Co-benefits and ‘no regrets’ benefits of influenza pandemic planning

Nick Wilson, Philippa Howden-Chapman, Michael G. Baker
Department of Public Health, University of Otago, Wellington, New Zealand
Correspondence: Nick Wilson, Department of Public Health, University of Otago, Wellington, New Zealand. E-mail: nick.wilson@otago.ac.nz

Accepted 21 January 2010. Published Online 21 March 2010.
Keywords Co-benefits, pandemic influenza, pandemic planning.

To the editor:
The emergence of the influenza A (H1N1) pandemic strain in 2009 and its subsequent spread has stimulated national and international interest in pandemic influenza control. It is likely to also be stimulating further revisions of pandemic plans around the world, especially given the possibility of on-going waves.¹ Such pandemic planning can involve sunk costs that might never be realised e.g., antiviral and vaccine stockpiles. However, there are many other potential collateral benefits from pandemic planning and preparations that can be realised regardless of a future pandemic occurring. We briefly describe some of these in this letter.

Benefits for controlling other communicable diseases
The current pandemic has prompted the first declaration of a Public Health Emergency of International Concern under the International Health Regulations (IHR) and is likely to further demonstrate the value of international collaboration in responding to this global health threat. The IHR are an important development for facilitating international disease control and for stimulating improvements in national level surveillance of infectious diseases.²,³ Greater application of the IHR may help improve the response to other communicable diseases and reduce impediments to the effective response to pandemics.⁴ A more specific example is the integration of pneumococcal vaccine into childhood immunisation programs in more countries. This initiative can reduce annual health impacts on children and potentially for the rest of the population via herd immunity.⁵ This effect could benefit adult health both in the short-term and at the time of an influenza pandemic (given the significant role of secondary bacterial infection in past pandemics).

Benefits to the civil defence response to natural disasters
Strengthening civil defence infrastructure could assist with pandemic influenza control and also further enhances the response to a wide range of other natural disasters (e.g., flooding, severe storms, and earthquakes). Greater public involvement in simulated disaster exercises could also be considered. Of note is the finding that past experience of ‘volunteerism’ is associated with willingness to volunteer during an influenza pandemic.⁶ Disaster simulations could also help the military to better train for assisting civil defence authorities as required. Certain home provisions such as supplies of stored food may help in a pandemic situation (e.g., as described by Haug et al.⁷) as well as for various natural disasters.

Reducing routine overload of emergency department (ED) services
Emergency department services may be critical in pandemic situations but also in natural disasters and seasonal influenza outbreaks. In many countries, there may be scope for public health interventions that lower ED usage rates e.g., more intensive injury prevention and enhanced alcohol control e.g., via higher alcohol taxes. Such demand reductions would probably save health sector resources on a routine basis and allow ED services to operate more efficiently. But more effective prevention might also reduce routine health sector investment in ED services – which could be problematic in a pandemic unless such downsized services had built-in surge capacity.

Benefits from Internet and broadband access
Governments can potentially enhance Internet access for their populations through appropriate regulation and possibly incentives. Improved access has potential benefits for those types of disasters where electricity and telephone services remain working, at least in the early stages (e.g., approaching storms and pandemics). ‘Remote working’ via the Internet is already considered in some national and business pandemic plans.⁸ Internet access allowed home-based educational services for children in Beijing when
schools were closed because of SARS. It is also envisaged that during future pandemics the ‘next generation broadband could also assist with appropriate diagnosis and treatment by allowing virtual home visits by general practitioners’. Yet there are likely to be many other educational and economic benefits of improving the level of Internet access in populations where such communication technology is not fully available.

Benefits from improving housing quality and crowding reduction

Crowding is a known risk factor for many communicable diseases, in both developed and developing countries. Furthermore, there is some modern day evidence that household crowding in developed countries is still associated with the annual risk of ‘pneumonia and influenza’ hospitalisation. There is also some animal model evidence that cold conditions favour influenza transmission. Improvements in housing quality through the use of insulation and heating are associated with improvements to health and are cost-effective interventions.

Benefits to public health services

Responding to public health emergencies such as the influenza A (H1N1) pandemic, does have a large opportunity cost for public health services in terms of drawing staff away from important non-communicable disease prevention activities. However, the work in preparing for such events, and potentially the learning that comes from such experiences, may benefit public health infrastructure in the longer term. In the United States, the shift of responsibilities for emergency preparedness to local health departments is reported to have provided ‘collateral benefits’ to the local public health offices in one state (e.g., increased efficiency and timeliness of operations, enhanced visibility, development of personnel, improved technology and technical expertise, and additional fiscal resources). The signature features of the influenza pandemics—implications for policy. N Engl J Med 2009; 360:2595–2598.

Baker MG, Fidler DP. Global public health surveillance under new international health regulations. Emerg Infect Dis 2006; 12: 1058–1065.

Baker MG, Forsyth AM. The new International Health Regulations: a revolutionary change in global health security. N Z Med J 2007; 120:U2872.

Enserink M, Normile D. Avian influenza. More bumps on the road to global sharing of H5N1 samples. Science 2007; 318:1229.

CDC. Direct and indirect effects of routine vaccination of children with 7-valent pneumococcal conjugate vaccine on incidence of invasive pneumococcal disease – United States, 1998–2003. MMWR Morb Mortal Wkly Rep 2005; 54:893–897.

Rosychuk RJ, Bailey T, Haines C et al. Willingness to volunteer during an influenza pandemic: perspectives from students and staff at a large Canadian university. Influenza Other Respi Viruses 2008; 2:71–79.

Haug A, Brand-Miller JC, Christophersen OA et al. A food “lifeboat”: food and nutrition considerations in the event of a pandemic or other catastrophe. Med J Aust 2007; 187:674–676.

Eagleman DM. Can the Internet save us from epidemics? Nature 2006; 441:574.

Eckholm E. The SARS epidemic: Beijing; Chinese capital closes schools for at least two weeks. New York Times. 2003; (23 April). Available at: http://query.nytimes.com/gst/fullpage.html?res=9C04EFDB1E3AF930A15757C0A9659C8863&sec=&spon=&pagewanted=2 (Accessed 22 February 2010).

Plum Consulting. A Framework for Evaluating the Value of Next Generation Broadband: a report for the Broadband Stakeholder Group. London: Plum Consulting, 2008. Available at: http://www.pumconsulting.co.uk/pdfs/BSG_Value_of_next_generation_broadband_June_2008.pdf.

Baker M, Zhang J, Venugopal K. Impact of household crowding on the risk of being hospitalised with influenza and pneumonia in a large cohort study. [Poster presentation 179]. International Conference on Emerging Infectious Diseases (ICEID). Atlanta (16–19 March). 2008.
12 Lowen AC, Mubareka S, Steel J et al. Influenza virus transmission is dependent on relative humidity and temperature. PLoS Pathog 2007; 3:1470–1476.
13 Howden-Chapman P, Matheson A, Crane J et al. Effect of insulating existing houses on health inequality: cluster randomised study in the community. BMJ 2007; 334:460.
14 Chapman R, Howden-Chapman P, Viggers H et al. Retrofitting houses with insulation: a cost-benefit analysis of a randomised community trial. J Epidemiol Community Health 2009; 63:271–277.
15 Wetta-Hall R, Berg-Copas GM, Ablah E et al. Regionalization: collateral benefits of emergency preparedness activities. J Public Health Manag Pract 2007; 13:469–475.
16 Goodin R, Le Grand J. Not Only the Poor: the Middle Classes and the Welfare State. London: Allen and Unwin, 1987.