

Planning for Pandemics: Lessons From the Past Decade

Belinda Bennett · Terry Carney

Received: 5 November 2013 / Accepted: 10 April 2014 / Published online: 8 July 2014
© Springer Science+Business Media Dordrecht 2014

Abstract It is now 10 years since the disease we now know as SARS—severe acute respiratory syndrome—caused more than 700 deaths around the world and made more than 8,000 people ill. More recently, in 2009 the global community experienced the first influenza pandemic of the 21st century—the 2009 H1N1 influenza pandemic. This paper analyses the major developments in international public health law relating to infectious diseases in the period since SARS and considers their implications for pandemic planning.

Keywords Influenza · Public health laws · Pandemic plans · IHR (2005)

Ten years ago the world learned a new acronym—SARS—or severe acute respiratory syndrome. Described by the World Health Organization (WHO) as “the first severe and readily transmissible new disease to emerge in the 21st century” (World Health Organization 2003, 1), SARS emerged in China with reports of atypical pneumonia received by WHO in early 2003 (World Health Organization 2003, 1). Over

the following months SARS would spread globally, with Hong Kong, Singapore, Toronto, and Hanoi experiencing particular clusters of cases. By the time an end to the crisis was declared by the World Health Organization in early July 2003, there had been more than 8,000 cases of SARS and 774 deaths (World Health Organization 2011c, 5).

Severe acute respiratory syndrome (SARS) was a previously unknown disease, and while the emergence of new diseases is a fairly regular event, SARS did not have the limited geographic reach of many other diseases and quickly became a global concern (Fidler 2004, 6, 15). The spread of SARS also highlighted the speed at which infectious diseases could reach beyond the borders of an affected country. SARS had a significant impact, not only on the health systems of affected countries but also on their local economies (Bennett 2006, 4–5). The experience with SARS provided important insights into the clinical management of patients with infectious respiratory disease (Hui 2013) and was an impetus to the strengthening of domestic public health preparedness (Choi and Lam 2009) and global public health surveillance tools (Braden et al. 2013). SARS also had a real impact on global public health law by highlighting the inadequacies of existing frameworks (Bennett 2006; Fidler 2004).

This paper considers the lessons learned by the global community, not only from SARS but also from the 2009 H1N1 influenza pandemic. It is timely to consider whether there are lessons from the experience of public health over the past decade that we can utilise to improve our preparedness for pandemic disease. During the past decade, in addition to SARS and H1N1, we have seen the spread of highly pathogenic avian influenza (World Health Organization 2011c, 4–5) and the

B. Bennett (✉)
Australian Centre for Health Law Research, Faculty of Law,
Queensland University of Technology,
Brisbane, Australia
e-mail: belinda.bennett@qut.edu.au

T. Carney
University of Sydney, and Visiting Research Professor,
University of Technology Sydney,
Sydney, Australia
e-mail: terry.carney@sydney.edu.au

emergence of a new influenza subtype with H7N9 (Gao et al. 2013; Uyeki and Cox 2013). While SARS and influenza are very different diseases, with differing patterns of transmission and disease-related mortality, the two of them serve as interesting and contrasting book-ends to a decade that has been characterised by a renewed focus on infectious diseases and global health governance.

It is argued in this paper that the lessons from these recent pandemic episodes do not lend themselves to simple or readily implemented adjustments to pandemic planning machinery. While initiatives to improve global public health laws, along with strengthening of regional and national preparedness, have been a step forward, the deeper ethical and practical challenges will be shown to remain poorly addressed. Thus there is as yet no antidote to the tendency for some nations to overreact (contravening free trade and travel expectations) or fail to adequately report on the reasons for special domestic measures, or any real answer to the inability of many countries to afford the associated costs of adequate planning.

The lessons of the past are shown to have led to advances such as heightening *awareness* of risks to vulnerable populations; stimulating moves towards more flexible, holistic, and responsive styles of management of pandemic episodes; and prompting a more sophisticated or nuanced understanding of the role of communication strategies. However, this paper suggests that the bigger ethical issues—of lack of resources in developing countries, of the capacity of laws or administrative plans to manage pandemic risk, and of sensitively balancing off public health risk against counterpoised interests such as of vulnerable groups, the rights of affected citizens, and distributional justice more generally—remain squarely on the “to-do” list of ethical conundrums yet to be solved.

Lesson 1: Strengthening Global Public Health Laws

One of the key lessons of the past decade has been the importance of strengthening global public health laws. The International Health Regulations (IHR) is a key document in global public health law. Originally developed out of the international sanitary conferences and conventions of the 19th and 20th centuries, the IHR established a framework for controlling the international spread of infectious diseases and specifying the maximum

measures that could be taken by countries in response to disease outbreaks in other countries (Fidler 2004, 28–34). Unfortunately, by the time SARS arrived to challenge global public health, the IHR had become outdated and of limited efficacy (Bennett 2006, 8; Fidler 2004, 36). Importantly the IHR only required countries to report cases of three diseases to the World Health Organization—cholera, yellow fever, and plague.

Severe acute respiratory syndrome, and the initial appearance of H5N1 avian influenza in Hong Kong in 1997, both provided foundations for change (World Health Organization 2011c, 4). Revisions to the IHR were adopted by the World Health Assembly in May 2005, with the revised IHR entering into force in June 2007 (World Health Organization 2008). Although the revised IHR still contain a list of specified diseases that must be reported to the World Health Organization, it also takes a broader approach that focuses on whether an event is a public health emergency of international concern, with the assessment to consider events in terms of their seriousness, whether they are unusual or unexpected, their risk of international spread, and their risk of restrictions on international trade or travel (World Health Organization 2008, Annex 2). As French and Mykhalovskiy note, the move in the IHR (2005) from listed *diseases* to *events* that constitute a public health emergency “reflects an enlarged conceptual space for thinking about pandemics” (French and Mykhalovskiy 2013, 12).

The 2009 H1N1 pandemic provided the first real test for the revised IHR as it was the first public health emergency of international concern to be declared under the revised regulations (Fidler 2009, 768; World Health Organization 2011c, xiii). On June 11, 2009, the World Health Organization declared that the world was at the start of a new influenza pandemic (Chan 2009; World Health Organization 2013a). In response, countries activated their pandemic plans (e.g., Appuhamy et al. 2010) and steps were taken to control the spread of the disease (see, e.g., Effler et al. 2010). Even though the H1N1 virus proved to be milder than initially expected, and it was certainly nowhere near as deadly as the H5N1 (or bird flu) virus has been, H1N1 nonetheless posed particular risks for pregnant women (Siston et al. 2010; World Health Organization 2011c, 28) and indigenous populations also were at particular risk (Flint et al. 2010; Verrall et al. 2010; World Health Organization 2011c, 28).

As Fidler has noted, during the 2009 pandemic the International Health Regulations (IHR) did play an

important role in the surveillance of cases of H1N1 because they require countries to report cases of new influenza subtypes to the World Health Organization (Fidler 2009, 768). Furthermore, the establishment of a National IHR Focal Point within countries as required by the revised International Health Regulations (World Health Organization 2008, Article 4), to serve as a point of contact with the World Health Organization, ensured that WHO was able to communicate updated pandemic information quickly and effectively to Member States during the pandemic (Katz and Fischer 2010, 5). While in general the revised regulations seem to have worked well during the 2009 pandemic, with countries displaying openness in their willingness to share information and technical assistance during the pandemic (Katz and Fischer 2010, 5–6), there were some difficulties, particularly with countries introducing restrictions on trade or travel that did not accord with the official advice *opposing* such restrictions at the time (Katz and Fischer 2010, 6; Wilson, Brownstein, and Fidler 2010, 507; World Health Organization 2011c, 62–63).

Although countries are able to implement measures to protect health in response to either specific health risks or public health emergencies of international concern, the IHR (2005) provides that such measures “shall not be more restrictive of international traffic and not more invasive or intrusive to persons than reasonably available alternatives that would achieve the appropriate level of health protection” (World Health Organization 2008, Article 43(1)). The Committee evaluating the functioning of the IHR during the 2009 pandemic noted that there were instances of non-compliance with the reporting obligations under Article 43:

Although several countries, but not all, provided a rationale upon request by WHO, it appears that no country that implemented additional measures (i.e. measures that significantly disrupted international travel or trade by more than 24 hours) complied with their obligations under Article 43 to proactively inform WHO and provide the rationale for such measures. (World Health Organization 2011c, 62)

Katz and Fischer note that the imposition of trade and/or travel restrictions during the 2009 pandemic

outside the governance structure of the IHR, or in spite of the IHR (2005), serve[s] as a vivid

reminder that nations are sovereign entities that can and will make their own decisions in response to a public health threat, regardless of global health governance structures (Katz and Fischer 2010, 7).

Similar concerns have been expressed by others. Noting the use of restrictive measures during the H1N1 pandemic, and the lack of enforcement mechanisms in the International Health Regulations, Wilson, Brownstein, and Fidler have expressed concern that these measures were used in response to a relatively mild pandemic, raising the possibility “of more widespread violations if a more dangerous virus emerges and spreads” (2010, 507). While recognising that restrictions might have been even more widespread without the Regulations, they point out that the implementation of unnecessary restrictions may serve to undermine the willingness of States to report events that may constitute a public health emergency of international concern, thus raising the possibility of the IHR regulatory framework being “at risk of unravelling through systematic violations, in much the same way as earlier versions of the regulations did” (Wilson, Brownstein, and Fidler 2010, 507).

The revisions to the International Health Regulations represented a significant development towards greater global cooperation in managing the risks posed by infectious diseases and other public health emergencies. However the potential for countries to focus on national concerns rather than global obligations, as illustrated by responses during the 2009 H1N1 pandemic, has highlighted a weakness in the International Health Regulations and the challenges of enforcing global cooperation through legal mechanisms.

Lesson 2: Strengthening Regional and National Preparedness

The International Health Regulations require that countries develop their capacity to detect, assess, and respond to potential public health emergencies. However, a review of the functioning of the regulations during the 2009 H1N1 pandemic found that “[a]lthough the IHR have stimulated capacity building for surveillance and response, there is wide variation in the degree of fulfilment” (World Health Organization 2011c, 48). For low-income countries, there may be limited opportunities for

capacity building. In this context, meeting the requirements of the regulations may be beyond the capacity of some countries (Oshitani, Kamigaki, and Suzuki 2008), a fact that further highlights the need for global efforts and cooperation.

In their analysis of emerging infectious diseases in South-East Asia, Coker et al. identified a number of factors that were relevant to the emergence of infectious diseases within South-East Asia (2011, 601–4): high rates of population growth and urbanisation, mobility of regional populations and cross-border trade of livestock, poor water and sanitation, patterns of land-use, intensive livestock farming, climate that is relevant for vector-borne and waterborne diseases, and the emergence of drug-resistant strains of some diseases such as malaria. Most of the items on this list stem from underlying structural, environmental, geographic, economic, or epidemiological factors. It is not that they are entirely intractable, but the cost associated with the socio-economic development entailed places them beyond reach for many countries in the region. So, perhaps understandably, attention in those countries instead turns to more readily achieved goals, such as regional cooperation.

As Coker et al. note, while there are still gaps at a national level in terms of public health planning and surveillance, there has been progress in relation to infectious diseases including through regional coordination (Coker et al. 2011, 604–607). An example of such regional coordination can be seen in the *Asia Pacific Strategy for Emerging Diseases* (World Health Organization 2011a; Coker et al. 2011, 605). The Strategy provides a framework to assist countries with strengthening their capacity to respond to emerging diseases. However, it has been argued that while many countries in East and South-East Asia are now better able to respond to infectious diseases than they were a decade ago, “[g]iven the continued scale and pace of change in East and South-east Asia, it is vital that the capacity to predict and identify biologic threats and to protect the public’s health does not stagnate as the memory of SARS fades” (Horby, Pfeiffer, and Oshitani 2013, 859). In a study of pandemic preparedness in six Asian countries, Hanvoravongchai et al. (2010) found that of the six countries studied—Cambodia, Indonesia, Lao PDR, Taiwan, Thailand, and Vietnam—each had pandemic plans and that pandemic preparedness was shaped by the health systems within countries, while the degree to which preparedness was

regarded as a priority was also shaped by local political and historical contexts. Furthermore, while countries had developed their pandemic preparedness for avian influenza, with surveillance often focused on poultry, the development of H1N1/2009 highlighted the need to be able to change strategies to take account of changing circumstances (Hanvoravongchai et al. 2010).

Kamigaki and Oshitani (2010) also have noted that a number of South-East Asian countries had developed their pandemic plans for the more deadly H5N1 avian flu and that H1N1/2009 presented a different set of issues. They noted that a number of South-East Asian countries lack the surge capacity in the health system, the stockpiles of antivirals, and the intensive care facilities necessary for an effective early response to a pandemic (Kamigaki and Oshitani 2010, 6). Demographic factors can also affect the impact of a pandemic on a particular country. Kamigaki and Oshitani have noted that past pandemics, including the H1N1/2009 pandemic, have been characterised by excess mortality being concentrated in younger age groups, in contrast to the pattern for seasonal influenza that typically strikes the elderly. As Kamigaki and Oshitani note, this characteristic of influenza pandemics could potentially impact on the severity of a pandemic within the region, given that many countries in South-East Asia have younger populations and higher fertility rates than OECD countries (Kamigaki and Oshitani 2010, 6–7).

Our own research on pandemic plans in place in a number of Asian countries at the time of the 2009 pandemic confirms the relevance of preparedness for avian influenza for preparedness for human influenza. The Hong Kong plan expressly included surveillance of poultry outlets, farms, pet bird traders, and wild birds (Health, Welfare and Food Bureau 2005, 3). Furthermore the plan included references to HPAI (highly pathogenic avian influenza) in the alert and serious response levels in the pandemic plan, although the highest level, the emergency response level, referred more broadly to “efficient human-to-human transmission of novel influenza” or the declaration of an influenza pandemic by the World Health Organization (Health, Welfare and Food Bureau 2005, 17–18). The Singapore plan also expressly referred to avian influenza in the plan (Ministry of Health Singapore 2009). The Indonesian plan expressly recognised that the strategy for control of avian influenza and the strategy for human pandemic influenza preparedness share a number of common goals. One part of the Indonesian plan focused on a national strategy for

controlling avian influenza, while another part of the plan focused on preparedness for human pandemic influenza (Republic of Indonesia 2006). These findings match with those in the studies discussed above and the findings by Coker and Mounier-Jack's 2006 analysis of pandemic plans in Asian countries, where they found that Asia-Pacific pandemic plans expressly linked their preparedness for human influenza pandemics with preparedness for avian influenza (Coker and Mounier-Jack 2006, 887). Furthermore, in an analysis of 119 national pandemic plans, WHO found that more than half of the plans had been developed for a pandemic emerging from avian influenza (World Health Organization 2011b).

The experience with the 2009 pandemic would suggest that these plans will need to be revised to better accommodate issues such as undue focus on one particular type or trajectory of pandemic threat. Thus, while avian influenza remains a concern, both SARS and the 2009 pandemic highlight the fact that a pandemic may catch governments unawares, due to an unusual source or pattern of spread and that national plans and responses need to be able to adapt to new and emerging circumstances. In its most recent review of the functioning of the International Health Regulations during the 2009 pandemic, the WHO Committee noted that the

potential risk of H5N1 encouraged countries to take planning seriously. ... The disadvantage of this, however, was that because many plans were predicated on H5N1 and its rate of spread, countries were not as prepared for a disease that was less serious but that spread more rapidly (2011c, 68).

However, the most pressing outstanding practical and ethical challenge, we suggest, is surely that of finding a way of addressing the underlying structural, economic, and social determinants of elevated risk of pandemic exposure and the associated difficulty of mobilising a sufficiently rapid response to any such pandemic. There is a clear need for greater assistance with capacity building for, as Katz and Fischer note, “[l]ow- and middle-income nations have been obligated to meet IHR core capacity requirements in disease surveillance, reporting and response without a standing commitment of financial resources” (2010, 9). “Better” plans alone cannot tackle such deficits in national and regional capacity, which while unaddressed pose serious ethical

challenges in terms of compliance with principles of distributional equity between citizens of different nations.

Lesson 3: Flexible and Responsive Guidance

The World Health Organization revised its pandemic guidance in light of the experience with the H1N1 pandemic, resulting in an injection of needed flexibility and greater responsiveness to local or changing conditions. The revised WHO guidance expressly adopts the principles of a so-called “all-hazards” approach to emergency management for management of pandemic influenza, involving a more holistic or all-of-government approach to management of risk (World Health Organization 2013c, 1). As the revised 2013 pandemic guidance notes:

The objectives of emergency risk management for health are to: strengthen capacities to manage the health risks from all hazards; embed comprehensive emergency risk management in the health sector; and enable and promote multisectoral linkage and integration across the whole-of-government and the whole-of-society (World Health Organization 2013c, 1).

This all-hazards approach to pandemic planning fits with other work by WHO. As WHO noted in a 2007 report:

[P]lanning processes and other tools necessary for emergency preparedness, mitigation and response are similar regardless of the nature of the hazard. Countries and especially communities at risk cannot afford to develop a separate system for each type of hazard they are vulnerable to (World Health Organization 2007, 14).

Furthermore, in 2011 the World Health Assembly, in resolution 64.10, urged Member States to integrate all-hazards health emergency and disaster management programs into their health plans at national and subnational levels and to institutionalise capacities for coordinated assessment, reduction, preparation for, response to, and recovery from emergencies, disasters, and other crises (World Health Assembly 2011, Article 1(2)).

In other work, we have reviewed the relationship between public health laws and emergency management

laws in Australia (Bennett, Carney, and Bailey 2012), finding that emergency management laws support public health laws by providing mechanisms for broader utilisation of resources should the scale of an emergency require. We argued that “[h]aving both health-specific and general emergency laws also provides all-important flexibility in managing operational and public relations aspects of any health emergency” (Bennett, Carney, and Bailey 2012, 55).

In its revised pandemic guidance WHO expressly adopts a risk-based approach to pandemic management and “encourages Member States to develop flexible plans, based on national risk assessment, taking account of the global risk assessment conducted by WHO” (World Health Organization 2013c, 2). In this context, risk is expressly configured as both global (assessed by WHO) and local (assessed by national or sub-national authorities on the basis of local conditions). Pandemic phases articulate the global spread of a disease and in the revised guidance are “uncoupled” from national responses in recognition of the fact that different countries may experience a pandemic at different times and with different severity (World Health Organization 2013c, 2, 6).

An all-hazards approach to emergency laws does envisage a broader, more inclusive approach to public health laws. Flexibility is a precondition of this approach. In much the same way as the International Health Regulations have moved from a disease-specific list of public health hazards to be reported to WHO to a more flexible approach based on whether an event, regardless of cause, constitutes a public health emergency of international concern, the move from influenza-specific planning to an approach that supports preparedness for all public health challenges, whatever their cause, represents a new, more holistic stage in the development of global public health and public health laws. It recognises the need for health systems to be responsive, adaptable, and able to encompass risk assessments that address both national and global developments.

From an ethical standpoint, learning the lesson of avoiding an unduly inflexible or fragmented approach to pandemic surveillance and management is certainly commendable in the sense that available resources are likely to be harnessed more effectively and more efficiently, and thus benefits should accrue to a larger number of citizens. However, once again, there are some downsides. While a broad spectrum menu of options

may enable low-income countries to more cheaply afford to build pandemic planning around any existing disaster infrastructure, such calibration of responses may appear to be an unaffordable luxury of little benefit to citizens of countries where resources are beyond inadequate to start with. Even in Western developed countries there may be risk of diffusion and of failing to adequately prepare for measures required for specific emergencies (pandemics compared to natural disasters, for example).

Lesson 4: The Importance of Communication

Another key lesson from the past decade of global public health has been the importance of good communication strategies to provide accurate information during a public health emergency. As Seale et al. (2009) have noted, engagement with the public is a key element in responding effectively to a pandemic as many strategies for containment require the cooperation of the public. The literature also supports the provision of clear and accessible information to members of the public about how to protect themselves from the flu and how to care for sick individuals (Marshall et al. 2009). O’Malley, Rainford, and Thompson have also argued that transparency is an important value in public communication during public health emergencies, as transparency plays an important role in “promoting core public health objectives” (2009, 614). As they argue:

When the public is at risk of a real or potential health threat, treatment options may be limited, direct interventions may take time to organize, and resources may be few. Communicating advice and guidance, therefore, often stands as the most important available tool in managing a risk (O’Malley, Rainford, and Thompson 2009, 614–615).

Given the importance of effective communication in the management of risk, communication should be a key part of pandemic planning. Yet, in their study of communication strategies in 12 national plans for pandemic influenza, Lee, Rogers, and Braunack-Mayer (2008) found differing levels of detail in pandemic plans in relation to communication strategies. Importantly they found that most of the plans contained little information about communication strategies to reach disadvantaged

members of the community (Lee, Rogers, and Braunack-Mayer 2008, 225). There is scope for more research on the best means of communicating risk to the public, particularly in a situation where understandings of risk may be evolving over the course of a pandemic.

Lesson 5: Protecting Vulnerable Populations

The final lesson from the past decade of public health laws is the need to ensure that vulnerable populations are expressly considered in pandemic planning (Bennett and Carney 2014). While we will all be at risk during a pandemic—something that Battin et al. (2009) capture by conceptualising each of us as both potentially a victim and a vector—it is also clearly the case that some populations will be particularly at risk during a pandemic. Some of this vulnerability may come from the characteristics of the particular disease, for example, whether the disease strikes the young, people who already have underlying health conditions, or pregnant women. Some of this vulnerability also will likely arise from social and economic vulnerability. There is increasing recognition of the importance of including vulnerable populations in planning for emergencies and of developing understandings of vulnerability that are inclusive of social and economic vulnerability (Campbell et al. 2009; Hutchins et al. 2009; World Health Organization 2013b). In an analysis of 37 pandemic plans published from 2001–2006, Uscher-Pines et al. (2007) found that references to vulnerability tended to focus on biological or medical risk (in 20 plans) and that where reference was made to social disadvantage it was in the plans of high-income countries. Furthermore, it has been argued that the dominance of scientific, political, and legal discourses in pandemic plans, over social, cultural, and ethical discourses, serves to obscure the needs and interests of disadvantaged populations (Garoon and Duggan 2008; see also Bennett and Carney 2014; Carney and Bennett 2014).

As Mika Aaltola points out, times of crisis can help to bring communities together. However, they can also drive division, with individuals or communities perceived as being at risk readily categorised as the “Other” (Aaltola 2009, 138–139). When we seek to engage the “community” in our pandemic planning, it is vitally important that we do so in inclusive and supportive ways. However, while it is a welcome development when public health legislation addresses

vulnerability such as through the “equity principle” of section 13 of the *South Australian Public Health Act 2011*, it may be doubted that this will necessarily count for much in the “heat of battle” when managing an acute crisis, even in a well-resourced country such as Australia. More purchase may be achieved by other principles in the South Australian Act, such as those promoting “participatory planning” (s 11) or the “utilitarian balancing” process laid down in section 14, which counterpoises goals of public protection and the taking of personal responsibility for risk minimisation against interests such as dignity, privacy, and civil rights. Yet, once again, it must be asked what salience such protections might have in a country starved of basic resources or with different cultural traditions.

It is important here to be realistic about the role for laws or plans in guiding public health. At both the national and global level, laws and plans play an important role in setting standards, articulating expectations, and guiding decision-making and actions. However, given the magnitude and the complexities associated with managing the global spread of infectious diseases, within a context of global health disparities, laws and plans will necessarily be only one element in planning for and responding to such challenges.

Conclusion

As we have argued here, the decade since SARS has provided a number of key lessons in relation to the development of global public health law: (1) the need to continue to strengthen global public health laws; (2) the need to continue to support public health capacity at the national level and the need for adaptability within pandemic plans to take account of changing public health risks; (3) the need for flexible and responsive guidance that takes an all-hazards approach; (4) the importance of effective communication; and (5) the need to include vulnerable groups in pandemic planning.

In the decade since SARS there has been considerable effort in the development of global public health preparedness. Despite these efforts, a review of the functioning of the IHR (2005) during the 2009 pandemic concluded that:

The world is ill-prepared to respond to a severe influenza pandemic or to any similarly global, sustained and threatening public-health emergency. Beyond implementation of core public-health capacities called for in the IHR, global preparedness can be advanced through research, reliance on a multisectoral approach, strengthened health-care delivery systems, economic development in low and middle-income countries and improved health status (World Health Organization 2011c, 119).

The relative mildness of the 2009 pandemic should not lull us into complacency. The history of pandemics suggests that another pandemic will emerge at some stage.

Australian experience suggests that some lessons have been learned. The unpredictable nature of pandemics has highlighted the importance of a harmonised portfolio of flexible responses ranging from day-to-day surveillance and management through to emergency public health and disaster management powers (Bennett, Carney, and Bailey 2012). Likewise the attention to public participation and the process for striking a utilitarian liberal form of balancing off of competing ethical precepts under section 14 of the 2011 South Australian legislation, where measures grounded in addressing “harm to others” (the public at large) are constrained by principles of proportionality to the risk posed, application of the least restrictive alternative principle, and consideration for the dignity, autonomy, or other interests of affected citizens. There have been other advances as well, including greater recognition of risks to vulnerable populations and the importance of culturally sensitive communication strategies. However, this paper suggests that the most pressing ethical issues remain outstanding: namely addressing the complex structural, socio-economic, cultural, and political issues and a lack of sufficient attention to issues of distributional justice between and within regions and countries. If we can take on board some of these practical and ethical implications of the lessons of the past, it will help us to be better prepared for the next time.

Acknowledgments Research for this paper was supported by an Australian Research Council Discovery grant (DP0987239). An earlier version of this paper was presented at the Australasian

Association of Bioethics and Health Law (AABHL) conference in Sydney in July 2013. We wish to thank the reviewers of this paper for their helpful suggestions.

References

- Aaltola, M. 2009. *Western spectacle of governance and the emergence of humanitarian world politics*. New York: Palgrave Macmillan.
- Appuhamy, R.D., F.H. Beard, H.N. Phung, C.E. Selvey, F.A. Birrell, and T.H. Culleton. 2010. The changing phases of pandemic (H1N1) 2009 in Queensland: An overview of public health actions and epidemiology. *The Medical Journal of Australia* 192(2): 94–97.
- Battin, M.P., L.P. Francis, J.A. Jacobson, and C.B. Smith. 2009. *The patient as victim and vector: Ethics and infectious disease*. New York: Oxford University Press.
- Bennett, B. 2006. Travel in a small world: SARS, globalization and public health laws. In *Globalization and health: Challenges for health law and bioethics*, eds. B. Bennett and G.F. Tomossy, 1–12. Dordrecht: Springer.
- Bennett, B., and T. Carney. 2014. Vulnerability: An issue for law and policy in pandemic planning? In *Law and global health: Current legal issues*, vol. 16, eds. M. Freeman, S. Hawkes, and B. Bennett, 121–132. Oxford: Oxford University Press.
- Bennett, B., T. Carney, and R. Bailey. 2012. Emergency powers and pandemics: Federalism and the management of public health emergencies in Australia. *University of Tasmania Law Review* 31(1): 37–57.
- Braden, C.R., S.F. Dowell, D.B. Jernigan, and J.M. Hughes. 2013. Progress in global surveillance and response capacity 10 years after severe acute respiratory syndrome. *Emerging Infectious Diseases* 19(6): 864–869.
- Campbell, V.A., J.A. Gilyard, L. Sinclair, L.T. Stemberg, and J.I. Kailes. 2009. Preparing for and responding to pandemic influenza: Implications for people with disabilities. *American Journal of Public Health* 99(Suppl 2): S294–S300.
- Carney, T., and B. Bennett. 2014. Framing pandemic management: New governance, science or culture? *Health Sociology Review* 23(2): forthcoming. <http://hsr.e-contentmanagement.com/archives/vol/23/issue/2/article/5404/framing-pandemic-management-new-governance>.
- Chan, M. 2009. World now at the start of 2009 influenza pandemic. World Health Organization, June 11. www.who.int/mediacentre/news/statements/2009/h1n1_pandemic_phase6_20090611/en/index.htm.
- Choi, S.M.Y., and P.Y. Lam. 2009. Enhancing legal preparedness for the prevention and control of infectious diseases: Experience from severe acute respiratory syndrome in Hong Kong. *Public Health* 123(3): 242–246.
- Coker, R., and S. Mounier-Jack. 2006. Pandemic influenza preparedness in the Asia-Pacific region. *The Lancet* 368(9538): 886–889.
- Coker, R.J., B.M. Hunter, J.W. Rudge, M. Liverani, and P. Hanvoravongchai. 2011. Emerging infectious diseases in Southeast Asia: Regional challenges to control. *The Lancet* 377(9765): 599–609.

- Effler, P.V., D. Carcione, C. Giele, et al. 2010. Household responses to pandemic (H1N1) 2009-related school closures, Perth, Western Australia. *Emerging Infectious Diseases* 16(2): 205–211.
- Fidler, D.P. 2004. *SARS, governance and the globalization of disease*. Hampshire: Palgrave Macmillan.
- Fidler, D.P. 2009. H1N1 after action review: Learning from the unexpected, the success and the fear. *Future Microbiology* 4(7): 767–769.
- Flint, S.M., J.S. Davis, J.Y. Su, et al. 2010. Disproportionate impact of pandemic (H1N1) 2009 influenza on Indigenous people in the Top End of Australia's Northern Territory. *The Medical Journal of Australia* 192(10): 617–622.
- French, M., and E. Mykhalovskiy. 2013. Public health intelligence and the detection of potential pandemics. In *Pandemics and emerging infectious diseases: The sociological agenda*, eds. R. Dingwall, L.M. Hoffman, and K. Staniland, 8–20. Chichester: Wiley.
- Gao, R., B. Cao, Y. Hu, et al. 2013. Human infection with a novel avian-origin influenza A (H7N9) virus. *The New England Journal of Medicine* 368(20): 1888–1897. doi:10.1056/NEJMoa1304459.
- Garoon, J.P., and P.S. Duggan. 2008. Discourses of disease, discourses of disadvantage: A critical analysis of national pandemic influenza preparedness plans. *Social Science and Medicine* 67(7): 1133–1142.
- Hanvoravongchai, P., W. Adisasmito, P.N. Chau, et al. 2010. Pandemic influenza preparedness and health systems challenges in Asia: Results from rapid analyses in 6 Asian countries. *BMC Public Health* 10: 322. doi:10.1186/1471-2458-10-322.
- Health, Welfare and Food Bureau, Government of the Hong Kong Special Administrative Region. 2005. *Emergency Preparedness for Influenza Pandemic in Hong Kong*. http://www.info.gov.hk/info/flu/eng/files/checklist-e_flu_eng_20051105.pdf
- Horby, P.W., D. Pfeiffer, and H. Oshitani. 2013. Prospects for emerging infections in East and Southeast Asia 10 years after severe acute respiratory syndrome. *Emerging Infectious Diseases* 19(6): 853–860.
- Hui, D.S. 2013. Severe acute respiratory syndrome (SARS): Lessons learnt in Hong Kong. *Journal of Thoracic Disease* 5(Suppl 2): S122–S126.
- Hui, D.S. 2013. Severe acute respiratory syndrome (SARS): Lessons learnt in Hong Kong. *Journal of Thoracic Disease* 5(Suppl 2): S122–S126.
- Hutchins, S.S., B.I. Truman, T.L. Merlin, and S.C. Redd. 2009. Protecting vulnerable populations from pandemic influenza in the United States: A strategic imperative. *American Journal of Public Health* 99(Suppl 2): S243–S248.
- Kamigaki, T., and H. Oshitani. 2010. Influenza pandemic preparedness and severity assessment of pandemic H1N1 (2009) in South-east Asia. *Public Health* 124(1): 5–9.
- Katz, R., and J. Fischer. 2010. The revised International Health Regulations: A framework for global pandemic response. *Global Health Governance* 3(2): 1–18.
- Lee, C., W. Rogers, and A. Braunack-Mayer. 2008. Social justice and pandemic influenza planning: The role of communication strategies. *Public Health Ethics* 1(3): 223–234.
- Marshall, H., P. Ryan, D. Robertson, J. Street, and M. Watson. 2009. Pandemic influenza and community preparedness. *American Journal of Public Health* 99(Suppl 2): S365–S371.
- Ministry of Health Singapore. 2009. *Preparing for a human influenza pandemic in Singapore*. Singapore: Ministry of Home Affairs and Kwok Printers Pte Ltd. http://www.mha.gov.sg/get_blob.aspx?file_id=fcf_NSFPfinalversion.pdf.
- O'Malley, P., J. Rainford, and A. Thompson. 2009. Transparency during public health emergencies: From rhetoric to reality. *Bulletin of the World Health Organization* 87(8): 614–618. doi:10.2471/BLT.08.056689.
- Oshitani, H., T. Kamigaki, and A. Suzuki. 2008. Major issues and challenges of influenza pandemic preparedness in developing countries. *Emerging Infectious Diseases* 14(6): 875–880.
- Republic of Indonesia. 2006. *National Strategic plan for avian influenza control and pandemic influenza preparedness 2006–2008*. Jakarta: Republic of Indonesia. http://www.un-influenza.org/sites/default/files/files/Indonesia_National_Strategic_Plan_for_Avian_Influenza_Control_and_Pandemic_Influenza_Preparedness%5B1%5D.pdf.
- Seale, H., M.L. McLaws, A.E. Heywood, et al. 2009. The community's attitude towards swine flu and pandemic influenza. *The Medical Journal of Australia* 191(5): 267–269.
- Siston, A.M., S.A. Rasmussen, M.A. Honein, et al. 2010. Pandemic 2009 influenza A (H1N1) virus illness among pregnant women in the United States. *The Journal of the American Medical Association* 303(15): 1517–1525.
- Uscher-Pines, L., P.S. Duggan, J.P. Garoon, R.A. Karron, and R.R. Faden. 2007. Planning for an influenza pandemic: Social justice and disadvantaged groups. *The Hastings Center Report* 37(4): 32–39.
- Uyeki, T.M., and N.J. Cox. 2013. Global concerns regarding novel influenza A (H7N9) virus infections. *The New England Journal of Medicine* 368(20): 1862–1864.
- Verrall, A., K. Norton, S. Rooker, et al. 2010. Hospitalizations for pandemic (H1N1) 2009 among Maori and Pacific Islanders, New Zealand. *Emerging Infectious Diseases* 16(1): 100–102.
- Wilson, K., J.S. Brownstein, and D.P. Fidler. 2010. Strengthening the International Health Regulations: Lessons from the H1N1 pandemic. *Health Policy and Planning* 25(6): 505–509.
- World Health Assembly. 2011. Strengthening national health emergency and disaster management capacities and the resilience of health systems [64th Assembly, WHA64.10]. http://apps.who.int/gb/ebwha/pdf_files/EB128/B128_R10-en.pdf.
- World Health Organization. 2003. *Severe acute respiratory syndrome (SARS): Status of the outbreak and lessons for the immediate future*. Geneva: WHO. http://www.who.int/csr/media/sars_who.pdf.
- World Health Organization. 2007. *Risk reduction and emergency preparedness: WHO six-year strategy for the health sector and community capacity development*. Geneva: WHO. http://www.who.int/hac/techguidance/preparedness/emergency_preparedness_eng.pdf.
- World Health Organization. 2008. *International health regulations (2005)*, 2nd ed. Geneva: WHO. http://whqlibdoc.who.int/publications/2008/9789241580410_eng.pdf?ua=1.
- World Health Organization. 2011a. *Asia Pacific strategy for emerging infectious diseases: 2010*. Geneva: WHO. http://www.wpro.who.int/emerging_diseases/documents/docs/ASPED_2010.pdf.
- World Health Organization. 2011b. *Comparative analysis of national pandemic influenza preparedness plans*. Geneva:

- WHO. http://www.who.int/influenza/resources/documents/comparative_analysis_php_2011_en.pdf?ua=1.
- World Health Organization. 2011c. *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*. Geneva: WHO. http://apps.who.int/iris/bitstream/10665/75235/1/9789241564335_eng.pdf?ua=1.
- World Health Organization. 2013a. *Evolution of a pandemic: A(H1N1) 2009, April 2009–August 2010*, 2nd ed. Geneva:
- WHO. http://apps.who.int/iris/bitstream/10665/78414/1/9789241503051_eng.pdf.
- World Health Organization. 2013b. *Guidance note on disability and emergency risk management for health*. Geneva: WHO. http://www.searo.who.int/entity/emergencies/disability_guidancenote.pdf.
- World Health Organization. 2013c. *Pandemic influenza risk management: WHO interim guidance*. Geneva: WHO. http://www.who.int/influenza/preparedness/pandemic/GIP_PandemicInfluenzaRiskManagementInterimGuidance_Jun2013.pdf.