

## BRIEFING NOTE

# OUTBREAK-RELATED TRAVEL RESTRICTIONS: HEALTH & ECONOMIC CONSEQUENCES

The International Health Regulations (IHR 1969) were established to prevent and respond to infectious disease outbreaks while limiting the implementation of unwarranted trade and travel restrictions. Revision of the IHR 1969 began in 1995 in response to inconsistencies in countries' compliance during the 1991 Peruvian cholera outbreak, the 1994 Indian plague outbreak and the 1995 Zaire (now Democratic Republic of Congo) Ebola virus outbreak.<sup>2</sup>

The revision sought to improve compliance of both affected and unaffected countries with the aim of increasing reporting by the former and limiting unwarranted trade and travel restrictions by the latter. Despite these efforts, affected countries continue to face trade and travel consequences for publicly reporting infectious disease outbreaks. In addition to government travel advisories and restrictions, private companies may limit or cancel services, thereby hindering efforts to transport personnel and equipment to combat the ongoing outbreak. Furthermore, public concern can lead to the *en masse* cancellation of leisure and business travel to affected countries, with potentially devastating economic effects. Neither private companies nor individual travelers are bound by the IHR. A balance between necessary measures for outbreak control and unwarranted restrictions on travel and transport has been difficult to accomplish.

Table 1 identifies a number of high profile outbreaks that have occurred since 1991 and their implications for travel and transport, where data are available. We did not find any comprehensive study on the extent or impact of outbreak-related travel restrictions in either the public or private sectors in the academic literature.<sup>3</sup>

## Reports and Rumours during Ebola

At the height of the 2014-2016 West African Ebola epidemic, WHO had recorded 570 reports or rumours from 69 non-Ebola affected countries imposing travel and transport measures. Of these, 470 were not considered to be interfering with travel and transport (e.g. non-obstructive screening measures, questionnaires, temperature checks, self-monitoring). However, of the 100 remaining reports and rumours that required further investigation, 41 were deemed to be an interference to travel and transport, including such measures as flight cancellations, closure of borders or compulsory quarantine.<sup>1</sup>

**TABLE 1: TRAVEL AND TRANSPORT RESTRICTIONS DURING LARGE-SCALE OUTBREAKS**

Outbreak	Implications for Travel and Transport
<p><b>1991 cholera, Peru:</b> 301,277 cases, 2840 deaths in Peru by the end of 1991.<sup>4</sup></p>	<p>WHO stated that on no account should the outbreak lead to travel restrictions.<sup>5</sup> Nevertheless, North American and European countries placed restrictions on Peruvian travellers, with some European countries sending them back to Peru. In addition, half of all foreign tourists coming to Peru cancelled their plans and the tourism industry of Peru lost an estimated US\$150 million.<sup>6</sup></p>
<p><b>1994 plague, India:</b> 693 suspected cases, 56 deaths.<sup>7</sup></p>	<p>The IHR (1969) specified that in the case of plague, incoming air and ship transport and their passengers be monitored but that they ought not be denied entry. Despite these recommendations, many neighbouring countries, as well as the UK, US, Canada, Germany, Italy and France, restricted travel to or from India, contributing to an estimated cancellation of 2.2 million tourist trips and US\$2.3 billion lost in travel and trade.<sup>5</sup></p>
<p><b>2003 SARS, China:</b> 8096 cases, 774 deaths.<sup>8</sup></p>	<p>WHO issued over 20 advisories regarding travel to and from various affected countries during the SARS outbreak.<sup>9</sup> While initial advisories recommended that no restriction on travel was necessary, subsequent advisories recommended the implementation of screening measures, as well as postponement of all non-essential travel to Hong Kong, Toronto, and several provinces of China. All temporary recommendations to restrict travel were removed by mid-2003. Despite the regular advisories, unaffected countries implemented travel bans beyond those of the temporary recommendations; for example, Kuwait, Lebanon and the United Arab Emirates banned Filipinos from entering.<sup>10</sup> Tourism in affected countries was impacted significantly, with international travel dropping by 50-70% and hotel occupancy falling by 60%.<sup>11</sup> IATA estimated a 21% drop in international air traffic, with a 51% drop in Asia-Pacific flights.<sup>12</sup> Estimated losses in tourism, food and travel totaled more than US\$15.8 billion, including a US\$8.5 billion loss in mainland China and US\$4.3 billion in Canada.<sup>13</sup></p>
<p><b>2009 H1N1 influenza, Mexico:</b> ~60.8 million cases, ~12,469 deaths.<sup>14</sup></p>	<p>WHO advised on 4 separate occasions that no country should close its borders or limit travel. Nevertheless, WHO found that half of 56 countries responding to a survey advised their citizens to avoid travelling to affected states, while 6 (11%) denied permission to at least one mode of transport to embark or disembark due to illness on board, and 2 (4%) closed their borders to citizens of affected states.<sup>15</sup> Nearly 1 million travelers canceled plans to visit Mexico, resulting in an estimated loss of US\$2.8 billion to the tourism industry.<sup>16</sup></p>
<p><b>2014-2016 Ebola, West Africa:</b> 28,639 cases, 11,316 deaths.<sup>17</sup></p>	<p>Throughout the epidemic, WHO issued temporary recommendations advising that there was no need for general travel restrictions. Nevertheless, WHO detected 41 instances of restrictions deemed to interfere with international travel.<sup>1</sup> Estimated economic losses across the three most affected countries were US\$2.8 billion.<sup>18</sup></p>
<p><b>2016 (ongoing) Zika, Brazil:</b> 17,069 suspected cases of which 11,059 confirmed in pregnant women.<sup>19</sup></p>	<p>WHO has not recommended any travel restrictions, however, it has encouraged pregnant women or women looking to become pregnant and their partners to refrain from travelling to countries where Zika is present.<sup>20</sup> Many countries have complied, consistently updating their travel notifications according to WHO advisories.<sup>21</sup> No travel restrictions beyond the recommendations of WHO have been announced. Nevertheless, UNDP recently estimated that the economic loss to tourism from 2015-2017 could be as high as US\$9 billion.<sup>22</sup></p>

FIGURE 1: STAKEHOLDER MAP



There is no single communications channel or framework for collaboration that connects all the many actors relevant to this issue (Figure 1).<sup>1</sup> Data on outbreak-related travel restrictions are collected by WHO through online searches and reports by states; however, many countries do not report, and even fewer share their rationale for travel restrictions beyond WHO recommendations. Aggregated quantitative data related to commercial travel and transport during epidemics is collected by a variety of stakeholders and includes national air travel, airport, and tourism figures by month, but no source collates or publishes this information in real-time. There is little public information on private sector policy changes, decisions, and actions during epidemics.

Following the 2009 H1N1 pandemic, the IHR Review Committee emphasised the need for decisions on international travel to be

evidence-based, and for WHO to “energetically” attain public health and scientific-based rationales for unwarranted restrictions.<sup>15</sup> In response to the 2014-2016 West African Ebola epidemic, 5 post-Ebola review recommendations have further highlighted the need to minimise excessive travel restrictions.<sup>23</sup> (Table 2)

There is a need for monitoring and reporting of government and private travel and transport sector reactions during major outbreaks. Further understanding of the rationale and decision-making processes behind these reactions is also needed. Identifying concrete solutions to mitigate the health and economic consequences of outbreak-related travel reductions requires harnessing existing information already collected by stakeholders, while also identifying and filling gaps where data required for decision-making is lacking.

**TABLE 2: RECOMMENDATIONS RELATED TO TRAVEL AND TRANSPORT FROM FIVE POST-EBOLA REVIEW REPORTS**

Post-Ebola Review Reports	Recommendations
WHO Report of the Ebola Interim Assessment Panel (July 2015)	→ That the IHR Review Committee for Ebola considers disincentives for countries implementing traffic restrictions beyond WHO recommendations.
Harvard-LSHTM Independent Panel on the Global Response to Ebola (November 2015)	→ That WHO confront governments that implement unwarranted travel restrictions. → That WHO develop frameworks for industry-wide cooperation.
NAM Commission on a Global Health Risk Framework for the Future (January 2016)	→ That WHO improve means of cooperation between travel and transport stakeholders, including the media by the end of 2016. → That protocols for avoiding unwarranted travel restrictions under the IHR be agreed upon by the World Health Assembly (WHA) by the end of 2016.
United Nations Secretary-General's High Level Panel on Global Response to Health Crises (January 2016)	→ That the IHR Review Committee for Ebola considers mechanisms to address unwarranted travel restrictions by States Parties beyond WHO recommendations.
Report of the Review Committee on the Role of the International Health Regulations (2005) in the Ebola Outbreak and Response (April 2016)	→ That WHO actively monitor States Parties' implementation of unwarranted travel restrictions beyond WHO recommendations, and the impact thereof. → That WHO increase transparency around States Parties' implementation of unwarranted travel restrictions. → That WHO allow States Parties, through an escalation pathway from National Focal Points to heads of government, two weeks to address and reverse unwarranted travel restrictions before publishing a summary on the WHO website and bringing the matter to the attention of the WHO Executive Board and WHA. → That WHO develop a taskforce with international travel organisations and relevant stakeholders for improved risk assessment, risk communication, and the ongoing provision of essential travel during public health events. → That States Parties ensure all traffic restrictions comply with WHO recommendations under the IHR, in addition to ensuring stakeholder coordination and compliance by airlines and international carriers while maintaining travel with affected States Parties.

## References

- World Health Organization D-G. Report of the Review Committee on the Role of the International Health Regulations (2005) in the Ebola Outbreak and Response. Geneva: World Health Organization; 2016 13 May 2016.
- Gostin LO. International infectious disease law: revision of the World Health Organization's International Health Regulations. *JAMA*. 2004;291(21):2623-7.
- Rhymer W, Speare R. Countries' response to WHO's travel recommendations during the 2013-2016 Ebola outbreak. *Bull World Health Organ*. 2017;95(1):10-7.
- Suarez RaB, Bonnie. The economic impact of the cholera epidemic in Peru: an application of the cost of illness methodology. Washington, D.C.: US Agency for International Development; 1993.
- In: Knobler S, Mahmoud A, Lemon S, Pray L, editors. The Impact of Globalization on Infectious Disease Emergence and Control: Exploring the Consequences and Opportunities: Workshop Summary. The National Academies Collection: Reports funded by National Institutes of Health. Washington (DC):2006.
- Cash RA, Narasimhan V. Impediments to global surveillance of infectious diseases: consequences of open reporting in a global economy. *Bull World Health Organ*. 2000;78(11):1358-67.
- International Notes Update: Human Plague -- India, 1994 [press release]. Washington D.C.1994.
- World Health Organization. Summary of probable SARS cases with onset of illness from 1 November 2002 to 31 July 2003 Geneva: World Health Organization; 2003 [Available from: [http://www.who.int/csr/sars/country/table2004\\_04\\_21/en/](http://www.who.int/csr/sars/country/table2004_04_21/en/)].
- World Health Organization. Severe Acute Respiratory Syndrome (SARS): Travel [cited 2017 17 May]. Available from: <http://www.who.int/csr/sars/travel/en/>.
- Lee-Brago PaJ, Mayen. ME countries, Taiwan ban OFWs due to SARS. *The Philippine Star*. 10 May 2003.
- Heymann DL. SARS and emerging infectious diseases: a challenge to place global solidarity above national sovereignty. *Annals of the Academy of Medicine, Singapore*. 2006;35(5):350-3.
- Press Release No. 23 [press release]. <http://www.iata.org/pressroom/pr/Pages/2003-07-02-01.aspx>, 2 July 2003 2003.
- Keogh-Brown MR, Smith RD. The economic impact of SARS: how does the reality match the predictions? *Health Policy*. 2008;88(1):110-20.
- Shrestha SS, Swerdlow DL, Borse RH, Prabhu VS, Finelli L, Atkins CY, et al. Estimating the burden of 2009 pandemic influenza A (H1N1) in the United States (April 2009-April 2010). *Clin Infect Dis*. 2011;52 Suppl 1:S75-82.
- World Health Organization D-G. Report of the Review Committee on the Functioning of the International Health Regulations (2005) in relation to Pandemic (H1N1) 2009 Geneva: World Health Organization; 2011 5 May 2011.
- Rassy D, Smith RD. The economic impact of H1N1 on Mexico's tourist and pork sectors. *Health Econ*. 2013;22(7):824-34.
- World Health Organization. Ebola data and statistics: situation summary 2016 [updated 11 May 2016. Available from: <http://apps.who.int/gho/data/view.ebola-sitrep.ebola-summary-20160511?lang=en>].
- World Bank Group. 2014-2015 West Africa Ebola Crisis: Impact Update. Geneva: World Bank Group; 2016.
- Pan American Health Organization. Zika-Epidemiological Report: Brazil. Washington, D.C.; 2017 2 March 2017.
- World Health Organization. Information for travellers visiting Zika affected countries Geneva2017 [Available from: <http://www.who.int/csr/disease/zika/information-for-travelers/en/>].
- Holpuch A. Zika virus by the numbers: travel advisories issued across the world 2016 [Available from: <https://www.theguardian.com/world/2016/jan/26/zika-virus-travel-advisories-us-canada-uk-eu-australia>].
- United Nations Development Programme. A Socio-economic Impact Assessment of the Zika Virus in Latin America and the Caribbean: with a focus on Brazil, Colombia and Suriname. New York: United Nations Development Programme; 2017.
- Moon S, Leigh J, Woskie L, Checchi F, Dzau V, Fallah M, et al. Post-Ebola reforms: ample analysis, inadequate action. *BMJ*. 2017;356:j280.
- Most are members of Collaborative Arrangement for the Prevention and Management of Public Health Events in Civil Aviation (CAPSCA).