Editorials

Swine flu

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Fragile health systems will make surveillance and mitigation a challenge

During March, Mexico saw unusual patterns of acute cases of respiratory infection. On 18 April, a laboratory in the United States reported two human cases of swine flu—the result of a novel reassortment of influenza A strain H1N1 from avian, swine, and human strains—in two children from California. A week later, on 25 April, the World Health Organization declared the swine flu outbreak in North America a “public health emergency of international concern.” This decision, in accordance with the International Health Regulations, means that countries have been asked to step up reporting and surveillance of the deaths and illnesses associated with the disease. On 29 April, the International Health Regulations emergency committee recommended a change from WHO pandemic influenza phase 4 to phase 5. This means that WHO views a pandemic as imminent.

From 17 April to 26 April, 1840 suspected cases of flu with severe pneumonia were reported in Mexico, 26 of which have been confirmed as swine flu. More than 150 people have died, and many have been in the 20-40 year age range. As of 28 April, 64 human cases had been confirmed in the US (45 in New York, 10 in California, six in Texas, two in Kansas, and one in Ohio). The picture is highly fluid, but cases have also been confirmed in Canada, Spain, the United Kingdom, New Zealand, and Israel, and suspected cases have been reported in France, South Korea, and Brazil. No deaths have been reported outside Mexico, the reason for which is still unclear.

New probable and confirmed cases are emerging daily. Given the widespread presence of the virus across many countries containment is probably not feasible, and efforts need to focus increasingly on mitigation. Interestingly, almost all cases reported so far have been reported by developed countries with robust surveillance systems. It is unclear whether this is because populations at risk have travelled preferentially from Mexico to those sites, or, more pessimistically, whether cases are now occurring in countries with less well developed surveillance systems and not coming to international attention. Are we seeing only part of the global picture?

Neither natural immunity from earlier strains of influenza A nor currently available vaccines offer protection against swine flu. This new strain is, at this stage, sensitive to antiviral drugs oseltamivir and

zanamivir.[1] However, although many developed countries, including most of Western Europe and the US, have sizeable stockpiles of antiviral drugs, most low and middle income countries have low or non-existent stocks. The rapid response stockpile of three million treatments of oseltamivir, and the two million treatments stockpiled by WHO as regional stockpiles for use in developing countries, are intended principally for rapid containment, and they will not go far to support mitigation efforts. Roche, the manufacturer of oseltamivir, has fulfilled orders amounting to 220 million treatment courses to just over 85 countries to date, but this would treat only about 5% of the world's population (and much less if the drug is used prophylactically). Manufacturing capacity can be readily expanded to produce, over one year, treatment courses for 400 million people, but this is still a fraction of possible global demand.

Since the re-emergence of H5N1 strains of avian influenza and the emergence of severe acute respiratory syndrome—both in Asia in 2003—global, regional, and national public health institutions have been preparing for a pandemic. So, is the world—as the BBC noted in a headline on 27 April —"well prepared"?[2] Well, not necessarily. Analyses of national strategic plans around the world show that although most countries now have plans, many countries, especially developing countries, will struggle to put them into operation. This is because they have limited health system resources to call on in the event of a pandemic; they have not stockpiled antiviral drugs in anything like the numbers needed for mitigation purposes (and if they had, they might struggle to mobilise them effectively); and they are unlikely to receive an effective vaccine early (if at all), once it is produced in large amounts.[3] [4] [5] [6] [7] [8]

Responses to pandemic flu are grounded in notions of national sovereignty. Analyses of national plans have highlighted strategic inconsistencies, resulting in the potential for political tension.[9] One area of confusion is that of border control; evidence shows that border screening is an ineffective means of control, and WHO is resisting calls to issue recommendations for travel restrictions. However, several countries including the UK (and the European Union) have recommended restrictions on travel.

Now world attention is focused on H1N1 swine flu it is easy to forget the threat still posed by H5N1 and other strains of flu. Immunity to H1N1 will not offer protection to H5N1 if that also becomes readily transmissible between humans. As H1N1 spreads to areas where H5N1 is endemic, do we face an even greater challenge—that of reassortment of these two viruses and the threat of another pandemic?

The economic crisis of the past year has shown how interconnected we are, and it has also highlighted challenges that arise when countries whose interests are at variance have to act together for the common global good. If swine flu becomes a pandemic and is associated with high mortality and morbidity, notions of global solidarity may be tested as never before.

Notes

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Footnotes

- Competing interests: RC has received funding from F Hoffmann-La Roche, various governments, and the European Commission. He has also received honorariums and reimbursements from F Hoffmann-La Roche, governments, the European Commission, and the European Presidency.
- Provenance and peer review: Commissioned; not externally peer reviewed.

- See also discussion on doc2doc: http://tinyurl.com/dc6bzf

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