the IHR

The Review Committee found:

154. It is the view of this Review Committee that the failures in the international response to Ebola did not result from major inadequacies in the text of the Regulations. The Review Committee considers that the IHR remain an indispensable legal framework for preventing and containing the international spread of public health risks. The overarching challenge with the IHR is poor implementation.

155. After thorough review of the IHR, the Review Committee considered that: opening the amendment process would take years at a time when implementation of the IHR is urgent; and could divert the focus from implementation to discussion about the scope, machinery or language of the IHR. While the committee recognised that there are, inevitably, provisions in the IHR where improvements could be made e.g., to simplify the process to produce standing recommendations, it nonetheless felt that the risks of undertaking amendments to the IHR far exceeded any potential benefits.

156. In developing the new recommendations in this report, the Review Committee determined that the IHR does not require an amendment.

The Review Committee recommends that:

There is neither the need for, nor benefit to be drawn from, opening up the amendment process for the IHR, at this time.

Recommendation 2: Develop a Global Strategic Plan to improve public health preparedness and response

The Review Committee found:

157. While WHO has developed technical guidance, regional strategies, and advises countries on implementation on an *ad hoc* basis, the lack of an overarching strategy to guide countries on how to put the IHR into practice and to monitor global progress, has contributed to the world remaining ill-prepared for major public health emergencies. Furthermore, it is clear that many less well-resourced countries will be unable to establish the core capacity requirements on their own by the final deadline

of June 2016. Setting further informal deadlines without a strategy for country ownership and support will serve no purpose. Instead, a global strategy with ambitious yet achievable targets and milestones needs to be put in place.

158. The Review Committee noted the challenge of balancing the need for urgent action with the reality that less well-resourced States Parties will not achieve the required health systems strengthening in a short period. The Committee is of the opinion that a 10-year plan for continuous improvement of public health preparedness, with a prioritized focus on IHR implementation in the first 1–3 years, is the appropriate response to this challenge.

The Review Committee recommends that:

The WHO Secretariat should lead the development of a Global Strategic Plan to improve public health preparedness, in conjunction with States Parties and other key stakeholders, to ensure implementation of the IHR, especially the establishment and monitoring of core capacities. The Global Strategic Plan should inform the development of regional office and national plans.

WHO Secretariat and States Parties:

2.1 The Strategic Plan should:

2.1.1 Be developed for endorsement by the 2017 World Health Assembly and thereafter be presented to the Assembly for annual review of progress made by States Parties and development partners.

2.1.2 Set out a programme of continuous review and improvement of core capacity, using the WHO's IHR Monitoring and Evaluation Framework.

2.1.3 Have clear process and performance indicators with the aim of improving implementation of the IHR and public health preparedness and response.

2.1.4 Include performance indicators that assess the strengths and weaknesses of global responses to both "International Public Health Alerts" (see Recommendation 6) and to Public Health Emergencies of International Concern.

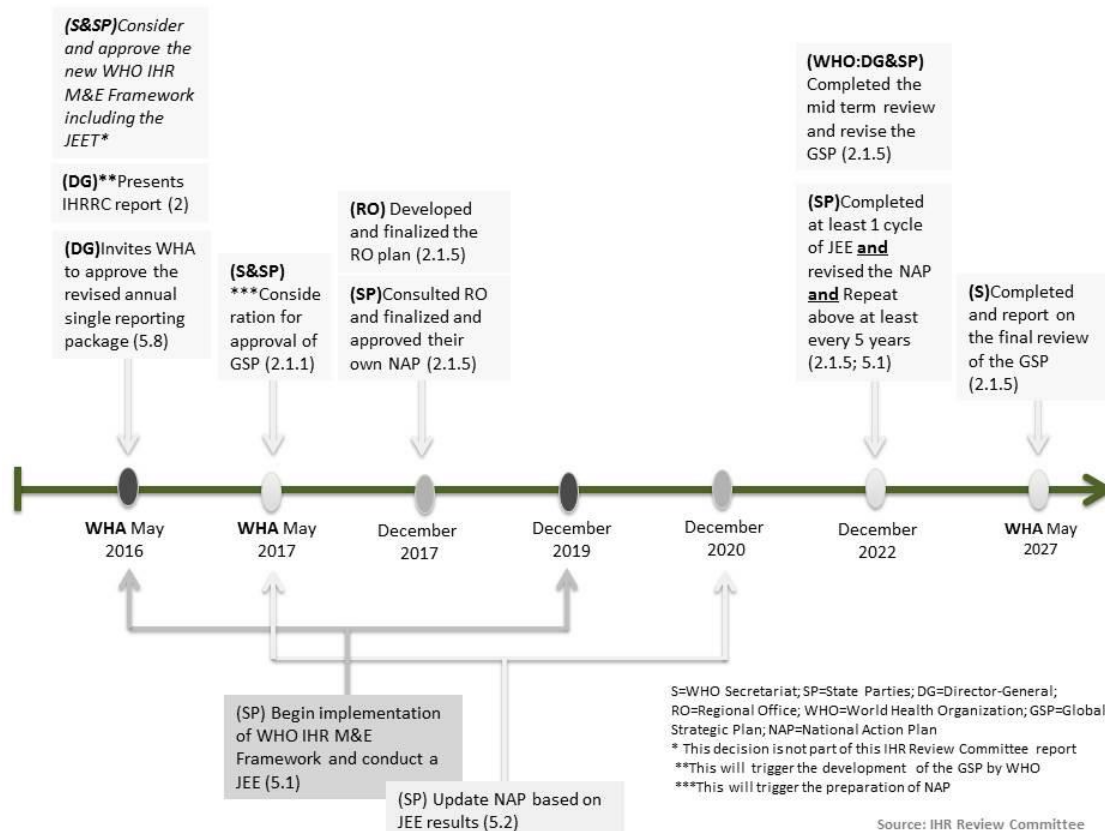
2.1.5 Have the following timeline (see Fig. 7):

- By December 2017, each State Party should have a prioritised national core capacity development and maintenance plan (a "National Action Plan"), with the support of international partners as needed. This plan should be approved by respective governments in consultation with the regional office, and should have indicators and targets for reporting to WHO (see Recommendation 5).
- The National Action Plan should incorporate regular joint internal and independent external assessment of country capacity on a 5-year cyclical basis, with each assessment reported to the World Health Assembly linked to improvement or maintenance measures.

- By December 2017, all regional offices should develop costed and prioritised regional implementation plans, which will be further refined to support the National Action Plans and ensure continuous improvement at the country level.
- By 2022, each State Party should have completed at least one cycle of joint external evaluation (see Recommendation 5) and review of its National Action Plan.
- By 2022, WHO should have completed a mid-term review of the Global Strategic Plan to identify progress made and revise the plan accordingly.
- By 2027, WHO should report to the World Health Assembly on a review of the Global Strategic Plan and the IHR.

2.2 The Global Strategic Plan should include financial and technical support from WHO, development partners and the private sector, which should be linked as incentives to the achievement of predetermined milestones in the National Action Plans.

Fig. 7. Proposed timeline for implementation of Recommendations 2 and 5



Recommendation 3: Finance IHR implementation, including to support the Global Strategic Plan

The Review Committee found:

159. Many States Parties and international development partners have not given adequate attention to the funding and collaboration required to strengthen and maintain the public health capacities mandated under the IHR. Financing the implementation of core capacities in resource-constrained countries and fragile states is particularly challenging for States Parties; the Ebola epidemic highlighted that, in these settings, implementation of the IHR is impossible without significant external financial and technical support before, during and after an event. Some affected countries reported being unable to exert national ownership of resources introduced into countries by international development partners, which also indicates the need for more national coordination and capacity.

160. This Review Committee was not constituted to make a detailed financial analysis of the financing requirements for IHR implementation. Nevertheless, it noted that estimates have been made and considers that at present levels of funding, it is not possible for WHO to deliver on its global mandate of support and coordination at all levels. The Review Committee notes that the Ebola Interim Assessment Panel and the UN High Level Panel, recommend an increase in assessed contributions to the WHO budget.

The Review Committee recommends that:

WHO, States Parties and international development partners should urgently commit to providing financial support at the national, regional and international levels for the successful implementation of the Global Strategic Plan.

States Parties

3.1 Allocate appropriate resources to the development, maintenance and assessment of IHR core capacities, as a priority component of the national health system.

3.2 Starting from 2017, increase contributions to the WHO Secretariat, to allow the establishment of an effective risk assessment, risk management and risk communication programme for health emergencies at the headquarters, regional and country levels, including a WHO Contingency Fund for Emergencies, permitting WHO to support effective emergency response in countries with limited resources.

WHO Secretariat

3.3 In conjunction with international development partners, offers assistance to States Parties in developing, as part of the Global Strategic Plan, a costed National Action Plan for IHR implementation.

3.4 Facilitates partnerships between countries with limited resources and either other States Parties or international actors to ensure that priority is given for technical and financial assistance. Such assistance must be contingent on countries undertaking an independent review of core capacities and linking financial incentives to the achievement of pre-determined milestones.

3.5 Facilitates collaborations between development partners and States Parties to encourage financial incentives for core capacity compliance and also for support in an emerging public health emergency.

International development partners

161. In support of the Global Strategic Plan, regional office plans, and the National Action Plans:

3.6 Development partners such as the United Nations Development Group (UNDP), the World Bank and middle- and high-income countries should, under IHR Article 44, continue to fund and support countries that require financial and technical support, and this support should be linked as incentives to pre-determined milestones in the national plan.

3.7 The World Bank should, with WHO's support, increase access to funds, to empower States Parties to urgently strengthen IHR core capacities, focusing on the most vulnerable countries.

Recommendation 4: Increase awareness of the IHR, and reaffirm the lead role of WHO within the UN system in implementing the IHR

The Review Committee found:

162. The IHR provide an essential multilateral framework, which, under the WHO Constitution, legally binds States Parties and the Organization to an agreement to protect the world's population from the disease threats, particularly those that may spread internationally. However, there is inadequate global understanding of IHR and of its potential role during public health emergencies, both across government and the UN system.

163. The evidence from the Ebola crisis confirmed the need for clear leadership both in a public health crisis and of the IHR. The Review Committee considered that this leadership sits within WHO's mandate. The Committee has considered the recommendation of the UN High-Level Panel to establish a high level council on global public health crises. While recognizing the importance of raising awareness of the IHR globally, the Committee is of the opinion that this structure may duplicate the mandate of WHO, and therefore cause confusion in governance during an emergency and also with regard to the remit of the World Health Assembly. The Committee stresses the importance of WHO in playing a lead role in IHR implementation.

The Review Committee recommends that:

Awareness and recognition of the IHR is improved within the UN system through the designation of an advocate. The key role of WHO in leading and governing implementation of the IHR should be reaffirmed.

UN Secretary General

4.1 Should consider including in the remit of the UN Secretary General's Special Representative for Disaster Risk Reduction a mandate to act as an advocate for the IHR to ensure that the IHR are well-understood and positioned prominently across sectors both in governments and in international organizations, and that their ongoing implementation is closely monitored. This would serve to improve global awareness and recognition of the IHR and would be a powerful signal from outside WHO, about the importance of the IHR for country governments and not just for ministries of health.

WHO Director-General and UN Secretary General

4.2 The central role of WHO in risk assessment, management and communication about public health emergencies should be strengthened (see Recommendation 12). The Review Committee does not support the constitution of the High Level council on global public health crisis as currently presented, and the Committee recommends that the UN Secretary General and WHO Director-General should consult before any decisions are taken on implementation of Recommendation 26 of the UN High-Level Panel report.

4.3 In line with WHO's leadership role in coordinating cross-sectoral global responses to public health emergencies, the Review Committee recommends early consultation between the WHO Director-General and the UN Secretary General in order to facilitate effective and coordinated global response.

Recommendation 5: Introduce and promote external assessment of core capacities

The Review Committee found:

164. Evaluation of States Parties' progress in establishing IHR core capacities has been mostly based on self-assessment. Although such assessment has had WHO engagement, self-assessment has significant weaknesses. For instance, experience in late 2014 from a WHO-supported external evaluation in the EMRO region revealed shortfalls in core capacities not identified or recognised by previous self-assessment. Thus, external evaluation appears to be a necessary complement. The Committee observed that, with the GHSA also requesting reporting on IHR implementation from participating countries, there is potential for the creation of parallel systems that could be burdensome to countries. The Committee welcomed the WHO IHR Monitoring and Evaluation Framework, which includes the development of the IHR all-hazards Joint External Evaluation Tool (JEET), in collaboration with the GHSA. The new approach of assessment will be submitted to the Sixty-ninth World Health Assembly, and the Committee encourages its endorsement. The Committee recognised other relevant evaluation frameworks and noted that other frameworks make their assessments publically available.

The Review Committee recommends that:

Self-assessment, complemented by external assessment of IHR core capacities, becomes recognised best-practice to monitor and strengthen the implementation of the IHR.

States Parties

5.1 Starting in 2016, all States Parties should urgently undertake an assessment of their core capacities¹ utilising the WHO IHR Monitoring and Evaluation Framework, including the JEET, implemented by an integrated, internal and external evaluation team appointed by WHO and endorsed by the State Party, and jointly funded, to maximize objectivity, and ensure that the findings of such assessments are forwarded promptly to WHO. Each State Party should complete its first joint external evaluation by December 2019, and repeated at least every five years.

¹ Under IHR Articles 5, 13, 19, and 20, and Annexes 1A and 1B.

5.2 National Action Plans (see Recommendation 2.1.5) should be updated by States Parties within one year of the JEET, with support from WHO regional and country offices as appropriate. This Plan should address identified gaps in capacity in accordance with their national and IHR public health priorities. To fill capacity gaps that cannot be addressed using national resources, States Parties should develop active partnerships with partner countries or other international development partners (see Recommendation 12).

5.3 States Parties that have not yet achieved fully the minimum core capacities, should report annually to the World Health Assembly, commencing in May 2017, including specific information on their progress and outcomes of each area of assessment using JEET and national plans. States Parties who have achieved the capacities should also report annually to WHO on their maintenance activities and status of capacities in the different areas.

5.4 Mindful of the need to not unnecessarily increase the reporting burden of States Parties, any or all of the reporting requirements may be combined into a single report to WHO.

WHO Secretariat

5.5 WHO should develop a guidance manual and training programme to assist countries in implementing the IHR in their specific context. This guidance and training should explain the core capacity requirements, the assessment process, the links with the development or funding partners, and the reporting to WHO.

5.6 Noting that a dual reporting system is an unnecessary burden for states that report under both IHR and GHSA, WHO should use its global coordination mandate to ensure that GHSA shares the same IHR reporting.

5.7 WHO should use a risk-based approach to prioritise its technical support for resource-constrained and fragile states at risk of emergence of new diseases or outbreaks.

5.8 The Director-General should invite the World Health Assembly to agree to the following changes in the way that States Parties and the Secretariat report annually, in a single report, to the World Health Assembly on the implementation of the Regulations:

5.8.1 WHO to report which assessment tool, including JEET, that States Parties have used, or agreed to use.

5.8.2 WHO should distribute to each World Health Assembly summaries of the findings of all assessments (including those using the JEET and otherwise) carried out in the preceding 12 months.

5.8.3 WHO should inform the World Health Assembly of each State Party to which it has provided technical or other support in assessment or development/maintenance of the core capacities, and summarise the nature of that support, including support WHO has facilitated or arranged from third parties.

5.8.4 State Parties that have prepared a National Action Plan must ensure that their annual report to the World Health Assembly on IHR implementation includes an update on status, activities and progress with the implementation based specifically on each element of their most

recent assessment and national plan, the overall status of their core capacities and highest priority areas requiring further action;

5.8.5 Those States Parties which have not used the JEET should, as part of their annual reporting through WHO to the World Health Assembly, summarise their intentions for developing and maintaining their core capacities beyond 2016;

5.8.6 All States Parties with second extensions to the deadline for core capacities (i.e., June 2016) should provide to WHO (no later than December 2016, for referral to the World Health Assembly in 2017) a final progress report on implementation as organized and described in their implementation plan.

International Development Partners

5.9 Development partners and middle- and high-income countries should build on existing initiatives, including consideration of “twinning” e.g. between Ministries of Health/National Public Health Institutes, to support the implementation of IHR as part of an integrated approach to health-systems strengthening, particularly in low and middle income countries and fragile states.

Recommendation 6: Improve WHO’s risk assessment and risk communication

The Review Committee found:

165. Under the IHR, WHO and States Parties have specific but complementary responsibilities in risk assessment, risk management and risk communication; however, during the Ebola response, neither WHO nor States Parties had sufficient capacity to fulfil these responsibilities adequately. In addition, these responsibilities were poorly coordinated.

166. The Director-General’s declaration of an event as a PHEIC is one of the IHR’s most powerful tools for warning the world about a major health threat. Yet the criteria for calling an Emergency Committee and for determining a PHEIC are not universally understood, nor is the criteria for ending a PHEIC. If an Emergency Committee is convened by the Director-General but a PHEIC is not determined, there is similarly little guidance on what the ongoing mandate of that Committee is nor how that event should be handled. The binary nature of an event either being declared a PHEIC or not, can mean that the world is required to quickly switch from relative inaction to a state of emergency with little warning. An intermediate level of alert is needed to warn the world of potential threats – that do not meet the criteria of a PHEIC but which nevertheless require coordinated actions to limit the potential spread of disease. In addition, other than the numerous risk assessments shared with NFPs through the EIS, there is little transparency or outside review of WHO’s risk assessment work. There is a need for WHO to change its procedures, to improve the effectiveness and the transparency of the Organization’s assessment of public health risks of potential international concern.

167. The Committee noted dissatisfaction with WHO’s information operations, and that in today’s interconnected world, WHO needs to reconsider the balance between the trade-off between the timeliness and accuracy of information provided. This was exacerbated by a general lack of knowledge of the IHR and their practical implications within States Parties and amongst those organizations who were in due course required to respond to the Ebola crisis. However, when WHO did provide information it was highly regarded and influential.

The Review Committee recommends that:

WHO establishes a standing advisory committee, which would have the primary purpose of regularly reviewing WHO's risk assessment and risk communication; creates an intermediate level of alert via a new category of risk that requires specific follow-up, called an International Public Health Alert (IPHA); and develops an updated communication strategy.

WHO Secretariat

6.1 Should establish a standing advisory committee with the primary purpose of regularly reviewing and providing advice to the Director-General on risk assessment and risk communication. This Committee would increase the transparency, quality, and trust in WHO's risk assessments and risk communication. In the Committee's view, the establishment of a standing advisory committee could serve to advise WHO on when an alert is required. The creation of such a committee is aligned with WHO's mandate to give expert public health advice, and is consistent with the IHR. The indicative terms of reference and methods of work for this standing advisory committee are in Appendix IV.

6.2 Should introduce a new level of alert lower than that of a PHEIC, called an International Public Health Alert (IPHA). Issuing an IPHA would be a flexible and rapid way of achieving the intermediate alert level that several panels and States Parties have called for without amendment to the IHR. An IPHA would require specific risk assessment that, where appropriate, includes objective expert advice from the standing advisory committee. For both IPHAs and PHEICs, WHO should define, in a publicly accessible manual, the purpose and criteria of these alerts, and the operational and financial consequences that they trigger. Factors to be considered in determining an IPHA should include but not be limited to:

- The nature of the disease
- The geographic spread
- The complexity of the coordination of the response
- The extent of political and media interest
- Whether it is a newly emerging disease
- Whether the event may lead to travel and trade restrictions
- Whether the event has the potential to become a PHEIC

6.3 To ensure consistency of actions associated with different levels of risk and to reduce confusion, the relationships between the risk grading and response actions across the IHR, the updated ERF, and the IASC activation levels, should be clearly documented and communicated to all stakeholders.

6.4 Should develop a risk communications strategy at headquarters, regional and country office levels that allows it to:

- 6.4.1** Provide timely, authoritative and focused information as well as to react rapidly to misinformation and changing circumstances, using all available forms of communication.

6.4.2 Support countries through better risk communication by: publishing rapid risk assessments on public health risks of potential international concern; updating its Outbreak Communication Guidelines¹ and other material in support of States Parties' risk communication, which can be tailored to local circumstances, and seeks to inform the understanding of IHR.

6.4.3 Provide clear and consistent communication in times of emergency relevant to private sector actors (e.g. pharmaceutical, travel, trade, transport companies) so as to enable them to adjust their operations and plans accordingly and to avert unjustified actions.

6.4.4 Proactively and assertively make use of the provisions in IHR Article 11 to share information about public health risks with States Parties and the public, and engage with States Parties and other stakeholders to increase understanding of IHR and transparency.

6.4.5 Establish active communication and coordination channels with other agencies, so that information is shared on an ongoing basis, which establishes a foundation for effective communication in times of crises.

6.4.6 Develop within WHO a coherent overarching narrative and key topline messages that can be cascaded directly to communication practitioners so that various stakeholders can develop specific messages that are aligned. This will minimise conflicting messages and confusion.

6.4.7 Ensure greater ownership of the communication process and outcomes not just within the WHO set up (i.e. consistent internal communications) but also across its various external stakeholders (i.e. States Parties and partners).

6.4.8 Establish robust listening channels (perception surveys, public opinion polls, community feedback) to have a better handle on perception and information gaps so that they can be addressed in a timely manner to suit local conditions.

Section II: Improving delivery of the IHR by reinforcing existing approaches for IHR implementation

Recommendation 7: Enhance compliance with requirements for Additional Measures and Temporary Recommendations

The Review Committee found:

168. The Temporary Recommendations issued by the Director-General after the declaration of a PHEIC provide guidance that is based on objective, independent, expert assessment. During the Ebola emergency, many countries introduced unnecessarily restrictive and unjustified health measures that contravened Temporary Recommendations, harmed local populations and disrupted the global response effort.

169. While inappropriate State Party restrictions were a major factor in airlines ceasing operation, there were many other factors that contributed. These included, for example, lack of assured safe accommodation within affected States for airline crews, a perceived lack of safe facilities for crews if

¹ WHO Outbreak Communications Guidelines. Geneva: World Health Organization; 2005 (<http://www.who.int/risk-communication/guidance/about/en/>, accessed 15 March 2016).

quarantine was required, issues related to aeromedical evacuation for sick crew (in part due to the inappropriate country restrictions), and an absence of timely and authoritative information required by airline decision-makers.

170. Although States Parties are not precluded from implementing measures that are not recommended by WHO, they must meet a number of requirements specified in the IHR. Many States Parties failed to comply with some or all of these requirements. On some occasions, senior WHO officials communicated directly with Ministers and Heads of Government, as well as with NFPs, to have excessive measures lifted; their efforts were often not successful.

The Review Committee recommends that:

States Parties should ensure that the public health response measures they implement comply with the IHR. To this end, WHO should increase transparency about Additional Measures adopted by States Parties, and publicity about Temporary Recommendations, and develop partnerships with international travel and trade organizations, and engage with other relevant private stakeholders.

WHO Secretariat

7.1 Should, when a PHEIC is determined, strengthen its practice of actively monitoring response measures implemented by States Parties and actions taken by non-State actors, and the impact of such measures and actions on other States Parties.

7.2 Should review the public health rationales submitted to it under Article 43 by States Parties implementing additional measures, and inform the State Party as to whether or not it considers that the measures are appropriate.

7.3 When a State Party implements additional measures that go beyond Temporary Recommendations for the event and/or which have an unreasonable adverse impact on one or more other State Parties, and either:

- (i) fails to notify WHO or provide details about such measures when requested or,
- (ii) fails to provide an adequate public health rationale or
- (iii) fails to review such measures within three months or
- (iv) fails to reconsider them when requested to do so by the WHO Secretariat, in addition to immediately posting, and regularly updating, this information on the Event Information Site (including follow-up communications from WHO and/or the State Party), the Committee recommends that after a further period of two weeks, the Secretariat should post a summary on the WHO website and bring this to the attention of the subsequent sessions of the WHO Executive Board and the World Health Assembly.

7.4 WHO should use an escalation pathway to engage with States Parties, including through linkage with the NFP, progressively higher level communication channels with States Parties, including engaging with ministers and heads of government as appropriate.

7.5 WHO should establish a task force with ICAO, IMO, the International Air Transport Association (IATA) and other relevant stakeholders to facilitate rapid information-sharing about risk assessment, risk management and risk communication for important public health events with the travel industry, to ensure that, during a crisis, essential travel (including for example ongoing aeromedical evacuation) continues.

States Parties:

7.6 Ensure that all response measures implemented regarding international traffic and trade, and matters covered by Temporary Recommendations, comply with all relevant IHR obligations.

7.7 Take all possible steps to ensure compliance of airlines and other international carriers operating within their territory to ensure consistency with the State Party's IHR obligations and Temporary Recommendations.

7.8 Ensure coordination with their national health, border, transport and other relevant ministries, and other appropriate transport sector authorities to ensure their compliance with the IHR in relevant contexts, and Temporary Recommendations, and works with commercial organizations in their countries to maintain the continuation of travel and trade with affected States Parties.

Recommendation 8: Strengthen National IHR Focal Points

The Review Committee found:

171. In the large majority of States Parties, the NFP is located within the Ministry of Health. Under the IHR, NFPs are the essential hub of information among all relevant sectors within countries and for communications with WHO (and increasingly communications between countries). However, NFPs often lack sufficient authority within government to fulfil their mandate of soliciting and gathering relevant information from all sectors, including in outbreaks and other public health emergencies. They must also be able to communicate rapidly and effectively with key decision-makers sometimes at the most senior level. However, NFPs often also lack the required financial, human, administrative and logistical resources to carry out their most essential functions. The Review Committee observed that there was limited knowledge by high level-officials of the role of NFPs, including in communicating with civil society groups and communities. More fundamentally NFPs are often assumed to be an individual despite a clear definition in the IHR (2005) that the NFP is a Centre.

The Review Committee recommends that:

National IHR Focal Points should be centres with sufficient staff with experience, expertise and seniority, and should be supported with the required resources (administrative, logistical and financial) to carry out all of their mandatory coordination and communication functions – as well as any other functions assigned by the State Party.

States Parties

8.1 NFPs must be positioned to ensure they have sufficient authority and governmental mandates to access the most senior government officials in health and other sectors, to access information sources across the health sector (at all levels) and in the many other sectors that are critical for effective compliance by the State Party with its IHR obligations.

WHO Secretariat

8.2 Should update existing guidance from 2007¹ and 2009² that advises States in designating, establishing, legally empowering and other issues relating to the NFP; WHO should develop new guidance in collaboration with States Parties, drawing on the past decade's experience.

8.3 WHO should review the existing network of NFPs and make recommendations on how it might be strengthened, such as through training.

Recommendation 9: Prioritize support to the most vulnerable countries

The Review Committee found:

172. Challenging situations with regard to the implementation of the IHR can be encountered in many different contexts. Countries affected by protracted crises such as conflict or natural disasters, fragile states vulnerable to public health risks because insecurity can lead to the deterioration of health systems, and some small developing island states are examples of such challenging situations. In particular, core capacities for surveillance, risk assessment, reporting and response may be weak or almost non-existent. Some of these countries have migrant populations or refugees, in whom tracking the spread of disease requires specific approaches.

The Review Committee recommends that:

WHO must prioritise support in establishing core capacities and the detection of public health risks to those countries that are either extremely low-resource, are in the midst of conflict, or those that are considered fragile.

WHO Secretariat and Partners

9.1 Should, in States Parties affected by conflict or other protracted crises, continue to implement innovative and informal arrangements as necessary to perform epidemic intelligence activities to detect acute public health events and help assess these according to Article 9 of the IHR (for example, using mass media, rumour surveillance, social media, health care personnel, nongovernmental organizations and other sources). This may also extend to innovative arrangements to provide technical and financial support for essential clinical and public health functions in conflict-affected areas.

9.2 Should, in States Parties without the appropriate capacities, offer to assess acute events, mobilize public health assistance and work with all relevant stakeholders on the ground with a view to having timely alert and response capabilities in place, for the benefit of all people affected by public health threats.

¹ National IHR Focal Point Guide. The designation/establishment of National IHR Focal Points. Geneva: World Health Organization; 2007. (<http://www.who.int/ihr/English2.pdf?ua=1>, accessed 15 March 2016).

² International Health Regulations (2005): Toolkit for implementation in national legislation. The National IHR Focal Point. Geneva: World Health Organization; 2009 (WHO/HSE/IHR/2009.4; http://www.who.int/ihr/NFP_Toolkit.pdf?ua=1, accessed 15 March 2016).

9.3 Should work with international and humanitarian IGOs and NGOs as well as CSOs, to detect, report, alert and respond in time to events of potential international concern among displaced people. In particular, WHO should coordinate with agencies such as the International Office for Migration (IOM) and the United Nations High Commission for Refugees (UNHCR) to facilitate the exchange of information on migrant populations and undertaking of appropriate actions to stem the spread of disease. The concept of “border spaces” or spaces of vulnerability can be addressed by mobilizing local core capacities at or near the border, rather than just focusing on the more narrowly defined role of points of entry, and screening capacity in such zones should be improved.

9.4 Should work with States Parties with refugees or large mobile populations to ensure that their core capabilities and contingency plans include arrangements for such populations. This should include mapping population movement to identify potentially vulnerable zones and areas of high risk in the event of a public health emergency. When relevant, migrants and mobile populations need to be a part of national health emergency response plans.

States Parties

9.5 In the event of a public health risk where there is the likelihood that population movement across the border between two or more States may spread disease, the affected States Parties should establish a cross-border working group on public health coordination.

Recommendation 10: Boost IHR core capacities within health systems strengthening

The Review Committee found:

173. The core capacities required under the IHR, such as effective surveillance and detection, and emergency response capacities, are an integral part of health systems. In practice, IHR core capacities do not exist separately from national health systems. In many countries, and as shown during the Ebola epidemic in West Africa, the weakness of IHR core capacities reflects the weakness of the health system. Similarly, the effectiveness of a country’s response to a public health emergency relies both on the effective core capacities to identify threats and to mobilize resources, but also on a functioning health system, including infection prevention and control. Health-systems strengthening is receiving much-needed global support and financing, and it is important to ensure that such programmes include a focus on IHR core capacities. In addition, the adoption of the Sustainable Development Goals provides an additional argument to support strengthening of health systems as a way to establish and maintain IHR core capacities. The WHO Health Systems and Innovation Cluster is working with Germany and Japan to develop and implement a roadmap for strengthening health systems, which includes an IHR core capacities component. The Committee considers it critical to strengthen IHR core capacities within the context of wider health-systems strengthening.

The Review Committee recommends that:

WHO and States Parties should ensure that all programmes to strengthen health systems specifically address IHR core capacities.

States Parties

10.1 Should ensure that their legislation and domestic health systems financing plans explicitly include IHR core capacities.

10.2 Should prioritise building on existing systems relevant to IHR core capacities. For example, where there are functional surveillance systems for infectious diseases, zoonoses, antimicrobial resistance, counterfeit drugs, environmental or chemical hazards, and so on, countries should ensure that these systems share information and capabilities, and collaborate to maximize mutual benefits. States Parties should implement programmes on the reinforcement of infection prevention and control, and ensure that these programmes are connected with the implementation of IHR core capacities, and also develop emergency management structures and processes.

International Development Partners

10.3 Should consider, as part of their support for the Global Strategic Plan, how their development aid and technical assistance for health-systems strengthening, in low- and middle-income countries, can include IHR core capacity strengthening.

Recommendation 11: Improve rapid sharing of public health and scientific information and data

The Review Committee found:

174. Information-sharing and data-sharing during public health crises are critical for an effective response, and for fostering research. It is critical that information-sharing is improved between WHO and States Parties, between States Parties themselves, and among the research community: during the Ebola epidemic, there were delays in the sharing of epidemiological information. These delays arguably slowed the international response, and have occurred in other public health emergencies including MERS and Zika. The Committee found that a number of States Parties continue to be concerned that data-sharing would not be balanced by benefit-sharing. The PIP Framework serves as an example of an agreement that facilitates sample and, potentially, gene sequence data-sharing, with benefit-sharing on an equal footing.

175. The sharing of information or data critical to research can also be hampered for various reasons. The Review Committee supports the WHO's R&D Blueprint which, among other measures to reinforce global preventive measures and preparedness of all-hazards research, aims at "the open sharing of data and the fair sharing of biological samples for research".

The Review Committee recommends that:

WHO champions the open sharing of information on public health risks, and expands guidance on global norms for sharing data¹ to biological samples and gene sequence data during public health emergencies.

WHO and States Parties should ensure that sharing of samples and sequence data is balanced with benefit-sharing on an equal footing.

¹ Developing global norms for sharing data and results during public health emergencies. Statement arising from a WHO Consultation held on 1–2 September 2015. Geneva: World Health Organization; 2015 (http://www.who.int/medicines/ebola-treatment/blueprint_phe_data-share-results/en/, accessed 15 March 2016).

WHO Secretariat

11.1 WHO should continue to strive for rapid, open-access journal publications on major public health risks. As well as supporting policies on early data-sharing, WHO should also commit to developing the capacity, in terms of technology and language, in low- and middle-income countries to share preliminary research.

States Parties

11.2 Should comply with all IHR requirements regarding the notification, verification and ongoing communication required after detection of a potential public health threat, to support WHO's ability to share information.

WHO Secretariat and States Parties

11.3 Consider using the PIP Framework or similar existing agreements as a template for creating new agreements for other infectious agents that have caused, or may potentially cause, PHEICs. These agreements should be based on the principle of balancing the sharing of samples and data with benefit-sharing on an equal footing.

Recommendation 12: Strengthen WHO's capacity and partnerships to implement the IHR and to respond to health emergencies

The Review Committee found:

176. At the time of the Ebola epidemic, IHR implementation capacity was inadequate at the three WHO levels. Challenges during the Ebola epidemic and response were related to the erosion of human and financial resources of the WHO Secretariat at headquarters, regional office and country office levels. This loss of resources had a significant impact on the capacity of the Secretariat to undertake risk assessment and risk management. The Review Committee is encouraged by the subsequent reforms of WHO structures being implemented by the Director-General.

177. The global response to the Ebola epidemic was characterised by a lack of coordination between WHO, as the key UN public health agency, and UN humanitarian agencies such as the Office for the Coordination of Humanitarian Affairs (OCHA). This was due in part to inadequately coordinated emergency planning across the UN, but also because the crisis was defined as a public health emergency rather than as a humanitarian crisis. At the height of the Ebola crisis, some West African governments were frustrated by the challenges of trying to coordinate all the role-players offering financial and technical support, but it appears that WHO was unable to play an appropriate coordinating role in these instances, including being unable to coordinate with relevant UN and humanitarian agencies. The result was that support efforts were sometimes duplicative or out of step with other responses on the ground. In particular, efforts were not informed by other key role-players such as community stakeholders, agriculture, food security, migration and human displacement.

178. The contribution of key actors outside the public health sector to the Ebola response has been under-recognised; however, these stakeholders could be useful partners for WHO in future responses. The Review Committee observed that the role of the private commercial sector was insufficiently acknowledged during the Ebola epidemic, when it contributed usefully to the response. In addition, military medical staff had a significant role in the health response and their role in future outbreaks needs consideration.

The Review Committee recommends that:

WHO's ability to implement the IHR is strengthened through Secretariat reform and stronger partnerships, and significantly increased financial support from States Parties and other key stakeholders.

WHO Secretariat

12.1 The Director-General of WHO should put the implementation of the IHR as a top priority of the WHO Secretariat and make it visible.

12.2 A tiered emergency response structure with strong linkages to both internal and external partners should be instituted, with clear, documented structures and processes for command and control, accountability, and leadership. Such a programme to strengthen and streamline WHO's response to emergencies and to the IHR should be a continued priority, and resources should be appropriately allocated to ensure the rapid success of this new programme. This programme should balance the advantages of a strong, decisive, accountable, multilevel programme with the strengths of the established working relationships that States Parties have with country and regional offices. There should be accountability for these reforms at WHO through regular reports to the WHO Executive Board and to the World Health Assembly.

12.3 A review of the WHO's regional and country structures for the implementation of the IHR should be completed. This review should allow for adequate staffing and funding of country and regional offices in the most vulnerable regions.

12.4 WHO should strengthen its partnerships with GOARN, and improve its partnerships with CSOs and key private sector stakeholders to enhance the Organization's capacity to perform surveillance, risk assessment and risk communication, but also to benefit from the action and assistance of such organizations in emergency situations.

12.5 WHO should develop agreements relevant to IHR implementation, when not already in place, with key UN agencies and other international bodies (see Recommendation 7.5). WHO should develop or strengthen its links with key UN agencies in the IASC.

12.6 WHO should work with States Parties and conduct joint simulation exercises with NGOs and humanitarian organizations.

12.7 WHO should collaborate with WTO and other relevant agencies, such as ICAO, IMO, OIE, the Food and Agriculture Organization of the United Nations (FAO), and the International Labour Organization (ILO) as appropriate, to develop a prototype template for Standing Recommendations, with a view to such recommendations being recognised as standards under the WTO agreements. The template should be piloted through the development of a small number of examples such as aspects of foodborne illness or yellow fever vaccination certificates. Following this process, the template should be reviewed and revised as appropriate and consideration given to the development of further Standing Recommendations.

12.8 WHO should encourage recognition of such Standing Recommendations in dispute settlement proceedings under WTO agreements, and by an interagency agreement between the WTO and WHO.

12.9 Should provide information technology (IT) systems and/or provide access, where appropriate, to WHO IT systems, to States Parties to assist them with their own public health intelligence and event management functions, and promote risk assessment capacity building at a national level and facilitate risk communication to WHO.

12.10 WHO, through a body such as OCHA's Civil-Military Coordination Section or the International Committee on Military Medicine, seek to identify military medical staff available to deploy, with the agreement of the host country, to provide medical care to civilian healthcare workers in the case of a significant infectious disease outbreak. Such military medical teams should be available within all WHO regions, and where appropriate, external assistance sought to facilitate the training of such teams. This should be linked into WHO's work on the Global Health Emergency Workforce.

12.11 The Task Force charged with examining how air travel might be continued during a future outbreak should consider the relevance to airports of the processes and procedures which successfully enabled large commercial entities to continue operating during the Ebola epidemic.

12.12 WHO should ensure that the health lessons of the commercial organizations which successfully continued operating during the Ebola outbreak, unidentified in all the major reports on Ebola, are captured and disseminated.

States Parties

12.13 Should ensure that consideration is given to how commercial entities might contribute to both surveillance and to the management of public health events, including infectious disease outbreaks.

States Parties and International Development Partners

12.14 Adequate and sustainable funding should be guaranteed for these reform processes.

Appendix I

NAMES AND AFFILIATIONS OF REVIEW COMMITTEE MEMBERS¹

Dr Preben Aavitsland, Chief Municipal Medical Officer of Arendal City, Norway

Dr Salah T. Al Awaidy, Communicable Diseases Advisor in Health Affairs, Ministry of Health, Muscat, Oman

Dr Hanan Balkhy, Executive Director of Infection Prevention and Control Department, Ministry of National Guard, King Saud bin Abdulaziz University for Health Sciences, Riyadh, Saudi Arabia

Dr Marion Bullock DuCasse, Chief Medical Officer of Jamaica

Professor Rupa Chanda, Economics & Social Sciences Faculty, Indian Institute of Management Bangalore (IIMB), Bangalore, India

Dr Supamit Chunsuttiwat, Senior Medical Officer, Department of Disease Control, Ministry of Public Health, Nonthaburi, Thailand

Professor Thomas Cottier, Emeritus Professor of European and International Economic Law, University of Bern, and Senior Research Fellow and Former Managing Director at the World Trade Institute

Mr Andrew Forsyth, Team Leader, Public Health Legislation & Policy, Ministry of Health, New Zealand

Professor Didier Houssin, President of the French Agency for Food, Environmental and Occupational Health and Safety, Paris, France

Mr John Lavery, Executive Director of Health Emergency Management British Columbia (HEMBC), Vancouver, Canada

Lieutenant-General Louis Lillywhite, Senior Research Consultant at the Centre for Global Health Security, the Royal Institute of International Affairs (Chatham House), London, UK

Dr Brian McCloskey, Director of Global Health, Public Health England, London, UK

Professor Babacar Ndoeye, Expert-consultant and trainer in hospital hygiene, infection control and patient safety, Dakar, Senegal

Professor Helen Rees, Executive Director of the Wits Reproductive Health and HIV Institute of the University of Witwatersrand (Wits) in Johannesburg, South Africa

¹ Review Committee Members' full biographies and Declarations of Interest are available at: <http://www.who.int/ihr/review-committee-2016/member-list/en/>.

Professor Samba O. Sow, Director General of the Center for Vaccine Development, Ministry of Health, Mali

Ms Karen Tan Senior Director at the Ministry of Communications and Information, Singapore

Appendix II

DETAILED METHODS OF WORK

Appointment of the Review Committee

1. The Director-General appointed 16 members of the Review Committee from the IHR Roster of Experts. In accordance with IHR Article 50 and rules for Expert Committees as specified in WHO's Basic Documents, members were appointed on the basis of the principles of equitable geographical representation, gender balance, a balance of experts from developed and developing countries, representation of a diversity of scientific opinion, approaches and practical experience in various parts of the world, and an appropriate interdisciplinary balance. The members are listed in Appendix I.
2. The Review Committee elected Professor Didier Houssin as Chair, Ms Karen Tan as Vice-Chair and Professor Helen Rees as Rapporteur.

Meetings

3. The Review Committee held six meetings at WHO headquarters in Geneva: 24–25 August 2015; 5–9 October 2015; 9–13 November 2015; 9–11 December 2015; 10–12 February 2016 and 21–24 March 2016.
4. Representatives of States Parties, the United Nations (UN) and its specialized agencies, and other relevant intergovernmental organizations (IGOs) and nongovernmental organizations (NGOs) in official relations with WHO were invited to attend an open session during the August 2015 and March 2016 meetings. The first day of the August 2015 and March 2016 meetings was also webcast live on the WHO website. During the October, November, and December intersessional meetings, an open session for representatives of the aforementioned entities was held via webcast. Participants were invited to make statements, ask questions and submit written memoranda at each open session.
5. Multiple consultations took place among the Committee and the Secretariat by means of telephone conferences and email exchange.

Information gathering

6. The Review Committee interviewed and/or received written inputs from nearly 90 informants including individuals from States Parties, IGOs, NGOs, UN agencies, industry, public health institutions, academia, and the private sector. The Committee reviewed key documents and reports including the findings of other independent assessments of the global response to Ebola published in 2015–2016. At the Committee's request, WHO commissioned specialized reports from external technical experts on international trade law and supportive structures for the IHR.
7. The Committee actively sought input from States Parties and other entities. To this end, the Permanent Missions to the UN Office and other relevant international organizations in Geneva were contacted by email and invited to contribute their views on how to improve compliance with the IHR and how to provide a supportive environment for the effective implementation of the IHR in all countries, with a particular emphasis on core capacities.

8. During its deliberations the Review Committee interviewed WHO Assistant Directors-General, programme directors, technical and other staff and representatives of WHO regional and country offices. While operating independently, the Committee sought information and requested the development of written technical documents from the WHO IHR Review Committee Secretariat. The Committee also asked for clarification of issues that arose during the information-gathering and report-writing periods. WHO staff provided written responses to questions posed by the Committee and spoke informally and openly with Committee members.

9. The Chair and one other member of the Review Committee visited the WHO Regional Office for Africa on 3–4 March 2016. They met with the Regional Director, cluster directors and others to facilitate the formulation of appropriate recommendations on strengthening the WHO Secretariat for preparedness and response to outbreaks and emergencies.

Assessment and development of recommendations

10. The Review Committee began its work by conducting a thorough analysis of the IHR (2005). Specified Parts and associated Annexes were assigned to three technical subcommittees. The subcommittees identified relevant problems/issues and questions requiring wider consultation; approaches and options for improvement; and information, analyses, and organizations or persons whose input might inform the review and the subsequent development of practical and feasible recommendations.

11. The first two objectives of the Committee's Terms of Reference were to assess the implementation of the IHR related to the Ebola outbreak and the consequences which, in this context, may have resulted from the non-implementation of recommendations from the previous Review Committee in 2011. Considering the broad scope offered to the Review Committee in the formulation of its recommendations – the third objective of its Terms of Reference – the Review Committee chose to assess the implementation of the IHR in a broad manner. Although the Ebola epidemic context was viewed as a priority, the Committee also considered other relevant contexts linked to the Middle East respiratory syndrome, polio eradication and influenza viruses with pandemic potential.

12. The analyses of the three technical subcommittees led to the identification of ten main challenges to implementation of the IHR: National IHR Focal Points (NFPs); notification and data sharing; a public health emergency of international concern (PHEIC); WHO recommendations; cooperation and communication within and between States Parties, and regional approaches; cooperation with IGOs and partners (e.g. NGOs and trade); prioritizing, building, monitoring and assessment of core capacities of States Parties; all-hazards public health preparedness and response (including maintenance of air traffic); additional health measures instituted by States Parties; and compliance and accountability through transparency and reporting. Identification, recognition and support for the implementation of the IHR as a priority in global public health security was identified as an overarching eleventh challenge. The Committee also recognised the need for a concerted communications effort for more effective implementation of the IHR, and to underline the urgency of ensuring compliance.

13. The Committee probed the eleven challenges using a SWOT (strengths, weaknesses, opportunities and threats) analysis and identified factors that promoted or inhibited successful implementation of the IHR as well as desirable outcomes and draft recommendations. Following a strategic analysis of each draft recommendation, preliminary recommendations were developed and subsequently refined.

14. In developing its recommendations the Review Committee also analyzed the findings of other, concurrent independent assessments of the global response to Ebola and examined initiatives underway to improve global health security.

Review of recommendations

15. The WHO Executive Board was briefed on the Review Committee's progress in January 2016. The Committee's draft recommendations were shared with States Parties in advance of an open session held during the March 2016 meeting. The input received informed the Review Committee's final report to the Sixty-ninth World Health Assembly in May 2016.

Appendix III

**IHR REVIEW COMMITTEE RESPONSES TO RECOMMENDATIONS FROM THE
EBOLA INTERIM ASSESSMENT PANEL AND THE UN HIGH-LEVEL
PANEL ON THE GLOBAL RESPONSE TO HEALTH CRISES****Responses to the Ebola Interim Assessment Panel**

1. The Ebola Interim Assessment Panel put forward four recommendations and one request for the consideration of the Review Committee. The Committee's responses are as follows.

2. **Panel Recommendation:** *The IHR Review Committee for Ebola should consider incentives for encouraging countries to notify public health risks to WHO. These might include innovative financing mechanisms such as insurance triggered to mitigate adverse economic effects (Panel Recommendation 3).*

3. **Review Committee response:** Reporting of public health risks that meet the criteria for notification is an obligation under the IHR. Notification can trigger benefits for countries. WHO can provide consultation and advice including emergency response support when needed. The WHO Contingency Fund for Emergencies will allow WHO to deploy surge emergency human resources to coordinate emergency medical teams, establish information technology systems, address risk communications gaps, and procure and deliver medical supplies.¹ WHO experts along with the Global Health Workforce, the Global Outbreak Alert and Response Network (GOARN) partners and other international experts and organizations can provide technical expertise in laboratory diagnostics, case management, logistics, infection control, epidemiology and coordination. Notification may also trigger access to the World Bank's Pandemic Emergency Facility (PEF) which provides "financing to countries and pre-approved accredited international responders to help stop a severe outbreak becoming a deadlier and more costly pandemic."² While the PEF doesn't cover economic losses associated with an outbreak, it does support the costs of a country's outbreak response activities.

4. An insurance policy that pays countries to report risks poses numerous challenges which would need to be addressed. Who would pay the premiums? Would there be one policy for all countries? What if different countries wanted different kinds of coverage? When would payouts be made? If payouts were contingent on the declaration of a public health emergency of international concern (PHEIC), would this apply pressure to declare PHEICs more frequently? How would the level of payout be determined?

5. The Review Committee considers the IHR themselves to be the best insurance policy.

Panel Recommendation: *The IHR Review Committee for Ebola should consider disincentives to discourage countries from taking measures that interfere with traffic and trade beyond those recommended by WHO (Panel Recommendation 4).*

¹ See http://www.who.int/about/who_reform/emergency-capacities/contingency-fund/Contingency-Fund-Emergencies.pdf?ua=1.

² See <http://www.worldbank.org/en/topic/pandemics/brief/pandemic-emergency-facility-frequently-asked-questions>.

- *The Secretariat must be strengthened to request justification of these measures under the Regulations. The Panel recommends that the IHR Review Committee for Ebola and the United Nations Secretary-General's High-Level Panel on the Global Response to Health Crises make this possible.*
- *The Panel request that the full IHR Review Committee for Ebola examine options for sanctions for inappropriate and unjustified actions under the Regulations; precedents exist in international practices such as those of WTO (e.g. for trade matters under non-tariff headings). Where Member States behaviour threatens the response to the crisis by, for example, making it impossible for health workers to reach affected countries, there should be a procedure to take this matter to the United Nations Security Council. This should be a matter of priority for the IHR Review Committee for Ebola and the United Nations Secretary-General's High-Level Panel on the Global Response to Health Crises.*

Review Committee response:

(1) Consider disincentives to discourage countries from taking measures that interfere with traffic and trade beyond those recommended by WHO – Article 43 of the IHR authorises States Parties to implement Additional Measures as part of their response to a public health threat, but in doing so, they must comply with several procedural requirements for measures which delay international traffic by more than 24 hours. These include informing WHO of the implementation of such measures, providing a public health rationale, undertaking a periodic review of the measures and re-considering the measures if requested to do so by WHO. Despite these requirements, during the Ebola epidemic, the Secretariat logged some 40 different measures that it considered constituted significant interference with international traffic and trade and for which one or more of the procedural requirements were not met. Some of these measures were implemented by the private sector, which are not parties to the IHR and which while disruptive, were arguably commercial decisions rather than response measures. However, many disruptive response measures were implemented by States Parties. Given that the IHR do not include sanctions and the Committee does not recommend amending the Regulations, and considers the best way to discourage unnecessarily disruptive response measures is to provide for public disclosure. In short, to increase accountability through greater transparency.

(2) Strengthen the Secretariat's ability to request justification of travel and trade restrictions under the Regulations – The Committee supports the Secretariat in following-up with States Parties that fail to comply with their obligations in relation to the procedural requirements associated with additional measures under Article 43, in particular, States Parties which fail to provide any (or an adequate) public health rationale. The Committee also further encourage the Secretariat to actively request States Parties to reconsider any additional measures they have implemented when the supporting public health rationale is either not forthcoming or inadequate.

The Committee notes that following the recommendation made by the 2011 IHR Review Committee (which among other things considered inappropriate travel and trade restrictions imposed by some countries in response to the pandemic (H1N1) 2009 virus, WHO did post information during the Ebola epidemic on the secure Event Information Site (accessible to all National Focal Points). This included information on the nature of the Additional Measure(s), the country implementing them and the date on which the Secretariat had requested the public health rationale and/or that they be reconsidered. The Review Committee welcomes this increased transparency, recommends that this practice is continued and that it go further (see IHR Review Committee Recommendation 7).

(3) Examine options for sanctions for inappropriate and unjustified actions under the Regulations – Reflecting the will of WHO States Parties during the intergovernmental negotiations

during 2004 and 2005, the IHR (2005), as with the IHR (1969), do not include sanctions for non-compliance. Broadly speaking, the ethos that underpins international public health fora is one of cooperation and collaboration, rather than sanctions. The Committee reviewed the potential for linkages with the various agreements under the World Trade Organization (WTO) and has recommended that WHO explore the possibility of developing Standing Recommendations (under Article 16) with a view to such recommendations having the status of standards under WTO agreements (see IHR Review Committee Recommendation 12). This would assist the WTO framework to take better account of public health matters.

Where two or more States Parties disagree about the appropriateness of measures implemented in response to a public health event, the primary mechanism for resolution provided for under the IHR is one of consultation and dialogue – as set out in Articles 43 and 56. The Secretariat advised the Committee that to its knowledge the dispute resolution process established in Article 56 has not ever been formally invoked, but that this option remains open to States Parties, where, for example, both agree to refer a dispute to the Director-General or to arbitration for settlement.

(4) Suggest a procedure to take such matters to the United Nations Security Council – The WHO Secretariat should continue the practice of posting ongoing information about countries implementing public health rationale-insufficient additional measures on the secure Event Information Site. When such measures have had an unreasonable adverse impact on one or more State Parties, the Review Committee has recommended (see IHR Review Committee Recommendation 7) that the Director-General post information about the measures and the country implementing them on the WHO public website and bring this to the attention of the next Executive Board and the Health Assembly.

Panel Recommendation: The IHR Review Committee for Ebola should consider the possibility of an intermediate level that would alert and engage the wider international community at an earlier stage of a health crisis. At present it is possible only to declare a full Public Health Emergency of International Concern (PHEIC) (Panel Recommendation 5). There is also a lack of understanding in the international community and in the media about the meaning of a declaration of a PHEIC, and this must be addressed.

Review Committee response: The Committee agrees that there is a need for a new alert level below that of a PHEIC and that the meaning of a PHEIC declaration is not universally understood. To address these issues, the Review Committee has proposed several changes, including an intermediate level of alert (see IHR Review Committee Recommendation 6).

Panel Recommendation: *The IHR Review Committee for Ebola should determine required timelines for rapid decision-making. Maintaining a regularly updated pre-cleared list of potential experts will help to avoid delays in calling the Emergency Committee (Panel Report, paragraph 24).*

Review Committee response: The Committee agrees that there should be minimal delays in decision-making about the grading of events. The Committee believes that the proposed transparent risk assessment procedures (see IHR Review Committee Recommendation 6) will minimize unnecessary delays. WHO previously established a pre-cleared IHR Roster of Experts to draw upon when constituting an Emergency Committee. The Review Committee has also recommended (see IHR Review Committee Recommendation 12) that WHO re-inforce its partnership with GOARN – a global technical partnership of multidisciplinary experts coordinated by WHO.

Panel Request: *The IHR Review Committee for Ebola and the United Nations Secretary-General's High-Level Panel on the Global Response to Health Crises must explore instances where a fragile*

State has neither the capacity nor the will to address an outbreak that poses risks to the rest of the world; in these cases, mandatory action may be warranted (Recommendation 9).

Review Committee response: The Review Committee has called for support of countries affected by conflict (“ungoverned spaces”) and fragile States (see IHR Review Committee Recommendation 9). In such settings, the Committee expects that WHO would, to the extent possible, verify whether an outbreak has occurred and conduct a risk assessment including the potential for global spread. The Committee expects that WHO would bring significant risks to the attention of the UN Secretary-General for consideration by the UN Security Council. Other States Parties, particularly ones that border the unresponsive State or the ungoverned area, could also bring the issue to the attention of the Secretary-General. The use of political and diplomatic channels could help gain the cooperation of the unresponsive State or warring parties. Further action would depend on UN Security Council action.

Response to the UN High-Level Panel on the Global Response to Health Crises

Recommendation 1

“By 2020, States Parties to the IHR, with appropriate international cooperation, are in full compliance with the IHR Core Capacity requirements.”

The Review Committee’s views on the timeline for full implementation of the IHR are set out in IHR Review Committee Recommendations 2 and 5.

Recommendations 23

The UN High-Level Panel in Recommendation 23 asked that the IHR Review Committee “considers developing mechanisms to rapidly address unilateral action by states and others who are in contravention of temporary recommendations issued by the WHO as part of a PHEIC announcement. Such actions can have a severe economic impact on those countries affected by an infectious disease outbreak. Such action also reduces the incentive for countries to report outbreaks in accordance with the IHR as they ask themselves ‘*why should we comply, if a potential effect is for others to impose unjustified restrictions on international traffic and trade that exceed the Temporary Recommendations?*’”. The Review Committee has addressed this point in IHR Review Committee Recommendation 7.

Recommendation 24

The UN High Level Panel says “The WTO and WHO convene an informal joint Commission of Experts to study possible measures to strengthen coherence between the IHR and the WTO legal frameworks regarding trade restrictions imposed for public health reasons.” The Review Committee has addressed these points in IHR Review Committee Recommendations 7 and 12.

Recommendation 26

Recommendation 26 of the High Level Panel recommends the setting up of a “High-level Council on Global Public Health Crises to ensure the world is prepared and able to respond to public health crises.” The High Level panel confines the Terms of Reference of this Council to political and non-health issues. However, the IHR Review Committee considers that, while it is important to bring pressure to bear when States are not in compliance with the IHR, the current recommendation risks

confusing or undermining the authority of WHO. Therefore the Review Committee does not support the constitution of such a Council.

In considering the High Level Panel's Recommendation, the Review Committee recommends that the UN Secretary-General and the WHO Director-General should consult before any decisions are taken on the implementation of this Recommendation.

In addition, there would be a need to identify the relationship of the proposed Council with the World Health Assembly. The IHR are an international legal instrument, and not a technical health instrument and issues regarding its implementation and amendment are routed via the World Health Assembly. The recommendation of the High-Level Panel for a Council seems to subvert some of the responsibilities of the World Health Assembly.

Appendix IV

**INDICATIVE TERMS OF REFERENCE AND METHOD OF WORK OF A
PROPOSED STANDING ADVISORY COMMITTEE****Terms of Reference**

- The primary purpose of the standing advisory committee (SAC) is to provide independent expert advice to WHO Director-General and headquarters Secretariat on risk assessment and risk communication for events that potentially constitute an international public health risk.
- The SAC will review events determined by the Secretariat to be of significant public health risk and advise on whether the event qualifies as an intermediate level of alert (i.e., an International Public Health Alert). SAC may also nominate events for its consideration.
- The SAC has no executive, implementation or supervisory functions.
- In addition to regularly reviewing events selected by the Secretariat as carrying a significant public health risk, the SAC may also be requested to respond to urgent requests from the Secretariat for advice.
- The SAC will ensure that its method of working is transparent. To this end, the SAC will publish a report through the Director-General's office within a week of each SAC meeting. The report will describe key recommendations based on sets of defined criteria and working methods.
- The SAC may establish working groups to focus on specific aspects of the implementation of IHR.

Method of Work

- Members of the SAC could be drawn from the IHR Roster of Experts, and should represent all regions and genders, and a range of relevant skills.
- SAC could, with the agreement of the WHO Secretariat, co-opt additional advisors from selected relevant global entities and/or affected States Parties.
- SAC members should have a three-year term of office, renewable for one term.
- The SAC should have a small number of scheduled face-to-face meetings each year.
- The SAC will be available for urgent consultation either telephonically or in person, as required.
- The SAC would make decisions by consensus unless a vote was required to resolve differences.

Appendix V

GLOSSARY OF TERMS AND ABBREVIATIONS

AFRO WHO Regional Office for Africa

APSED Asia Pacific Strategy for Emerging Diseases

CBD Convention on Biological Diversity

CCHF Crimean-Congo Haemorrhagic Fever

CDC Centers for Disease Control and Prevention

CSO Civil society organizations

EVD Ebola Virus Disease

EIS Event Information Site

EMS Event Management System

EMRO WHO Regional Office for the Eastern Mediterranean

ERF WHO Emergency Response Framework

FAO Food and Agriculture Organization of the United Nations

GDACS Global Disaster Alert and Coordination System

GDP Gross Domestic Product

GHSA Global Health Security Agenda

GISRS WHO Global Influenza Surveillance and Response System

GOARN Global Outbreak Alert and Response Network

GSD Genetic sequence data

IASC Inter-Agency Standing Committee

IATA International Air Transport Association

ICAO International Civil Aviation Organization

IGO Intergovernmental organization

IHR International Health Regulations

ILO International Labour Organization

IMO International Maritime Organization

IOM International Organization for Migration

IPHA International Public Health Alert

IT Information technology

JEET Joint External Evaluation Tool

MERS Middle East respiratory syndrome

MOU Memorandum of Understanding

MSF Médecins Sans Frontières

NFP National IHR Focal Point

NGO Nongovernmental organization

OCHA Office for the Coordination of Humanitarian Affairs

OIE Organisation Mondiale de la Santé Animale/World Organization for Animal Health

PAHO Pan-American Health Organization

PHEIC Public health emergency of international concern

PEF World Bank's Pandemic Emergency Facility

PIP Pandemic Influenza Preparedness Framework

PPE Personal protective equipment

R&D Research and development

SAC Standing Advisory Committee

SARS Severe acute respiratory syndrome

SEARO WHO Regional Office for South-East Asia

UN United Nations

UNHCR United Nations High Commission for Refugees

UNMEER United Nations Mission for Ebola Emergency Response

UNDP United Nations Development Group

WCO WHO country office

WHO World Health Organization

WPRO WHO Regional Office for the Western Pacific

WTO World Trade Organization

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