TITLE: Public Health Emergencies of International Concern: Global, Regional and Local Responses to Risk

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AUTHORS: Belinda Bennett & Terry Carney

AFFILIATIONS: **Belinda Bennett**, Professor of Health Law, Australian Centre for Health Law Research, School of Law, Queensland University of Technology, 2 George Street, Brisbane, Qld, 4000, Australia. Email: belinda.bennett@qut.edu.au

Terry Carney, Emeritus Professor of Law, Faculty of Law, Eastern Ave., The University of Sydney, NSW, AUSTRALIA, 2006. Email: terry.carney@sydney.edu.au

CORRESPONDING AUTHOR: Professor B Bennett, Professor of Health Law, Australian Centre for Health Law Research, School of Law, Queensland University of Technology, 2 George Street, Brisbane, Qld, 4000, Australia. Email: belinda.bennett@qut.edu.au

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PUBLIC HEALTH EMERGENCIES OF INTERNATIONAL CONCERN: GLOBAL, REGIONAL AND LOCAL RESPONSES TO RISK

The declaration in 2009 that the H1N1 pandemic constituted a public health emergency of international concern (PHEIC) was the first such declaration under the revised International Health Regulations that were adopted in 2005. This paper evaluates initiatives that have been introduced globally, within the Asia-Pacific region, and within Australia, to strengthen preparedness for public health emergencies. The paper analyses evolving conceptualisations of risk, surveillance of zoonotic diseases, and development of public health capacities.

Keywords:

Global health

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Pandemics

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Governance

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I INTRODUCTION

Risk is an elusive concept in management of infectious disease outbreaks.[1] No activity is risk free, and the magnitude of ensuing harms is often unpredictable. This is especially true of any zoonotic disease outbreak showing signs of developing as a potential pandemic. Social theorists such as Ulrich Beck[2] suggest that domestic policy settings have become more risk averse over recent decades, transforming governance.[3] But management of risk is nevertheless central to pandemic preparedness,[4] despite the competing ways of conceptualising it,[5] ranging from the statistical to the more holistic.[6]

In recent years, the system of global health governance and its capacity to respond effectively to public health emergencies has come under considerable

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[1] Aileen J Plant, 'When Action Can't Wait: Investigating Infectious Disease Outbreaks' in Gabriele Bammer and Michael Smithson (eds), *Uncertainty and Risk: Multidisciplinary perspectives* (Earthscan, London 2008); Caroline Wraith and Niamh Stephenson, 'Risk, Insurance, Preparedness and the Disappearance of the Population: The case of pandemic influenza' (2009) 18 Health Sociol Rev 220.

[2] Ulrich Beck, *Risk Society: Towards a new modernity* (Sage, London 1992); Ulrich Beck, *World Risk Society* (Polity, Malden, Mass 1999).

[3] Gabe Mythen, 'The Problem of Governance in the Risk Society: Envisaging Strategies, Managing Not-knowing' in Urbano Fra.Paleo (ed), *Risk Governance: The articulation of hazard, politics and ecology* (Springer, Dordrecht 2015).

[4] Terry Carney, Richard Bailey and Belinda Bennett, 'Pandemic Planning as Risk Management: How fared the Australian federation?' (2012) 19 J Law Med 550.

[5] Theresa Seetoh, Marco Liverani and Richard Coker, 'Framing Risk in Pandemic Influenza Policy and Control' (2012) 7 Glob Public Health 717.

[6] For a recent review see, Valerie November and Yvan Leanza, *Risk, Disaster and Crisis Reduction* (Risk, Disaster and Crisis Reduction, Springer, Dordrecht 2015), 8-11.

scrutiny, due to a succession of disease outbreaks.[7] The 2009 H1N1 influenza pandemic,[8] the 2014 outbreak of Ebola in West Africa,[9] the spread of Middle East Respiratory Syndrome coronavirus (MERS-CoV),[10] the spread of Zika virus and its link to birth defects,[11] and an epidemic of yellow fever in Angola and the Democratic Republic of the Congo,[12] have all posed major threats to human health, with H1N1, Ebola, and Zika each declared global public health emergencies by the World Health Organization.[13] In the wake of each emergency has come global soul-searching over the best way of strengthening our capacity for the future.

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[7] Ali Khan and William Patrick, *The Next Pandemic: On the front line against humankind's gravest dangers* (PublicAffairs, New York 2016). [8] World Health Organization, *Evolution of a Pandemic A(H1N1) 2009 – April 2009-August 2010* (2nd edn, World Health Organization, Geneva 2013).

[8] World Health Organization, *Evolution of a Pandemic A(H1N1) 2009 – April 2009-August 2010* (2nd edn, World Health Organization, Geneva 2013).

[9] Lawrence O Gostin and Eric A Friedman, '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' (2015) 385 Lancet 1902.

[10] World Health Organization, 'Middle East Respiratory Syndrome Coronavirus (MERS-CoV)' 2015) <www.who.int/mediacentre/factsheets/mers-cov/en/> accessed 1 September 2016; Chiara Poletto, Pierre-Yves Boelle and Vittoria Colizza, 'Risk of MERS Importation and Onward Transmission: A Systematic Review and Analysis of Cases Reported to WHO' (2016) BMC Infect Dis 488.

[11] David L Heymann and others, 'Zika virus and microcephaly: why is this situation a PHEIC?' (2016) The Lancet http://dx.doi.org/10.1016/S0140.

[12] Daniel Lucey and Lawrence O Gostin, 'A Yellow Fever Epidemic: A New Global Health Emergency?' (2016) ### JAMA .

[13] World Health Organization, *Evolution of a Pandemic A(H1N1) 2009 – April 2009-August 2010*##; World Health Organization, *WHO Statement on the Meeting of the International Health Regulations Emergency Committee Regarding the 2014 Ebola Outbreak in West Africa. www.who.int/mediacentre/news/statements/2014/ebola-20140808/en/* (2014); World Health Organization, 'WHO Statement on the First Meeting of the International Health Regulations (2005) (IHR 2005) Emergency Committee on Zika Virus and Observed Increase in Neurological Disorders and Neonatal Malformations' 2016) <www.who.int/mediacentre/news/statements/2016/1st-emergency-committee-zika/en/> accessed 4 March 2016.

While Tom Koch has provocatively suggested that the real pandemic is that of our collective hubris about the adequacy of our pre-planning,[14] this paper argues that the challenges of managing uncertainty remain at the centre of preparedness for and responding to public health emergencies of international concern. As we argue here, although there has been considerable strengthening of global public health law over the past decade with the introduction of the revised International Health Regulations in 2005, risk continues to be an evolving concept in the context of preparedness for public health emergencies, while the challenge of building capacity, not only at the level of individual countries but also regionally and globally; the continued tensions between global cooperation and national sovereignty; and the balancing of human rights in response to public health emergencies, continue to present legal and ethical challenges in this area.

II RISK AND THE IHRS

The backstory to the modernisation of the international health emergency response framework to its current manifestation in the *International Health Regulations* (2005) has been told before.[15] What is less commented on is the

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[14] Tom Koch, 'Hubris: The recurring pandemic' (2015) 9 Disaster Med Public Health Prep 51.

[15] David P. Fidler, 'From International Sanitary Conventions to Global Health Security: The New International Health Regulations' (2005) 4 Chinese JIL 325; David P. Fidler and Lawrence O. Gostin, 'The New International Health Regulations: An Historic Development for International Law and Public Health' (2006) 34 J Law Med Ethics 85.

unusual model or 'design' of those regulations due to the special characteristic of uncertainty associated with the health threats sought to be managed.

As Lakoff observes, pandemic response planning for emerging or uncertain events tends to opt for 'sentinel' systems which identify possible warning signs to set in train decision-making protocols or plans, rather than rely on known risk levels to trigger preordained and often 'disciplinary' responses such as quarantine.[16] The two main approaches (ie risk management and vigilance) are quite different, as Lakoff[17] nicely explains:

> Risk management… involves the creation of a common space of calculation through which planners can predict the likelihood of future events; whereas vigilance, in contrast, assumes that the future cannot be known and that one must therefore be prepared for surprise.

However sentinel devices (such as monitoring shifts in emergency ward admissions or patterns of pharmaceutical use) differ from risk management grounded in historical experience derived from monitoring past experience with known risks in that they,

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[16] Andrew Lakoff, 'Real-time Biopolitics: The actuary and the sentinel in global public health' (2015) 44 Econ Soc 40, 42.

[17] Ibid, 45.

> do not operate on their own but are integrated into a broader system of alert and-response, one that includes preparedness plans that instruct officials in how to respond and decision instruments that guide governmental intervention as the event unfolds.[18]

Managing uncertainty, then, lies at the heart of pandemic response planning, and the WHO machinery for managing information on possible epidemics, ranging across the spectrum from rumours to information from governments or trawling of electronic sources, is highly sophisticated.[19] Risk communication during public health emergencies remains a highly complex matter, requiring recognition of uncertainty and building of trust with the public.[20]

In terms of the IHR themselves, the 2005 revisions moved away from the narrow focus of the previous IHR which had addressed the reporting of 'known' risks encompassing three diseases only: plague, cholera and yellow fever. In contrast, the revised IHR reflected a blended approach with reporting to WHO required for certain diseases of known risk (including SARS and new sub-types of human influenza); and assessment of risk using a decision instrument contained in the IHR required for some other diseases of known risk, (including pneumonic plague, cholera and yellow fever), 'that have demonstrated the

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[18] Ibid, 46.

[19] November and Leanza, *Risk, Disaster and Crisis Reduction* (n 6), 37-65; Sara E. Davies, 'Nowhere to Hide: Informal Disease Surveillance Networks Tracing State Behaviour' (2012) 24 Global Change, Peace and Security 95

[20] Gaby-Fleur Bol, 'Risk Communication in Times of Crisis' (2016) 17 EMBO Rep 1.

ability to cause serious public health impact and to spread rapidly internationally,' although it should be noted that Ebola, a disease with which there is some previous experience, caught the international community by surprise with the scale of the recent outbreak in West Africa. The third approach encompasses, to borrow from Lakoff, the vigilance approach required of an unknowable future event by requiring reporting to WHO of "any event of potential international public health concern".[21]

Although the revised IHR require countries to develop their capacity for surveillance of public health events within their territory,[22] the 2005 revisions also allow WHO to take account of reports from other sources of events that may constitute a public health emergency of international concern.[23] In doing so however, WHO must request verification of any such reports from the affected country, and offer to collaborate with the affected country in assessing the event and the adequacy of the control measures.[24] This potential for WHO to take account of other sources of information about disease outbreaks or other possible public health emergencies allows information from NGOs, media reports and social media to inform decision-making about possible global public health

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[21] World Health Organization, *International Health Regulations (2005)* (2nd edition edn, Geneva 2008), Annex 2.

[22] Ibid, Article 5.

[23] Ibid, Article 9.

[24] Ibid, Article 10.

emergencies.[25] Importantly, this development moves the revised IHR beyond a binary WHO-country relationship, thus reflecting the multiplicity of actors inherent in the crowded landscape of contemporary global health.[26] As Davies and Youde argue, the changes in the revised IHR 'introduce a host of new eyes and ears to keep watch and hold governments accountable for their response to public health emergencies.'[27]

Informal reports of disease outbreaks and analysis social media not only potentially provide some early warning of unusual events, but also make it more difficult for states to hide disease outbreaks.[28] In this context, there are complex relationships between informal and state-based reporting, and engagement by the state with the public.[29] In addition, widespread use of the internet and social media also opens new possibilities for what has been termed 'digital participatory surveillance' in which citizens and volunteers report on disease, thus supplementing traditional disease surveillance mechanisms.[30]

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[25] Sara E Davies and Jeremy Youde, 'The IHR (2005), Disease Surveillance, and the Individual in Global Health Politics' (2013) 17 IJHR 133.

[26] Ibid.

[27] Davies and Youde, 'The IHR (2005), Disease Surveillance, and the Individual in Global Health Politics' (n 25) at 139.

[28] Ibid.

[29] Sara E Davies, 'The Challenge to Know and Control: Disease Outbreak Surveillance and Alerts in China and India' (2012) 7 Glob Public Health 695.

[30] Claudia Pagilari and Santosh Vijaykumar, 'Digital Participatory Surveillance and the Zika Crisis: Oppotunities and Caveats' (2016) 10 e0004795. doi:10.1371/journal.pntd.0004795. PLoS Negl. Trop. Dis. See also, Gabriel J Milinovich and others, 'Internet-based Surveillance Systems for Monitoring Emerging Infectious Diseases' (2014) 14 Lancet Inf Dis 160.

The need for flexibility and an approach premised on unknowable risk has been evident in the evaluations of preparedness for and responses to the 2009 H1N1 influenza pandemic. Although there was considerable work globally and nationally in the early-mid 2000s to plan and prepare for an influenza pandemic, much of this work was in preparation for a pandemic caused by the more lethal H5N1 avian influenza virus.[31] Thus, although a pandemic was declared by WHO in 2009 in response to H1N1, the relative mildness of the disease when compared to the H5N1 virus presented challenges for WHO and for individual countries in adapting their responses during the pandemic in light of evolving information about risk.[32] In response to this, WHO's revised pandemic guidance adopts a more flexible, all hazards approach.[33] This more flexible approach to pandemic planning is also reflected in the most recent version of Australia's Health Management Plan for Pandemic Influenza.[34]

Recognition of the gradations of risk is also evident in the recent recommendation by the Interim Ebola Panel Report for an 'intermediate' level in the declaration of a public health emergency of international concern. As the

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[31] World Health Organization, *Comparative Analysis of National Pandemic Influenza Preparedness Plans* (World Health Organization,, Geneva 2011).

[32] Belinda Bennett and Terry Carney, 'Planning for Pandemics: Lessons from the Past Decade' (2015) 12 J Bioeth Inq 419.

[33] Ibid; Belinda Bennett, 'Updating Australia's Pandemic Preparedness: The Revised Australian Health Management for Pandemic Influenza' (2015) 22 , J Law Med, 506, 508; World Health Organization, *Pandemic Influenza Risk Management: WHO Interim Guidance* (2013).

[34] Bennett, 'Updating Australia's Pandemic Preparedness: The Revised Australian Health Management for Pandemic Influenza' (n 33) 18.

Report noted, under the current IHR 'there is either a PHEIC or there is not',[35] with the recommendation for consideration to be given to 'the possibility of an intermediate level that would alert and engage the wider international community at an earlier stage in a health crisis'.[36] Because only PHEICs (along with the IHRs) have any real normative status under international law,[37] this may also promote public understanding of the array of other functions and responsibilities of WHO in coordinating international management of potential pandemic episodes.[38] Furthermore, expert committees appointed to consider the global response to the Ebola outbreak have recommended considerable strengthening of WHO's capacity to respond to global public health emergencies, including the creation of a Contingency Fund to support rapid response to emergencies at an early stage.[39]

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[35] World Health Organization, *Report of the Ebola Interim Assessment Panel* (2015), 13.

[36] Ibid.

[37] Pedro A Villarreal, 'Pandemic Declarations of the World Health Organization as an Exercise of International Public Authority: The Possible Legal Answers to Frictions Between Legitimacies' (2016) 7 Go JIL 95, 108-113. This does not mean that other parts of the WHO armoury do not have significant normative force, merely that the authority stems from other sources of legitimacy or authority outside international law. For instance the 'name and shame' scheme is an effective means of encouraging compliance with guidelines as well as in reinforcing the international obligations associated with the IHRs (and PHEICs): ibid, 111.

[38] For a recent review of the strengths and limitations of WHO pandemic management capabilities see: Lawrence O Gostin and Rebecca Katz, 'The International Health Regulations: The Governing Framework for Global Health Security' (2016) 94 Milbank Q 264.

[39] For discussion see, Lawrence O Gostin and others, 'Toward a Common Secure Future: Four Global Commissions in the Wake of Ebola' (2016) 13(5): e1002042. doi:10.1371/journal.pmed.1002042 PLoS Med; Belinda Bennett, 'Where to Now for Reform of Global Health Governance? ' (2016) 24 Jo Law Med 7

This evolution in the conceptualisation of risk recognises the considerable uncertainty that exists in relation to new and emerging infectious diseases and the need for planning and response capacity to be flexible and adaptable. The challenges of accurately predicting risk are considerable. The International Health Regulations are designed to empower international leadership (from the WHO) to facilitate coordinated international preparedness for and response to pandemic events. However in the nature of uncertainty and with the wisdom of the perfect vision of hindsight, commentators have been unflattering of WHO's record of achievement in managing recent international health emergencies, including delays in responding to Ebola in West Africa in 2014, and a perceived over-reaction to H1N1 (swine flu) in 2009-10,[40] leading to calls for reform of WHO and global health governance more generally.[41] While the speedy communication and collaboration fostered by the IHRs is credited with enabling a very rapid response to fellow passengers exposed to a MERS carrier on a

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[40] Benton Heath, 'Global Emergency Power in the Age of Ebola' (2015) 57 Harvard Int Law J 1; Adam Kamradt-Scott, 'WHO's to Blame? The World Health Organization and the 2014 Ebola Outbreak in West Africa' (2016) 37 ; Third World Q 401; Villarreal, 'Pandemic Declarations of the World Health Organization as an Exercise of International Public Authority: The Possible Legal Answers to Frictions Between Legitimacies' (n 37).

[41] Gostin and Friedman, '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' (n 9); Gostin and others, 'Toward a Common Secure Future: Four Global Commissions in the Wake of Ebola' (n 39); Colin McInnes, 'WHO's Next? Changing Authority in Global Health Governance After Ebola' (2015) 91 Int Aff 1299

flight,[42] others are critical of their current adequacy,[43] while common responses such as airport border screening has been panned as ineffective,[44] at least on any scientific basis (what it does for public confidence is another matter).

As conceptualisations of risk and infectious diseases have broadened to encompass currently unknown risks, so too has there been a broader approach to the sources of risk. The increasing contributions to emerging disease threats stemming from rising population, urbanisation, de-forestation and other environmental pressures,[45] has put the spotlight on diseases such as Ebola, or swine and bird flu, where the pathogen originated in non-human populations such as bats, birds, pigs or camels. One consequence has been a broadening of the planning horizon to incorporate paying attention to the ecological context of such diseases. Indeed some commentators argue that current pandemic plans are too narrow, calling for a more holistic ecological 'one–health' response

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[42] Kowk-ming Poon and others, 'International Health Regulations (2005) facilitate communication for in-flight contacts of a Middle East respiratory syndrome case, Hong Kong Special Administrative Region, 2014' (2015) 6 Western Pac Surveill Response J 1.

[43] Rebecca Katz and Scott F Dowell, 'Revising the International Health Regulations: call for a 2017 review conference' (2015) Lancet Glob Health; Trygve Ottersen, Steven J. Hoffman and Gaelle Groux, 'Ebola Shows the International Health Regulations Are Broken: What Can Be Done Differently to Prepare for the Next Epidemic?' (2016) 42 Am J Law Med 356.

[44] Linda A Selvey, Catarina Antão and Robert Hall, 'Evaluation of border entry screening for infectious diseases in humans' (2015) 21 Emerg Infect Dis 197

[45] Jennifer S Edge and Steven J Hoffman, 'Strengthening National Health Systems' Capacity to Respond to Future Global Pandemics' in Sara E Davies and Jeremy R Youde (eds), *The Politics of Surveillance and Response to Disease Outbreaks: The New Frontier for States and Non-state Actors* (Ashgate, Farnham, Surrey UK 2015); Lakoff, 'Real-time Biopolitics: The actuary and the sentinel in global public health' (n 16), 51.

embracing anthropological, ecological and veterinary dimensions,[46] though the very breadth of the 'One-Health' concept presents challenges for its conceptualisation and operationalisation.[47]

III BUILDING CAPACITY

Pandemic response capacity at the national level is multi-layered and resource demanding, so countries vary greatly in their ability (or willingness) to build capacities such as having enough or sufficiently proximate access to testing laboratories.[48] This is especially the case for developing countries in regions such as South East Asia, where implementation of the IHRs is patchy due to resource and logistical challenges.[49] To assist the region to meet the IHRs mid-2014 deadline for development of core capacities, the Asia-Pacific Strategy for Emerging Diseases ('APSED') was developed, originally in 2005 and updated in

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[46] Benjamin Capps and others, 'Introducing One Health to the Ethical Debate About Zoonotic Diseases in Southeast Asia' (2015) 29 Bioethics 588. As succinctly put by Dr Ali Khan , the former director of the Office of Health Preparedness and Response at the US Centres for Disease Control and Prevention, the one health approach to risk involves, 'not just to focus on humans but also the implicated animals and the environment to identify potentially novel prevention strategies' Khan and Patrick, *The Next Pandemic: On the front line against humankind's gravest dangers* (n 7) 45.

[47] Marcel Verweij and Bernice Bovenkerk, 'Ethical Promises and Pitfalls of OneHealth' (2016) 9 Public Health Ethics 1; Kelley Lee and Zabrina L Brumme, 'Operationalizing the One-Health Approach: The Global Governance Challenges' (2013) 28 Health Policy Plann 778.

[48] Edge and Hoffman, 'Strengthening National Health Systems' Capacity to Respond to Future Global Pandemics' (n 45); Sara E Davies, Adam Kamradt-Scott and Simon Rushton, *Disease Diplomacy: International Norms and Global Health Security* (Johns Hopkins University Press, Baltimore 2015).

[49] WHO, *Implementation of the International Health Regulations (IHR 2005) and the Asia Pacific Strategy for Emerging Diseases (APSED), Report of a regional meeting, Bangkok, Thailand, 24–26 June 2014*, 2015).

2010.[50] Progress was favourably reviewed at a bi-regional meeting in Nepal in July 2013, but all 11 countries in the South-East Asia region had obtained a two year extension to June 2014 on meeting core requirements, with some anticipated to need a further such extension,[51] and although all countries were reported to have a pandemic plan, its form and content varied considerably.[52]

The challenges associated with building capacity are significant. Although the IHR require countries to build certain core capacities within their health systems, the recent report of the *Ebola Interim Assessment Panel* noted:

> As at November 2014, 64 States Parties informed the Secretariat that they had achieved these core capacities, 81 requested extensions and 48 did not communicate their status or intentions.[53]

Noting that 'When the health of all is at stake, information must be validated through some form of peer review or other external assessment',[54] the Panel considered the current system of voluntary self-assessment of IHR core capacities to be 'unacceptable' and recommended costed and independently assessed plans

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[50] WHO, *Asia-Pacific Strategy for Emerging diseases (APSED)*, 2015), 1-2.

[51] Ibid, 3, 55.

[52] Ibid, 46. To rectify this it has recently been argued that development of legislative and related resources should be part of the suite of capacity-building within the WHO: Géraldine Marks-Sultan and others, 'National Public Health Law: A role for WHO in capacity-building and promoting transparency' (2016) 94 Bull. World Health Organ, 534

[53] World Health Organization, *Report of the Ebola Interim Assessment Panel* (n 35), 10.

[54] Ibid, 11.

for development of IHR core capacities, an approach that has also been recommended by other international expert panels:[55]

> WHO should propose a prioritized and costed plan, based on independently assessed information, to develop core capacities required under the International Health Regulations (2005) for all countries. The financing of this plan is to be done in close partnership with the World Bank.[56]

For low resource countries, regional cooperation may provide important opportunities to build capacity and preparedness. In Southeast Asia for example, many countries within the region have limited resources. The region has also been the location for the emergence of a number of communicable diseases in recent years including SARS, avian influenza (H5N1), and Nipah virus.[57] The tropical climate of many Southeast Asian countries also means that vector-borne diseases such as dengue and chikungunya pose ongoing threats to public health.[58] At the time of writing Zika virus, another vector-borne disease, is causing concern in Southeast Asia.[59]

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[55] Gostin and others, 'Toward a Common Secure Future: Four Global Commissions in the Wake of Ebola' (n 41). For discussion see also, Bennett [tbc]

[56] World Health Organization, *Report of the Ebola Interim Assessment Panel* (n 35), 6.

[57] Richard J Coker and others, 'Emerging Infectious Diseases in South-East Asia: Regional Challenges to Control' (2011) 377 Lancet 599.

[58] Ibid.

[59] Isaac I Bogoch and others, 'Potential for Zika Virus Introduction and Transmission in Resource-Limited Countries in Africa and the Asia-Pacific Region: A Modelling Study' http://dx.doi.org/10.1016/S1473 Lancet Inf Dis; Editorial, 'Zika's Emerging Threat for the Asia-Pacific Region' (2016) 388 Lancet 1026.

Regional initiatives include the Asia Pacific Strategy on Emerging Diseases,[60] which 'serves as a key regional tool to help countries meet their IHR core capacity requirements'[61] although a recent review noted that challenges still remain in strengthening capacity within the region.[62] Other regional initiatives for infectious diseases include the Pacific Public Health Surveillance Network, and the East African Integrated Disease Surveillance Network.[63] Still other initiatives exist at the sub-regional level. These include the Mekong Basin Disease Surveillance initiative, which covers 'Cambodia, Lao PDR, Myanmar, Thailand, Vietnam and the Yunnan and Guangxi provinces of China.'[64]

Bond et al[65] describe three phases in the development of these sub-regional disease surveillance networks. The first phase, from 1996-2007, was one during which the networks were established and attention was largely focused on diseases of local concern and training of personnel. During phase two, which was from 2003-2009, the focus shifted to national and cross-border surveillance to

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[60] WHO, *Asia-Pacific Strategy for Emerging diseases (APSED)* (n 50). For discussion see Coker and others, 'Emerging Infectious Diseases in South-East Asia: Regional Challenges to Control' (n 57).

[61] WHO, *Asia-Pacific Strategy for Emerging diseases (APSED)* (n 50) at 1-2.

[62] Ibid.

[63] Katherine C Bond and others, 'The Evolution and Expansion of Regional Disease Surveillance Networks and Their Role in Mitigating the Threat of Infectious Disease Outbreaks' (2013) 6: 19913 http://dx.doi.org/10.3402/ehtj.v6i0.19913 Emerg Health Threats J at [2].

[64] Melinda Moore and David J Dausey, 'Local Cross-Border Disease Surveillance and Control: Experiences from the Mekong Basin' (2015) 8 DOI 10.1186/s13104 BMC Res Notes, at [2]. See also, Coker and others, 'Emerging Infectious Diseases in South-East Asia: Regional Challenges to Control' (n 57).

[65] Bond and others, 'The Evolution and Expansion of Regional Disease Surveillance Networks and Their Role in Mitigating the Threat of Infectious Disease Outbreaks' (n 65).

address diseases in border regions including HIV/AIDS and regional threats such as SARS. This was also the period during which the revised IHR were adopted and came into effect, which also focused national and regional commitment on IHR compliance. Finally, in phase three, which began in 2006 and continues to the present, Bond et al note growing cooperation between regional networks, a focus on strengthening preparedness for pandemic influenza, and the establishment of Connecting Organizations for Disease Surveillance (CORDS) to share expertise and learning between regional networks.[66]

Sub-regional disease surveillance initiatives provide a 'bottom-up' approach to transnational cooperation,[67] and are in contrast to the 'more formal networks in geographic regions designated by the World Health Organization.'[68] Importantly, surveillance networks can play an important complementary role, supplementing more formal disease surveillance programs at the national, regional and global level.[69] Bond et al also argue that disease surveillance networks can assist capacity building in low and middle-income countries:

> Regional disease surveillance networks prioritize building trust-based relationships that enable informal reporting and the rapid sharing of sensitive information; and enabling

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[66] Ibid.

[67] Moore and Dausey, 'Local Cross-Border Disease Surveillance and Control: Experiences from the Mekong Basin' (n 64) at [1]-[2].

[68] Bond and others, 'The Evolution and Expansion of Regional Disease Surveillance Networks and Their Role in Mitigating the Threat of Infectious Disease Outbreaks' (n 63) at [1].

[69] Ibid at [5].

> cross-border collaboration and the strengthening of technical capacity to detect and respond to infectious diseases in peripheral border areas with marginalized populations.[70]

Furthermore, they argue that network systems provide a multidimensional approach that is well-suited to responding rapidly to the changing conditions of infectious disease outbreaks and allowing for multidisciplinary and cross-sectoral engagement that may be needed for effective disease outbreak response and research.[71] Finally, Bond et al argue that networks allow for maintenance of national sovereignty, allow professionals to engage cooperatively, and foster trust and collaboration,[72] although they acknowledge that 'language and cultural differences, along with the broader geopolitical context, often present barriers to effective cooperation.'[73]

Clearly, the challenge of building national capacity for disease surveillance and response, particularly within low income countries, remains. As outlined above, regional and sub-regional cooperation offers one possible approach to assist with capacity building in response to shared risks.

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[70] Ibid at [7].

[71] Ibid.

[72] Ibid.

[73] Ibid at [8].

IV GLOBAL COOPERATION AND NATIONAL SOVEREIGNTY

The adoption of the revisions to the IHR in 2005 represented a significant achievement in global health.[74] At its heart the IHR represented agreement in the international community on the importance of strengthening the systems for global public health. However in the decade since the adoption of the IHR it has been clear that tensions continue to exist between global cooperation and national sovereignty.

The tensions between the global and the national are evident in two main areas: first, in the setting of priorities at a national level and building of IHR core capacities; and secondly, in the use of measures impacting upon trade or travel by individual countries in response to perceived risks in global health. The issue of capacity building has been mentioned above. Part of the challenge in building capacity is, as a number of commentators have point out, that although the IHR require the building of core capacities, they do not allocate funding to support it.[75] While the recommendation of the Interim Ebola Panel Report discussed

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[74] Fidler, 'From International Sanitary Conventions to Global Health Security: The New International Health Regulations' (n 15); Fidler and Gostin, 'The New International Health Regulations: An Historic Development for International Law and Public Health' (n 15).

[75] Rebecca Katz and J. Fischer, 'The Revised International Health Regulations: A Framework for Global Pandemic Response' (2010) 3 Glob Health Gov 1

above provides one possible avenue for future strengthening of capacity, it is clear that considerable challenges remain.[76]

The second area in which the tensions between the national and global are evident is in the responses of individual countries to perceived risks in global health. Article 43 of the IHR requires that any additional health measures introduced by countries in response to either a specific public health risk or a public health emergency of international concern should be no more restrictive or invasive 'than reasonably available alternatives that would achieve the appropriate level of health protection'[77] and be based on scientific principles; available scientific evidence about risk; and any guidance or advice from WHO.[78]

Despite these requirements, there were some cases of the use of travel restrictions during the 2009 H1N1 pandemic[79] and more recently during the

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[76] For a recent review of the magnitude of this problem (with many countries not even reporting to WHO on compliance) and a detailed set of proposals to address the real-politik of global political and other barriers responsible for the lack of leadership provided by the WHO, see Gostin and Katz, 'The International Health Regulations: The Governing Framework for Global Health Security' (n 38), 276-306. In addition to such global investment and establishment by each nation of a multi-focus 'emergency operations center', Dr Ali Khan suggests establishing a United Nations undersecretary for health security with the task of 'mobilizing all global entities to ensure that preparedness and response discussions are at the level of the head of state and not just the minister or secretary of health': Khan and Patrick, *The Next Pandemic: On the front line against humankind's gravest dangers* (n 7) 257.

[77] World Health Organization, *International Health Regulations (2005)* (n 21), Article 43(1).

[78] Ibid, Article 43(2).

[79] Katz and Fischer, 'The Revised International Health Regulations: A Framework for Global Pandemic Response' (n 75); World Health Organization, *Strengthening Response to Pandemics and Other Public Health Emergencies: Report of the Review Committee on the Functioning of the International Health Regulations (2005) and on Pandemic Influenza (H1N1) 2009* (World Health Organization, Geneva 2011), 62; Davies, Kamradt-Scott and Rushton, *Disease Diplomacy: International Norms and Global Health Security* (n 48).

outbreak of Ebola in West Africa in 2014 with the Interim Ebola Panel Report noting that:

> during the Ebola outbreak, more than 40 countries implemented additional measures that significantly interfered with international traffic, outside the scope of the temporary recommendations issued by the Director-General on the advice of the Emergency Committee. As a result, the countries affected faced not only severe political, economic and social consequences but also barriers to receiving necessary personnel and supplies. These consequences constituted a significant disincentive to transparency.[80]

The lack of enforcement mechanisms to address actions taken that are not in accordance with the IHR is one of the IHR's noted weaknesses[81] and the Interim Ebola Panel Report recommended that consideration be given to disincentives for countries taking action beyond that recommended by WHO.[82]

These tensions between global and national interests are some of the most challenging ones in contemporary management of global public health emergencies[83] and their resolution is vital for effective responses to public health emergencies. The recent Ebola Interim Panel Report noted:

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[80] World Health Organization, *Report of the Ebola Interim Assessment Panel* (n 35), 11.

[81] Trygve Ottersen, Steven J. Hoffman and Gaelle Groux, 'Ebola Shows the International Health Regulations Are Broken: What Can Be Done Differently to Prepare for the Next Epidemic?' (n 43), 378-379.

[82] World Health Organization, *Report of the Ebola Interim Assessment Panel* (n 35), 6.

[83] Many factors have been suggested to account for undermining of global cooperation in public health, including public panic over Ebola (that 'those who live in the developing world are dangerous vectors of contagion needing to be kept at bay') and the legacy of messages about

> Whereas health is considered the sovereign responsibility of countries, the means to fulfil this responsibility are increasingly global, and require international collective action and effective and efficient governance of the global health system.[84]

Indeed, such is the shared nature of global public health that the Panel has suggested that 'countries must have a notion of "shared sovereignty"'.[85]

It has been suggested however that conceptualising global health governance in terms of shared responsibility for disease is a flawed approach as it does not clearly define roles, allocation of responsibilities, and accountabilities.[86] This 'shared' approach thus contributes, according to Wenham, to challenges with enforceability of the requirements for global health, including the IHR.[87] Indeed, Wenham argues that 'a core problem with the global health framework as it stands is the very concept of shared responsibility.'[88] Referring to other examples in global health in which responsibilities are more clearly articulated, including the Framework Convention on Tobacco Control, Wenham argues:

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never allowing a repetition of the delayed response to HIV: Michael S Sinha and Wendy E Parmet, 'The Perils of Panic: Ebola, HIV, and the Intersection of Global Health and Law' (2016) 42 Am J Law Med 223, 224, 225, 235; and the symbolism of 'borders' as a response to uncertainty: Alison Bashford, 'Quarantine and the Imagining of the Australian Nation' (1998) 2 Health 387.

[84] World Health Organization, *Report of the Ebola Interim Assessment Panel* (n 35), 10.

[85] Ibid, 10.

[86] Clare Wenham, 'Ebola Respons-ibility: Moving from Shared to Multiple Responsibilities' (2016) 37 Third World Q 436

[87] Ibid at 439.

[88] Ibid at 445.

> Fundamentally the global health architecture must find a way be able hold individual stakeholders accountable in order for global efforts in disease control to be effective. There should be delineated roles and responsibilities, where each actor in the framework has a designated position within the global disease control matrix and understands what their responsibilities are for and to whom.[89]

Wenham suggests three possible recommendations for the development of clearer designations of responsibility in global health. First, she suggests learning from other governance arrangements in global health including, for example, the clear goal setting that accompanied both the Millennium Development Goals and the Sustainable Development Goals as focusing attention on areas of need. As Wenham argues, 'multiple devolved arrangements with clearer tangible goals between actors bilaterally or multilaterally could provide a more fruitful result than broader normative calls for global shared responsibility for improving global health security.'[90] Secondly, Wenham argues for improved financing to support global health security, and finally, for the development of enforcement mechanisms or incentives to support IHR compliance.[91]

Clearly national sovereignty plays a critical role in strengthening global health security. Cooperation between WHO Member States is vital to the development and implementation of a common global approach to infectious

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[89] Ibid at 445.

[90] Ibid at 446.

[91] Ibid at 446-447.

diseases. Yet without the clarity of responsibilities advocated by Wenham, and the associated accountability and enforcement mechanisms necessary to ensure that countries are meeting their obligations under the IHR, global health governance of risk management for infectious diseases will remain patchy and imperfect.

V HUMAN RIGHTS AND EXECUTIVE POWER

Human rights principles referred to in the IHRs are one check against excesses of state power in preparedness for and the management of public health emergencies,[92] but those rights are framed quite loosely, leaving much doubt about the level and form of protection intended.[93] Furthermore, the need to take account of social vulnerability[94] and gender[95] in emergency preparedness and response reveals the need for broad and inclusive understandings of human rights in the context of public health emergencies.

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[92] As Davies and Youde note, 'The IHR (2005)'s emphasis on human rights adds a useful counterweight to the increased surveillance measures that are promoted as a core capacity requirement for states to meet their IHR obligations.' Davies and Youde, 'The IHR (2005), Disease Surveillance, and the Individual in Global Health Politics' (n 25), 141.

[93] Andraz Zidar, 'WHO International Health Regulations and Human Rights: From Allusions to Inclusion' (2015) 19 IJHR 505.

[94] Belinda Bennett and Terry Carney, 'Vulnerability: An Issue for Law and Policy in Pandemic Planning' in Michael Freeman, Sarah Hawkes and Belinda Bennett (eds), *Law and Global Health: Current Legal Issues Volume 16* (Oxford University Press, Oxford 2014).

[95] Sara E Davies and Belinda Bennett, 'A Gendered Human Rights Analysis of Ebola and Zika: Locating Gender in Global Health Emergencies' (2016) 92 Int Aff 1041.

The risk of abrogation of human rights in pandemic response management is heightened because the urgency of the situation calls for exercise of executive rather than of judicial or legislative powers under emergency laws.[96] This is true of the powers entrusted to the Director-General of the WHO when declaring public health emergencies of international concern (PHEIC) and issuing temporary (3 month) recommendations about how to deal with it. While the Director-General operates within a procedural framework (including advice from an Expert Committee, consideration of views of affected nations and an algorithm-based decision-instrument) the powers are unfettered beyond going through that minimally consultative process. While those internal WHO processes certainly help to regularise decision-making by reducing the risk of arbitrary or idiosyncratic exercise of the Director-General's powers, it does not overcome the criticism that there is no merits review or other check, or overcome concerns that undue weight may be given to expert scientific input at the expense of political or other considerations,[97] suggesting that a 'global governor

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[96] James G Hodge and Evan D Anderson, 'Principles and Practice of Legal Triage During Public Health Emergencies' (2008) 64 NYU Ann Surv Am L 249. The risk of legal overreach was illustrated in the US when a returning health worker treating Ebola patients in Sierra Leone who had tested negative to Ebola challenged a house quarantine order obtained in the state of Maine. While the court ruling did temper fear induced overreaction, it neatly illustrates the tension: Marks-Sultan and others, 'National Public Health Law: A role for WHO in capacity-building and promoting transparency' (n 52), 243-244.

[97] Heath, 'Global Emergency Power in the Age of Ebola' (n 40). As Villarre elaborates, there is an important conceptual distinction between the role of experts in processes of issuing pandemic declarations and the weight given to technocratic as against political considerations: Villarreal, 'Pandemic Declarations of the World Health Organization as an Exercise of International Public Authority: The Possible Legal Answers to Frictions Between Legitimacies' (n 37) 115 [arguing that

who operates in the liminal space between expertise and political decision risks taking action that can be justified on neither ground'.[98] Heath therefore argues for what may be termed deliberative democratic (or 'transparency') reforms, including 'managed decentralization, epistemic openness, and forc[ed] dissent',[99] though paradoxically others see benefit in confining the grounding of exercise of IHR powers to such objective *scientific* material.[100]

The domestic laws of nation states likewise rely heavily on executive action at the outset, with any judicial or independent merits review scrutiny reserved to an 'after the fact' role.[101] The executive issue to a person of a biosecurity control order and the subsequent internal review rights by the Director-General under Australia's new *Biosecurity Act 2015* (Cth)[102] is a case in point. The provision of rights to a subsequent merits review by the Administrative Appeals Tribunal[103] and a speedy decision by the AAT within no more than an initial 7 days or any extended 7 day period[104] establishes an avenue

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a perception of undue weight accorded to political considerations undermined the legitimacy of the WHO's H1N1 Declaration].

[98] Heath, 'Global Emergency Power in the Age of Ebola' (n 40), 12.

[99] Ibid, 42.

[100] Zidar, 'WHO International Health Regulations and Human Rights: From Allusions to Inclusion' (n 93).

[101] Gillian Triggs, '*Freedom, Parliament and the Courts*' *Speech to the annual Human Rights Dinner, co-hosted by Justice Connect and the Human Rights Law Centre (Melbourne, 5 June 2015).* (2015).; Hodge and Anderson, 'Principles and Practice of Legal Triage During Public Health Emergencies' (n 96).

[102] *Biosecurity Act 2015* (Cth), ss 60-74.

[103] *Biosecurity Act 2015* (Cth), ss 75-77.

[104] *Biosecurity Act 2015* (Cth), ss 78-79.

of external review of this power, and this arguably meets relevant human rights expectations.[105] Nevertheless, the proportionality balances are fine ones, as illustrated in other spheres such as civil commitment powers in respect of mental illness (or alcohol and drug addiction) where similar debates arise between models requiring judicial authority to detain and those empowering executive action by clinicians, subject to post-admission external review.[106]

Of course responding to a genuine emergency necessarily involves some modification to standard human rights and their manner of protection, but as Zidar points out, there are two main models of what international law requires: a 'limitations' model which 'shrinks the framework of protection … from the full to a limited scope' based on tests including rational relationship to legitimate public health aims and proportionality, and a 'derogations' model that temporarily *suspends* human rights other than certain inviolable 'core' rights.[107] As Zidar explains, in contrast to the linear (his word is 'monocentric') approach encompassed by both the limitations and derogations models, the approach encompassed by the IHR in responding to a public health emergency of international concern is polycentric and fluid ('indeterminate and elusive'): that

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[105] Zidar, 'WHO International Health Regulations and Human Rights: From Allusions to Inclusion' (n 93), 16.

[106] Terry Carney and others, *Australian Mental Health Tribunals: 'Space' for fairness, freedom, protection & treatment?* (Themis Press, Sydney 2011).

[107] Zidar, 'WHO International Health Regulations and Human Rights: From Allusions to Inclusion' (n 93), 507.

is there are many actors and variables in play, and responsive flexibility is the order of the day.[108] One consequence is that there is room for both models, depending on the pandemic scenario or point in its trajectory, though the civil rights of respect for individual dignity and that of non-discrimination are suggested as being inviolable while rights to privacy, liberty and freedom of movement engage the proportionality principle of the limitations model.[109]

VI CONCLUSION

This paper has argued that risk remains a central concern in planning for and responding to global public health emergencies. However, while conceptualisations of risk have become increasingly sophisticated and more flexible in recent years, the measures used to respond to those risks remain hampered by insufficient public health capacities and tensions between national sovereignty and global cooperation, while further work remains on the articulation of human rights in emergency contexts. As Khan reminds us, in the 'endless dance' between microbes and humans, it is the adequacy of risk management strategies that will determine 'if Louis Pasteur was right when he said, "Gentlemen, it is the microbes that will have the last word"'.[110]

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[108] Ibid, 509.

[109] Ibid, 511-12, 517.

[110] Khan and Patrick, *The Next Pandemic: On the front line against humankind's gravest dangers*, (n 7) 259.