A Health Threat anywhere is a Health Threat everywhere

Sustained partnerships are necessary to build capacity

Frode Forland, MD, DPH, Specialist Director, Domain for Infectious Disease Control and Environmental Health, Norwegian Institute of Public Health (corresponding author)
Frode.Forland@fhi.no

Camilla Stoltenberg, MD, PhD, Director General, Norwegian Institute of Public Health
Camilla.Stoltenberg@fhi.no

Emily MacDonald, MS, Public Health Institute of Malawi, emacdonald.mw@gmail.com

Nils Daulaire, MD, MPH, Distinguished Visiting Scholar, Harvard T.H. Chan School of Public Health, nils.daulaire@gmail.com

Abstract

Background: The Ebola epidemic and several other infectious disease outbreaks have shown the joint vulnerability posed to all countries related to their potential devastating consequences for health, development and social security. We argue that national and global health challenges are interconnected and that solutions must be sought through long term investments and sustained partnerships between countries and institutions. The paper presents two major relevant instruments that are currently under debate, the International Health Regulations (2005) and the Global Health Security Agenda and describes how these legal frameworks and voluntarly initiatives can help countries identify gaps of their preparedness level and to find ways of matching needs and recources.

Conclusion: Collaboration between different National Institutes of Public Health can in our view play an important role in building long term capacity and competence to strengthen global health security. The Norwegian Global Health Preparedness Program is described as an example in this regard.

Key words

Global health security, preparedness, epidemics, outbreaks, public health institutes

Background

By international standards, Norway has a robust and effective domestic infectious disease control program, and has fully implemented the requirements of the International Health Regulations (IHR 2005). It might be tempting to say that this is sufficient to protect the public's health within its borders. Yet, Norway has in recent years placed itself squarely in the midst of a range of global efforts to enhance international preparedness and response. This paper intends to discuss how sustained partnerships can meet recent challenges related to global health security.

In a globalizing world, the divide between domestic and global health challenges is rapidly eroding. Far from purely an act of humanitarian solidarity, Norway has recognized that building public health capacities serves to benefit its own people as well as the people of other countries.

Recent events, such as the Ebola, Zika and MERS outbreaks, have worked to strongly reinforce this approach. At the May 2016 World Health Assembly (WHA), a major focus of attention was on the IHR review process that was launched following the critical debates reviewing the performance of WHO and a number of severely affected countries during the 2014-2015 West African Ebola disease outbreak. In the Annual reporting of the Implementation of the IHR to the WHA in 2017, the Director General notes that globally progress has been made since 2010 across the core capacities required by the Regulations, particularly in surveillance, response and zoonoses, but the overall average scores suggest further efforts are urgently needed in the areas of human resources, capacities at points of entry, chemical events and radiation emergencies. Attention is as well required to the areas of response and preparedness. [i]

At the same time, there has been a debate concerning the Global Health Security Agenda (GHSA), which was launched by the United States in partnership with WHO, FAO, OIE and thirty-three other countries in February 2014, and which some see as running parallel to the IHR process.[ii]

Triggering this was the succession of epidemic events that have taken place over the past two decades. Avian influenza (H5N1) emerged in China in 1998; SARS in China in 2003; H1N1 influenza in Mexico in 2009; and Ebola in West Africa in 2014, and the Zika virus outbreak starting in Brazil in 2016, which has emerged with rapidity and impact throughout the Western Hemisphere after simmering largely unnoticed in Africa and the South Pacific for decades.

As each of these disease outbreaks began in limited locales with initially few victims, and then spread with accelerating force to pose true global challenges, they represent a crescendo alarm over how the lack of infection control, poor monitoring and slow reporting of disease outbreaks, as well as weak health systems, pose immediate risks to the societies where they first emerge, but ultimately make all the world's societies vulnerable to epidemics of global proportion.

Huge efforts by a wide range of local, governmental and non-governmental actors brought the West African Ebola outbreak to an end. Front line health workers in the affected countries made enormous personal sacrifices, supported by international mobilization of manpower, active engagement of international NGOs, full scale mobilization of resources from donor countries, and a belated but eventually full-throated response from WHO. Testing of promising vaccines was accelerated, with indication that a recombinant, replication-competent virus-based vaccine (rVSV-ZEBOV) deployed by a research consortium was 100 percent effective.[iii] Altogether, the global community spent more than 3.6 billion USD to bring the outbreak under control,[iv] and finally on March 29 2016, WHO Director-General Margaret Chan announced that the outbreak of Ebola virus disease in countries of West Africa was no longer a Public Health Emergency of International Concern (PHEIC).

This outbreak has triggered the largest set of reflections yet on the theme of effective outbreak control, with more than 40 identified reviews by December 2016. [v] In a BMJ paper Surie Moon et al have analyzed seven of the most thorough reviews, [vi] including the three reviews commissioned by WHO, and four external reviews. Many have pointed to a common set of core challenges: failures of

international coordination and of national core capacities for health systems, the need for external evaluations of national capacities and the need for sustainable funding.

Each of the after-action reviews of the West Africa Ebola outbreak has criticized the international community in general, and the WHO in particular, for extensive delays in recognizing and responding to the gravity of the situation. It has been recognized that Medecins Sans Frontieres (MSF) sounded the alarm as early as March 2014[vii], but that WHO delayed declaring a PHEIC until August 8 [viii]2014, by which time the number of cases in the three countries had exploded and there was generalized panic.

Since the crisis WHO has taken the criticism towards its handling seriously, both at the HQ level, at the Africa Regional (AFRO) level, and at the WHO Country Office level. Among the steps taken is the establishment of the new Health Emergency Program with a common structure, reporting lines and accountabilities within the whole of WHO[ix], the Strategic Partnership Portal[x], a virtual marketplace where countries in need of support can find partners to twin with that have resources to offer, and the joint development between the Global Health Security Agenda and WHO of the Joint External Evaluation Tool for assessments of national capacity related to Public Health Surveillance, Emergency and Response.[xi] Since February 2016, 38 Joint External Evaluations have been conducted in six regions (as of 5 May 2017), according to the Alliance for country assessments which has been established to support countries in planning and carrying out joint external evaluations. [xii] During the 2017 WHA some countries have expressed concerns that this tool has been developed without prior consultation with all member states, which could hamper its further implementation.

The International Health Regulations (2005)

The International Health Regulations (IHR), a set of internationally binding regulations concerning outbreak monitoring and reporting, were adopted by WHO member states in 2005, and were intended to form the basis for timely and effective response to outbreaks[xiii]. The IHR have identified eight core capacities that all nations must have in place to prevent, detect and respond to any public health incident of national or international concern. These are:

1. National legislation, policy and financing, 2. Coordination and National Focal Point, 3. Surveillance, 4. Response, 5. Preparedness, 6. Risk communication, 7. Human resources, 8. Laboratory capacity.

However, the unfortunate reality is that due to a combination of inattention and lack of resources, for many countries these IHR core obligations have remained abstractions on paper rather than meaningful tools. While all 196 WHO member states have formally adopted the IHR framework, by 2014 only 64 countries reported that they had all capacities in place, and 50 countries did not report at all. At the same time, the unit of Global Capacities Alert & Response at the World Health Organization - responsible for monitoring and strengthening IHR capacities - was suffering from severe budget cuts associated with WHO's financial crisis and reduced its staffing.

The Global Health Security Agenda

In recognition of the slow pace of progress and institutional challenges in place at WHO, starting in early 2014 a group of countries under the prompting of the U.S. established the Global Health Security Agenda (GHSA)[xiv]. This is at present a collaboration of 55 countries and international organizations such as WHO, FAO and OIE, with a joint mission to prevent, detect and respond to

infectious disease outbreaks throughout the world. With considerable initial financial resources from the U.S. ($700 million) and additional funding from other donor countries, it is designed to work in support of, rather than supplant, the WHO IHR process. Its processes support eleven delineated work packages, which partially overlap with the core capacities of the IHR.

These eleven work package areas are:

- Prevent: 1. Antimicrobial Resistance, 2. Zoonotic Disease, 3. Biosafety and Biosecurity, 4. Immunization,
- Detect: 5. National Laboratory System, 6. Real-Time Surveillance, 7. Reporting, 8. Workforce Development,
- Respond 9. Emergency Operations Centers, 10. Linking Public Health with Law and Multisectoral Rapid Response, 11. Medical Countermeasures and Personnel Deployment

In 2015 Front. Public Health published an article that shows the mapping of IHR core capacities with GHSA work packages in the context of bioengagement.[xv]

Norway has been part of the GHSA initiative from its inception, but simultaneously recognized the leading role of WHO in this regard, and sees it as a timely and highly relevant area of work. This became even more evident when, shortly after its 2014 launch, the very issues GHSA was designed to address became a reality in the West Africa Ebola outbreak.

As the IHR core capacities and the GHSA work-packages are partly overlapping, a process has taken place to develop a Joint External Evaluation Tool (JEET), to combine national assessments with an open review lead by an international team of experts for the purpose of assessing national capacities in public health preparedness and response. The assessments are based on a peer-to-peer model in which external experts are invited to work with the country to evaluate capacity, ensuring an objective approach and facilitating cross-sectoral learning[xvi]. The Alliance for Country Assessments has been established to support WHO in facilitation and coordination of these assessments, and an ambitious plan has been laid to pursue the assessments, with 60 countries being evaluated per year. 23 countries have carried out their assessments and displayed their findings on the WHO website by May 2017.[xvii]

Joint vulnerability

More than any other event in recent memory, the Ebola outbreak has clearly shown our joint vulnerability and global interdependence, and the degree to which capacity to prevent, detect and respond at the local and national level is vital to true international security.

The Zika virus emergence in Brazil is a clear case in point. It was Brazilian health systems personnel who identified the rapid spread of Zika virus and its association with microcephaly, which in retrospect had been present in other earlier outbreaks elsewhere but missed because of health systems limitations and small case numbers. It was Brazilian health authorities who alerted the international community concerning this new infectious risk and triggered rapid and targeted action throughout the Americas, and Brazilian researchers are leading research efforts to identify and develop effective countermeasures. In very short order from the time it was first reported, WHO

declared a Public Health Event of International Concern related to microcephaly on the first of February 2016.[xviii] Had any of the three Ebola-affected West African countries had such capacities in place, it is highly unlikely that the virus would have spread as widely and disastrously as it did.[xix] Had they all had these capacities in place, the outbreak would most likely have been identified and snuffed out in short order. It is difficult to compare one outbreak to another, but the initial response from WHO and the global community to the present Ebola outbreak in the Democratic Republic of Congo indicates that some lessons have been learnt from the resent past.

Paragraph 44 of the IHRs states that countries shall collaborate with each other in fulfilling the IHR requirements, both with technical and financial support[xx]. There is a huge gap to fill to make all countries able to comply with the IHR requirements. The IOM report, 'The Neglected Dimension of Global Security' proposes an incremental spending of about $4.5 billion per year in global health security, which is a fraction of what is spent on other risks to humankind. And the report claims that the risks of spending too much or too little are asymmetric. 'Even if we have overestimated the risks of potential pandemics, money invested to mitigate them will still be money well spent,' [xxi] since most of the investments they recommend will help achieve other high-priority health goals.

The World Bank report; 'From Panic and Neglect to Building Global Health Security', underscores the same point: 'Building and maintaining preparedness requires sustained financing. The absolute sums are not large relative to the scale of the risk, but thus far many governments and development partners have failed to give preparedness the priority it merits.[xxii]

Support to IHR implementation

Based on domestic experience, as well as experience working with partner countries, the Norwegian Institute of Public Health (NIPH) has stressed the importance of strengthening the IHR capacities to support health security at the national and international level. Support has gone to the implementation of a wide range of IHR capacities, through country specific individual targeted programs, and through the development and strengthening of robust and lasting partnerships with institutions able to perform these functions over time, and across a variety of threats.

In many countries, national public health institutes (NPHIs) either already serve, or have the potential for serving, as hubs of these capacities, and they are natural partners to each other.

In this cross-cutting approach, the NIPH has looked to build long-term working relationships with NPHI counterparts in neighboring countries as well as with partners in other parts of the world including Palestine, Moldova, Malawi and Ghana. The International Association of National Public Health Institutes (IANPHI), an international network that seeks to build and mutually reinforce these important institutions, has played a facilitating role providing tools and contact between NPHIs.[xxiii] Ideas about collaboration transcending traditional north-south thinking have been shared and links developed between other IANPHI members as well. [xxiv]

For many years, peer-to-peer reviews of research programs have shown a way forward in how best to secure quality and integrity of reported research outcomes. The idea being that those who know the field professionally best can guide the direction to others. This concept lies at the heart of the peer-to-peer approach to strengthening NPHIs, and is a key concept being tested in the Norwegian GHSA efforts. The goal of the Norwegian Global Health Preparedness Program (GHPP) is to support

the full implementation of the IHR in designated countries where all partners – north and south assure that health systems are capable of rapid detection and management of crises, disease outbreaks and disasters; and that we mutually strengthen each other as NPHIs.

The specific objectives of the program are country-context dependent and contingent upon the needs and baseline of the core IHR capacities in each country.

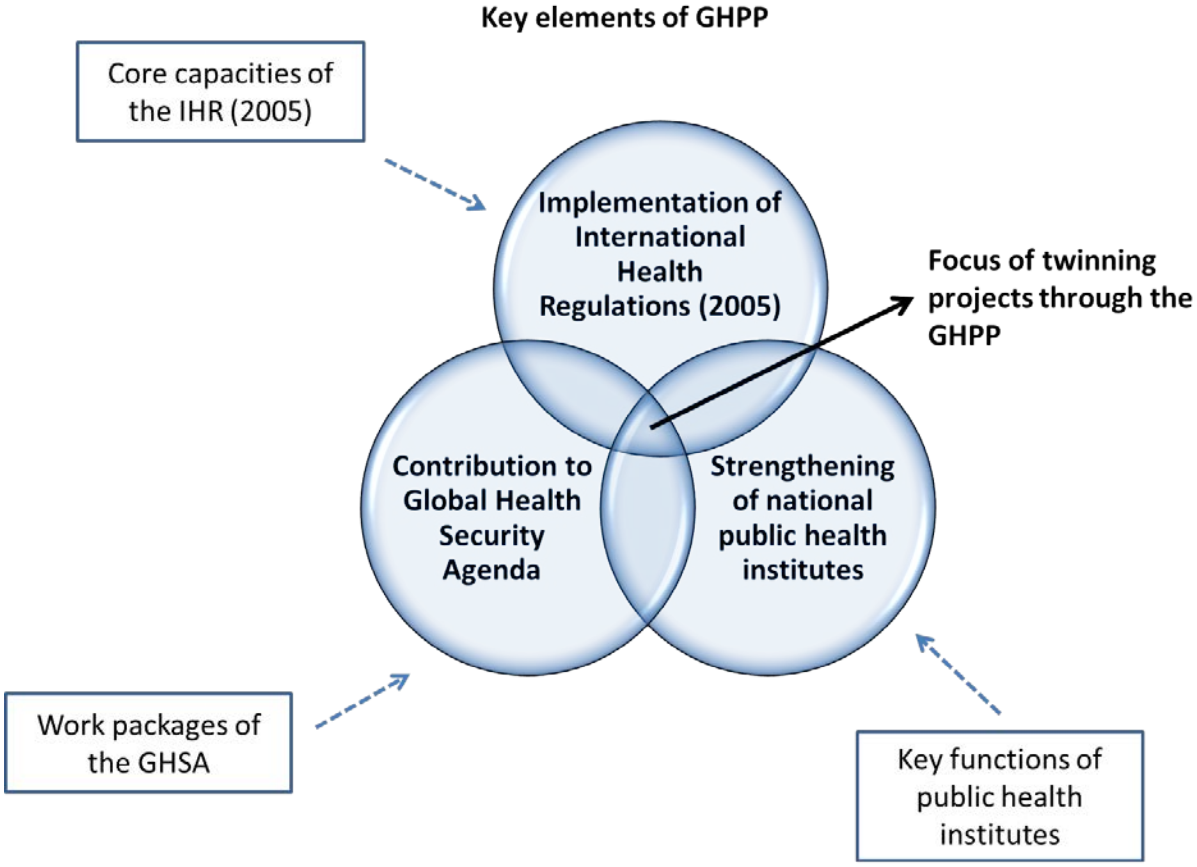
Overall goal

To contribute to improved capacity to prevent, detect and respond to public health events of national and international concern in the designated partner countries.

Objectives

• To support assessment, prioritization and implementation of actions to meet specific IHR (2005) core capacities in selected partner countries.
• To contribute to global efforts to enhance capacity and procedures for assessment, prioritization and action to assist all countries to meet their obligations under IHR (2005).
• To strengthen institutional capacity of National Institutes of Public Health, in partner countries, in national collective efforts to prevent, detect, and respond to public health events of national and international concern.

Figure 1 illustrates how the different elements of the IHR, GHSA and NPHIs interact



Key initial activities have included the joint conduct of common IHR/GHSA country assessments to identify gaps; the development of training modules tailored to local conditions, staffing and needs; the joint development and implementation of specific twinning activities designed to strengthen sustainable capacity in-country; the deployment of dedicated local staff and visiting staff; and longer-term sub-projects to implement or improve specific core capacities of the IHR.

In Malawi, the first collaborative task was to perform a joint full IHR assessment using mixed methodologies including interviews, stakeholder meetings and a tabletop exercise. The assessment was led by the Public Health Institute of Malawi with support from the NIPH. Using the results of the assessment, an activity plan was jointly developed between the NIPH and the Malawian Ministry of Health to address some of the identified gaps. Like most countries in Africa, the Integrated Disease Surveillance and Response (IDSR) strategy is being used to meet the requirements of the IHR (2005). Since the GHPP activities endeavor to strengthen existing structures and strategies wherever possible, most of the activities planned in Malawi are linked to strengthening IDSR, including supporting regular review of surveillance data, development of epidemiological bulletins, and the expansion of the Frontline Field Epidemiology Training Program, as well as conducting exercises to test and evaluate national public health preparedness and response functions.

Similarly, in Palestine the activities selected were based on the results of a joint national assessment conducted in 2015. In Palestine the collaboration mainly goes throught WHO office and the Palestinian Ministry of Health. Main activites have been to establish a Biosecurity Level 3 laboratory, to implement event based surveillance and to strengthen preparedness systems and capacities.

In these efforts, global mobility and communication technologies play a role. NIPH professionals and counterparts from partner countries work closely with the WHO, the US CDC, and other partners to test and evaluate tools, methods and approaches for IHR implementation in low and middle income countries. Use of video-meetings reduce the obstacle of geographical distance and facilitates close collaboration across continents. Some common challenges include political instability in some countries, corruption, donor dependency and slow progress due to weak banking systems and reception capacities.

Conclusion: Working with colleagues across borders

Establishing partnerships takes time. In 2008 the IANPHI invited NPHIs to join a twinning program forming partnerships with each other. Contact was established between the NIPH and the Ministry of Health in Malawi in 2010, and for the next five years technical workshops, visits and meetings lead to a Memorandum of Understanding, signed in March 2015. Over the coming years, joint efforts from public health colleagues from south and north will work with the Ministry of Health according to the gaps identified and exercises, capacity building, training and long term follow up will hopefully lead to a sustainable disease surveillance system, better preparedness plans and a more operative response system for any public health incident in the country.[xxv]

Disease outbreak control cannot happen in a vacuum, but must contribute to and rely on a more broadly functioning health system. The peer-to-peer approach of this global health security effort is a model where colleagues acknowledge each other and use the strength of the total expertise to address local challenges connecting simultaneously to the international efforts. In the global community many share similar professional backgrounds and education. Among those engaged from

outside their home country, many have lived long in diaspora and are ready to work to support their fellow citizens with far better understanding of culture and challenges than most expatriates are likely to develop.

This approach recognizes the need for long-term investments both financially, but especially in the people and in exploring how to build on the advantages of the interconnectedness in our global world. Public health institutions must be there over time to serve the needs of their populations. Investments should serve not only disease-specific silos that rarely correspond to local perceptions and priorities, but more broadly in their health systems. There is a need to stimulate long-term investments with both immediate targeted as well as broader lasting effects in the countries in which these efforts are deployed.

We believe that the full implementation of the core capacities of the IHR is vital for the health security of each country and for the health security of all countries. The ultimate beneficiaries will in equal measure be the citizens of the global south and the global north, through a collective agenda for the common good of all people: the very definition of global health.

[i] http://apps.who.int/gb/ebwha/pdf_files/WHA70/A70_15-en.pdf
[ii] https://ghsagenda.org/
[iii] Efficacy and effectiveness of an rVSV-vectored vaccine expressing Ebola surface glycoprotein: interim results from the Guinea ring vaccination cluster-randomised trial.
Henao-Restrepo AM, Longini IM, Egger M, Dean NE, Edmunds WJ, Camacho A, Carroll MW, Doumbia M, Draguez B, Duraffour S, Enwere G, Grais R, Gunther S, Hossmann S, Kondé MK, Kone S, Kuisma E, Levine MM, Mandal S, Norheim G, Riveros X, Soumah A, Trelle S, Vicari AS, Watson CH, Kéïta S, Kieny MP, Røttingen JA. Lancet. 2015 Aug 29;386(9996):857-66. doi: 10.1016/S0140-6736(15)61117-5. Epub 2015 Aug 3.
[iv] USAID. 2015. "West Africa - Ebola Outbreak: Fact Sheet #6, Fiscal Year (FY) 2016." January 21, 2016. Accessed February 18, 2016. https://www.usaid.gov/sites/default/files/documents/1866/west_africa_fs07_01-21-2016.pdf.
[v] World Health Organization. Extended list of Ebola reviews. 2016. http://www.who.int/about/finances-accountability/evaluation/extended-list-of-ebola-reviews-may2016.pdf?ua=1.
[vi] Moon S, et al; Post-Ebola reforms: ample analysis, inadequate action
BMJ 2017; 356:j280
doi: https://doi.org/10.1136/bmj.j280 (Published 23 January 2017)
[vii] http://www.bbc.com/news/world-africa-26825869
[viii] http://www.who.int/mediacentre/news/statements/2014/ebola-20140808/en/
[ix] http://www.who.int/about/who_reform/emergency-capacities/who_one_emergency_programme_16september.pdf?ua=1
[x] https://extranet.who.int/donorportal/
[xi] http://www.who.int/ihr/publications/WHO_HSE_GCR_2016_2/en/
[xii] https://ghsaindonesia.files.wordpress.com/2016/12/5-jeealliance_ver4_-141216.pdf
[xiii] http://www.who.int/ihr/9789241596664/en/
[xiv] https://www.ghsagenda.org/
[xv] http://journal.frontiersin.org/article/10.3389/fpubh.2015.00231/full
[xvi] https://ghsagenda.org/assessments.html
[xvii] http://www.who.int/ihr/procedures/implementation/en/
[xviii] http://www.who.int/mediacentre/news/statements/2016/1st-emergency-committee-zika/en/
[xix] Lancet. 2015 May 9;385(9980):1884-901. doi: 10.1016/S0140-6736(15)60858-3.
Global health security: the wider lessons from the west African Ebola virus disease epidemic.
Heymann DL1, Chen L2, Takemi K3, Fidler DP4, Tappero JW5, Thomas MJ5, Kenyon TA6, Frieden TR7, Yach D8, Nishtar S9, Kalache A10, Olliaro PL11, Horby P12, Torreele E13, Gostin LO14, Ndomondo-Sigonda M15, Carpenter D16, Rushton S17, Lillywhite L18, Devkota B19, Koser K20, Yates R18, Dhillon RS21, Rannan-Eliya RP22.
[xx] http://www.who.int/topics/international_health_regulations/en/
[xxi] GHRF Commission (Commission on a Global Health Risk Framework for the Future). The neglected dimension of global security: A framework to counter infectious disease crises. http://nam.edu/GHRFreport (doi: 10.17226/21891).
[xxii] World Bank. 2017. From panic and neglect to investing in health security : financing pandemic preparedness at a national level. Washington, D.C. : World Bank Group.
http://documents.worldbank.org/curated/en/979591495652724770/From-panic-and-neglect-to-investing-in-health-security-financing-pandemic-preparedness-at-a-national-level
[xxiii] http://www.ianphi.org/
[xxiv] Ihekweazu, C., Ncube, F., Schoub, B. et al. J Public Health Pol (2015) 36: 181. doi:10.1057/jphp.2014.52
[xxv] https://www.fhi.no/en/migreringsarkiv/international-public-health/nyheter/supporting-public-health-institute-/

Acknowledgement: We want to thank the following persons for their great contribution to the Global Health Preparedness Programme: Ben Chilima, Ambonishe Mwalwimba, Karin Nygård, Line Vold, Bernardo Guzman, Bjørn Iversen, Anne Bergh, Bente Faugli and Elin Wyller.