This article was downloaded by: [Durodie, Bill]

On: 16 May 2011

Access details: *Access Details:* [subscription number 937643232]

Publisher Routledge

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK



Journal of Risk Research

Publication details, including instructions for authors and subscription information: http://www.informaworld.com/smpp/title~content=t713685794

H1N1 - the social costs of élite confusion

Bill Durodiéab

^a Centre for Non-Traditional Security Studies (NTS), S. Rajaratnam School of International Studies (RSIS), Nanyang Technological University (NTU), Singapore ^b International Security Programme, The Royal Institute of International Affairs, London, UK

First published on: 16 May 2011

To cite this Article Durodié, Bill(2011) 'H1N1 - the social costs of élite confusion', Journal of Risk Research,, First published on: 16 May 2011 (iFirst)

To link to this Article: DOI: 10.1080/13669877.2011.576767 URL: http://dx.doi.org/10.1080/13669877.2011.576767

PLEASE SCROLL DOWN FOR ARTICLE

Full terms and conditions of use: http://www.informaworld.com/terms-and-conditions-of-access.pdf

This article may be used for research, teaching and private study purposes. Any substantial or systematic reproduction, re-distribution, re-selling, loan or sub-licensing, systematic supply or distribution in any form to anyone is expressly forbidden.

The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The accuracy of any instructions, formulae and drug doses should be independently verified with primary sources. The publisher shall not be liable for any loss, actions, claims, proceedings, demand or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of this material.



COMMENT

H1N1 – the social costs of élite confusion

Bill Durodié*

Centre for Non-Traditional Security Studies (NTS), S. Rajaratnam School of International Studies (RSIS), Nanyang Technological University (NTU), Singapore; International Security Programme, The Royal Institute of International Affairs, Chatham House, London, UK

(Received 28 March 2011; final version received 28 March 2011)

In May 2011, the World Health Assembly will receive the report of its International Health Regulations Review Committee examining responses to the outbreak of the 2009 H1N1 pandemic influenza and identifying lessons to be learnt. This will emphasise the need for better risk communication in future. But risk and communication are not objective facts; they are socially mediated cultural products. Responses to crises are not only simply determined by the situation at hand, but also through mental models developed over protracted periods. Accordingly, those responsible for advocating the precautionary approach and encouraging the securitisation of health, that both helped encourage a catastrophist outlook in this instance, are unlikely to be held to account. These élite confusions have come at an enormous cost to society.

Keywords: risk; communication; emergency; health; influenza; H1N1; WHO; securitisation

Introduction

In May this year, the International Health Regulations (IHR) Review Committee, charged by the World Health Organization (WHO) to examine responses to the world-wide outbreak of A/H1N1 pandemic influenza in 2009, will report its findings to the World Health Assembly.

This will address the demands of some for greater transparency in future and for more detailed declarations of interest to ward against possible conflicts affecting individuals with corporate roles who act as advisors to the WHO (see for instance COE 2010; Godlee 2010). It will also question the negotiations and terms of the contractual obligations that committed countries to purchasing vast stocks of vaccine if an outbreak was deemed to have reached a particular threshold. But it will not accept any suggestion that such relationships and arrangements either facilitated, or led to, impropriety by health officials in their handling of the episode, thereby acting as an encouragement to exaggerate the threat posed (see for instance WHO 2010a, 2011).

What is also likely to emerge is a great deal of obfuscation about 'complexity' and 'the challenge of decisions and actions under uncertainty', in a 'rapidly evolving situation' (see for instance WHO 2010a and 2010b). There will be a strong emphasis on the need for more effective risk communication. But there is little evidence that the

^{*}Email: iswdurodie@ntu.edu.sg; bdurodie@chathamhouse.org.uk

IHR Review Committee have solicited the views of any who understand how the latter is largely a product of contemporary culture. If anything, it was confusion about risk among those charged with communicating it that was a far greater driver of what ensued than the pursuit of narrow, economic gains.

Discussion

The analysis of risk, particularly in relation to scientific matters, often presents it as an objective fact. Viruses exist and they can kill. Their fatality rates can be estimated by serological means or projected through epidemiological studies. However – aside from the inherent difficulties associated with these techniques – that we come to view something as being a particularly pertinent risk, and how we respond to it, is socially mediated.

So, whether we presume ourselves to be living in a particularly dangerous world, or surrounded by risky strangers, and whether we trust these, or the authorities charged with ensuring our well-being, to act as we expect them to in particular situations – as well as our own actions and assumptions – are a function of the times.

These are impacted upon by a vast number of social, cultural and political variables, such as the cumulative impact upon our imagination of books, television programmes and films that project dystopian – or positive – visions of the present and the future, as well as our interpretation and understanding – or not – of the forces and actors shaping our lives, as well as whether we believe – rightly or wrongly – that the authorities have ever been mistaken about a crisis before.

An emergency, whether relating to health or otherwise, does not simply concern the events, actions and communications of that moment. Rather it draws together, in concentrated form, the legacies of past events, actions and communications as well. And whilst it may not be in the gift of the IHR Review Committee to analyse and – still less – to act upon all of these elements, there is no indication among the names of those they have interviewed thus far that they have considered such dynamics at all.

It has been noted elsewhere that 'Western radicals and Western elites now view the world in near-permanent catastrophist terms' (Durodié 2010, 389). This would help to explain why it was that whatever the actions taken by the WHO – such as reiterating that 'the number of deaths worldwide was small' or that 'the overwhelming majority of patients recovered fully without any medical care' – these exhortations would never suffice to calm matters down as 'most health officials decided to err on the side of caution' (WHO 2010a).

Maybe these latter did so in response to prior pronouncements about how to handle uncertainty, combined with a sense of living in a particularly insecure age? And, of course, it did not help that the words of moderation from the WHO emanated from the same source – the Director General, Margaret Chan – who had previously advised the world's media that 'it really is all of humanity that is under threat' (WHO 2009).

The tendency to identify 'everything as a risk' (Durodié 2005, 7), and to apply the so-called precautionary principle to such situations, only emerged over the recent period (see for instance CEC 2000, for an expression of this, or Morris 2000; Marchant and Mossman 2004; Sunstein 2005, for an exploration of some of its limitations). This has been reflected by a shift from probabilistic risk assessment to possibilistic speculation about uncertainty. The social and political drivers of this, as well as their cultural manifestations and consequences, including the demand to imagine worst-case scenarios at every opportunity, have been explored in the sociological literature

(Furedi 2009), including that pertaining specifically to health (Wraith and Stephenson 2009).

It is unclear whether the WHO is aware of this, or whether an appreciation of their role in shaping this precautionary context is to be included in the IHR Review Committee report. Rather, a more rigid view of risk communication seems likely to emerge. One that presumes risks as needing to be warded against and demanding more rigorous assessments by experts, who should then learn to transmit their conclusions more effectively to the public through the use of a 'better quality information product' (Li 2011).

In relation to any confusion that may have ensued over the course of the H1N1 episode, Margaret Chan, and her Assistant Director-General, Keiji Fukuda have implicated elements of the media in causing this, as well as effectively blaming the public for their presumed predilection for believing information from such suspect sources.

Either disingenuously, or remarkably naively, for one whose organisation makes use of the new media so central to its communications process, Chan pointed to being unprepared for the 'electronic scrutiny' that allowed people to 'draw their own instant information from a wide range of sources', including the Internet (WHO 2010a). Fukuda has argued that blogs, and other social media disrupted the handling of the pandemic through the production of 'rumours, a great deal of speculation and criticism in multiple outlets' (AFP 2010).

But researchers have shown that – far from being unable to convey their messages through a cacophony of competing voices – the authorities concerned totally dominated the information space about the virus and the pandemic over the crucial early stages of it (Duncan 2009). The problem is to presume that it was merely accurate information about risk and the effective communication of it that was lacking and so essential in the first place.

In an emergency, information only forms one element of the considerations entered into by the public. Concerns over the need to provide the latest, most accurate details, through the most effective channels, miss the wider context entirely. There is, as the authorities have rightly noted, a surfeit of information available at such times. Accordingly, it is the interpretation of its meaning, according to previously determined frameworks that have, by then, evolved across protracted periods that comes to matter most.

For example, presented with information that there is no evidence for weapons of mass destruction in Iraq, it is possible to interpret this in one of two – diametrically opposed – ways. Either that is the case because there are no such weapons, or it seems to be so because the enemy is very good at hiding them.

When push comes to shove, in a crisis, individuals and institutions often act primarily on the basis of their interpretative frameworks of reality, not solely the information available to them at the time. Of course, it is too late then to hope to shape those mental models as to who people trust – or not – and what people have come to worry about through their contemporary cultural prism, and why.

In fact, the confusion of messages and actions emanating from this episode is best understood as the culmination and latest expression of a deeper cultural malaise that has been shaping the world since the demise of the Cold War period, which last provided social leaders with a singular, cohering ideology and concomitant strategic purpose (see for instance Laïdi 1994; Durodié 2005).

This loss of direction was effectively, if unconsciously, expressed by the German virologist, Markus Eickmann, when he extolled that, 'a pandemic – for virologists like

us, it's like a solar eclipse in one's own country for astronomers' (cited in Spiegel Online 2010). Others described H1N1 as an 'opportunity' – either for 'global solidarity', or for personal and professional reasons (WHO 2009; Li 2011¹). It was more than 'a whole industry almost waiting for a pandemic to occur', as suggested by the Cochrane Collaboration contributor Tom Jefferson (cited in Spiegel Online 2009), it was the whole world that had been 'systematically attuned ... to grim catastrophic scenarios' (Spiegel Online 2010).

Accordingly, if we hope to understand how this episode came about, there is no point in just looking to Mexico in April 2009, or the official statements and media coverage that ensued. Despite knowing that the fatality rate was dubious, due to the absence of accessible health services there, and that most patients made a full recovery after suffering a mild illness for a few days, still the tendency – maybe even the desire – among many public health officials, witnessing the equivalent of their first domestic solar eclipse, was to presume the worst.

And despite evidence 'that modeling capability would be low due to the lack of available data', pressure was still applied 'to produce forecasts' on a frequent basis. These then provided all parties with a semblance of understanding the situation, as well as having something to say about it which, 'because of its mathematical and academic nature may seem scientifically very robust' (Cabinet Office 2010, 66–7). But whether the measures taken and communications issued had any of the effects presumed remains a moot point.

Understandably, officials of countries in East and Southeast Asia, some of which had been lambasted by Western commentators and officials for having supposedly failed to help contain the outbreak of severe acute respiratory syndrome (SARS) in 2003, were among those particularly keen to be seen to be taking action. Many pursued containment strategies, involving active case detection, extensive contact tracing and strict quarantine procedures, long after these were warranted or effective. In effect, they either 'failed to understand, ignored, or even contradicted in their actions, the advice of the WHO', which then also adversely amplified the health consequences (Huang 2010, 2).

Some have suggested that the public expect the implementation of visible measures at such times – including thermal screening – even when these can be shown to have no value other than to provide reassurance (see for instance Menon 2011, 13; WHO 2010b). This is both speculative and dubious on their parts, pointing to the low view of the public held by those charged to serve and represent them. It seems just as likely that such approaches spring from the insecurities of those in authority.

The key question though is why everyone was expecting a pandemic in the first place. In a recent book on these matters, Philip Alcabes notes that, whilst truly devastating, the 1918 'Spanish Flu' episode 'registered hardly at all in the Western imagination', either at the time, or for decades after. It was not until much later that epidemics came to feature as such a central element of our social imagination, driven by the work of those 'who were interested in promoting their theory that devastating flu outbreaks occur every decade or so' (Alcabes 2009, 6).

It was after SARS in 2003 that the WHO encouraged public health authorities and other agencies the world over to develop pandemic preparedness plans to respond to such eventualities. SARS had an early onset and elevated temperature, as well as a relatively high fatality rate. H1N1 featured none of these. But – like old military generals preparing to fight the last war – the responses were largely tailored to the plan, not the virus.

In addition, strongly influenced by the disorientation caused by the anthrax incidents that haunted America in the aftermath of 9/11, both the language and practice of healthcare had come to be infused and infected by a growing discourse about health as a security issue (see for instance McInnes and Lee 2006; Durodié 2004). As Wraith and Stephenson have noted in their excellent overview of these trends, 'influenza has been constructed as a matter of national security' (2009, 222).

It has now become common for health officials to issue sitreps and colour-coded alerts from special operations centres, as well as demanding a 'rationality of preparedness' (Wraith and Stephenson 2009, 225) that includes surveillance, response plans, regular exercises, border controls and the expectation of cooperation by developing countries.

These elements have come at the cost of other – often more serious and more pressing – concerns that affect most health services. It also came at the cost, in the case of H1N1, of its over-diagnosis and concomitant misdiagnosis – with fatal consequences for some (Delamothe 2010). The widespread distribution of drugs previously only used in the treatment of severe cases under supervised conditions, unsurprisingly, given the generally nervous social climate, could also only lead to further concerns being expressed about the possibility of their known side-effects outweighing their prophylactic benefits.

Despite all these problems, to which should be added the failure of telephone and Internet assessment algorithms to relieve pressure from doctors and nurses (UK Health Protection Agency cited in Whitaker 2009), and the overall cost, including opportunity costs and losses generated by workplace closures and absenteeism (Smith et al. 2009), the official line, in the UK at least, has been to declare that the 'response was highly satisfactory' (Cabinet Office 2010, 1).

This, as one critic has noted, can only be achieved by 'a degree of aloofness from the world of primary healthcare, indeed from public life' (Fitzpatrick 2010, 1–2). It is a product of either naively, or wilfully, ignoring important voices within the medical profession, as well as those of numerous high-profile public commentators who all expressed their concerns and dismay (see for instance Michelle Drage, joint Chief Executive of the London wide Local Medical Committees and Sam Everington, former Deputy Chair of the British Medical Association and advisor to the Parliamentary Under-Secretary for Health on primary care, both cited in Smith 2009; Whitaker 2009; Jenkins 2009, 2010; Hawkes 2010).

This gap between élite preoccupations of problems, and the subsequent representation of them, as compared to people's lived experience, appears in many areas of public life today. The growing disconnect created by it is likely to become one of the most pressing social policy issues needing to be addressed over the next decade. It will certainly prove highly problematic for the handling of future health emergencies.

In the case of H1N1, one single indicator suffices to demonstrate the existence and consequence of such misapprehensions – the take-up of the vaccine when this became widely available to people in the latter months of 2009.

Contrary to the presumptions of some, the failure to get inoculated did not emerge from ignorance, superstition, speculation or the propagation of rumours. It was led by many health workers themselves, informed by their experience of the mild effects of the virus. It may also have been influenced by the frustration of having been the front-line troops to an emergency that never was, and working extended hours for distant officials whose exhortations about what they should do, they simply came to lose faith in.

Their response was then 'transmitted to the wider public' (Fitzpatrick 2010, 8), who determined, in large numbers, not to be, or allow their children to be, vaccinated (Langer 2009). Despite the vaccine being produced less than six months after the outbreak began – itself a tribute to the achievements of science, technology, industry and enterprise – this act of informed dissent effectively denied the official line, although it may also have served to encourage the detractors of vaccination in general in society and then been rationalised as such by some professionals.

Conclusions

Social scientists point to at least three distinct side-effects of the concerns of the élite being so out of touch with those of their constituencies (SIRC 1999). One of these is to encourage just such deliberate defiance. Another is simply to engender a greater degree of distance and disengagement in society as people learn to ignore the voices of those obsessed with communicating risk. This manifests itself as warning fatigue and a breakdown of trust which, whilst it may vary from country to country according to how the respective authorities fared, will still be felt by all as a degree of cynicism for some time to come.

Finally, there is also the generation of unwarranted and exaggerated concerns in populations – such as those who refused to let their children attend school lest they become infected – despite belated assurances to the contrary. An aspect of this that remains uninvestigated is the cumulative impact of constantly warning people about the uncertainties of life or the vagaries of diseases and asking them to be vigilant at all times.

Encouraging the advent of a generation of self-conscious, nervous, hypochondriacs, introspectively and perpetually monitoring their bodily functions, is unlikely to regenerate public life in the manner assumed by Margaret Chan when announcing the crisis to be an 'opportunity for global solidarity'.

Acknowledgements

This paper builds on reflections developed from the 'Strengthening Health and Non-Health Response Systems in Asia: A Sustained Approach for Responding to Global Infectious Disease Crises' Conference, held in Singapore on 18–19 March 2010 and organised by the Centre for Non-Traditional Security (NTS) Studies of the S. Rajaratnam School of International Studies (RSIS) of the Nanyang Technological University (NTU), Singapore. The author is grateful to the editor of Global Health Governance for coordinating a special issue on these matters in which a longer version of this paper will appear, as well as the editor of the Journal of Risk Research for his encouragement. The author also acknowledges his indebtedness to Dr Michael Fitzpatrick for countless insights into issues pertaining to the politics of health.

Note

1. Dr Ailan Li, a medical officer responsible for the International Health Regulations on behalf of the WHO Western Pacific regional office, related to a recent audience in Singapore how she had never imagined that within her lifetime 'we would ever have the opportunity to witness the declaration of a public health emergency of international concern'.

References

AFP (Agence France Presse). 2010. WHO pandemic probe focuses on media, internet role. April 13. http://www.google.com/hostednews/afp/article/ALeqM5hTYjXT1VALSJAJKgjnRtFE3bom1Q.

- Alcabes, P. 2009. Dread: How fear and fantasy have fueled epidemics from the black death to avian flu. New York: Public Affairs.
- Cabinet Office. 2010. The 2009 influenza pandemic: An independent review of the UK response to the 2009 influenza pandemic. London: Cabinet Office. July. http://interim.cabinetoffice.gov.uk/media/416533/the2009influenzapandemic-review.pdf.
- CEC (Commission of the European Communities). 2000. Communication from the Commission on the precautionary principle. Brussels: COM. February 2. http://ec.europa.eu/dgs/health_consumer/library/pub/pub07_en.pdf.
- COE (Council of Europe Parliamentary Assembly). 2010. *The handling of the H1N1 pandemic: More transparency needed.* Brussels: Social, Health and Family Affairs Committee. March 23. http://assembly.coe.int/CommitteeDocs/2010/20100329 MemorandumPandemie E.pdf.
- Delamothe, T. 2010. H1N1: Now entering the recrimination phase. *British Medical Journal* 340: c225. January 14. http://www.bmj.com/content/340/bmj.c225.full.
- Duncan, B. 2009. How the media reported the first days of the pandemic (H1N1) 2009: Results of EU-wide media analysis. *Eurosurveillance* 14, no. 30. July 30. http://www.eurosurveillance.org/images/dynamic/EE/V14N30/art19286.pdf.
- Durodié, B. 2004. Facing the possibility of bioterrorism. *Current Opinion in Biotechnology* 15: 264–68. April 23. http://www.durodie.net/pdf/CurrentOpinioninBiotechnology.pdf.
- Durodié, B. 2005. The concept of risk, Nuffield Trust, global programme on health, foreign policy and security. London: The Nuffield Trust. February. http://www.nuffield-trust.org.uk/uploadedFiles/Research/Concept%20of%20Risk.pdf.
- Durodié, B. 2010. Human security A retrospective. *Global Change, Peace & Security* 22: 385–90. October. http://www.rsis.edu.sg/nts/resources/db/uploadedfiles/Human%20Security%20-%20A%20Retrospective%20(published).pdf.
- Fitzpatrick, M. 2010. Pandemic flu: Public health and the culture of fear. NTS Working Paper Series No.2. S. Rajaratnam School of International Studies (RSIS), Centre for Non-Traditional Security Studies (NTS), Singapore. http://www.rsis.edu.sg/NTS/resources/ research_papers/NTS%20Working%20Paper2.pdf.
- Furedi, F. 2009. Precautionary culture and the rise of possibilistic risk assessment. Erasmus Law Review 2: 197–220. http://www.frankfuredi.com/images/uploads/Furedi_-issue_Pieterman_d.d._27_augustus1.pdf.
- Godlee, F. 2010. Conflicts of interest and pandemic flu. *British Medical Journal* 340: c2947. June 3. http://www.bmj.com/content/340/bmj.c2947.full.
- Hawkes, N. 2010. Why we went over the top in the swine flu battle. *British Medical Journal* 340: c789. February 10. http://www.bmj.com/content/340/bmj.c789.extract.
- Huang, Y. 2010. Comparing the H1N1 crises and responses in the US and China. NTS Working Paper Series No.1. S. Rajaratnam School of International Studies (RSIS), Centre for Non-Traditional Security Studies (NTS), Singapore. http://www.rsis.edu.sg/NTS/ resources/research_papers/NTS%20Working%20Paper1.pdf.
- Jenkins, S. 2009. Swine flu? A panic stoked in order to posture and spend. *The Guardian*, April 29. http://www.guardian.co.uk/commentisfree/2009/apr/29/swine-flu-mexico-uk-media1.
- Jenkins, S. 2010. Swine flu was as elusive as WMD. The real threat is mad scientist syndrome. *The Guardian*, January 14. http://www.guardian.co.uk/commentisfree/2010/jan/14/swine-flu-elusive-as-wmd.
- Laïdi, Z. 1994. Un Monde Privé De Sens. Paris: Fayard. Translated and republished as A world without meaning: The crisis of meaning in international relations. Abingdon: Routledge.
- Langer, G. 2009. POLL: Swine flu vaccine, parents doubt safety. ABC News, October 22. http://abcnews.go.com/PollingUnit/SwineFlu/swine-flu-abc-news-washington-post-poll/story?id=8879819.
- Li, A. 2011. Regional integration and emerging and re-emerging infectious diseases' surveil-lance in Asia and Europe. Singapore: Asia-Europe Foundation. January 27. http://www.asef.org/index.php?option=com_project&task=view&id=684.
- Marchant, G., and K. Mossman. 2004. Arbitrary and capricious: The precautionary principle in the European Union courts. Washington, DC: AEI Press.
- McInnes, C., and K. Lee. 2006. Health, security and foreign policy. *Review of International Studies* 32: 5–23.

- Menon, K.U. 2011. Pigs, people and a pandemic: Communicating risk in a city state. NTS Working Paper Series No. 6. S. Rajaratnam School of International Studies (RSIS), Centre for Non-Traditional Security Studies (NTS), Singapore. http://www.rsis.edu.sg/NTS/resources/research_papers/NTS_Working_Paper6.pdf.
- Morris, J., ed. 2000. Rethinking risk and the precautionary principle. Oxford: Butterworth-Heinemann.
- SIRC (Social Issues Research Centre). 1999. The side effects of health warnings. SIRC Bulletin, May 12. http://www.sirc.org/news/side.pdf.
- Smith, R. 2009. Swine flu: Government is scaremongering say leading GPs. *The Telegraph*, July 8. http://www.telegraph.co.uk/health/healthnews/5778295/Swine-flu-Government-is-scaremongering-say-leading-GPs.html.
- Smith, R., M. Keogh-Brown, T. Barnett, and J. Tait. 2009. The economy-wide impact of pandemic influenza on the UK: A computable general equilibrium modelling experiment. *British Medical Journal* 339: b4571. November 19. http://www.bmj.com/content/339/bmj.b4571.abstract.
- Spiegel Online. 2009. Interview with epidemiologist Tom Jefferson. A whole industry is waiting for a pandemic. July 21. http://www.spiegel.de/international/world/0,1518,druck-637119,00.html.
- Spiegel Online. 2010. Reconstruction of a mass hysteria: The swine flu panic of 2009. March 12. http://www.spiegel.de/international/world/0,1518,druck-682613,00.html.
- Sunstein, C. 2005. Laws of fear: Beyond the precautionary principle. Cambridge: Cambridge University Press.
- Whitaker, P. 2009. A right pig's ear. *New Statesman*, October 8. http://www.newstatesman.com/health/2009/10/swine-flu-pandemic-cases.
- WHO (World Health Organization). 2009. *Influenza A(H1N1)*. Statement by WHO Director-General, Dr Margaret Chan, April 29. Geneva. http://www.who.int/mediacentre/news/statements/2009/h1n1_20090429/en/index.html.
- WHO. 2010a. External review of WHO's response to the H1N1 influenza pandemic. Dr Margaret Chan, Director-General of the World Health Organization, Opening intervention at the International Health Regulations Review Committee, September 28. Geneva. http://www.who.int/dg/speeches/2010/ihr_review_20100928/en/index.html.
- WHO. 2010b. Transcript of press briefing with Dr Harvey Fineberg, Chair, International Health Regulations Review Committee, 29 September 2010. http://www.who.int/entity/mediacentre/multimedia/pc_transcript_30_september_10_fineberg.pdf.
- WHO. 2011. Report of the Review Committee on the functioning of the International Health Regulations (2005) and on pandemic influenza A(H1N1) 2009. For discussion at the Meeting of the Review Committee on 28 March 2011. Draft Preview. http://www.who.int/ihr/preview_report_review_committee_mar2011_en.pdf.
- Wraith, C., and N. Stephenson. 2009. Risk, insurance, preparedness and the disappearance of the population: The case of pandemic influenza. *Health Sociology Review* 18: 220–33. October.