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When does a pandemic start?

Industrial engineers take a closer look at planning stages as the WHO re-works alert scale



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Emergency planners may find that the measure used by the World Health Organization (WHO) to decide when a pandemic has begun is not helpful in practice, suggest Sandra Garrett and Barrett Caldwell in a paper due to be presented next month at the Institute of Industrial Engineers **annual conference**. Health authorities should be looking at pandemics as “extended emergency scenarios,” not one-time events, they say.

“A pandemic is not a single point in time, but a scenario that may occur in several waves over a period of months,” write the authors. They describe the triggers and features of different phases in such an extended event, highlighting problems that come with looking at a pandemic as a one-time occurrence and without considering “human factors,” such as the ability to detect an unusual outbreak.

“The difficulty for many decision makers is deciding what would be an appropriate trigger... for initiating or activating their pandemic influenza plans,” Garrett and Caldwell point out.

This is where the global response to the evolving ‘swine flu’ epidemic has now hit a snag, prompting a debate over whether the **WHO’s pandemic alert phases** should be revised.

Back to the drawing board

The new H1N1 virus has reached 48 countries, causing 13,398 cases of confirmed infection and 95 deaths. But nearly two months after the WHO signalled that countries should prepare for an “imminent” pandemic by **raising the alert level** to phase 5, no region outside the Americas has officially recorded sustained community spread of the virus — the one piece of evidence it would take to move to phase 6, triggering activation of countries’ emergency response plans.

Together with the continuing wave of mostly mild illness, this has prompted some countries to call for a change in the criteria for declaring a full-blown pandemic. The WHO is now taking a closer look at how the pandemic alert phase system might be adjusted, said Keiji Fukuda, Assistant Director-General for Health Security and Environment, in a press briefing this week.

The current alert system was put in place as a tool to help countries in preparing for such a pandemic, explained Fukuda. It was developed “in the shadow of avian influenza H5N1, a virus which has been extraordinarily lethal,” he explained. “But I think that the...spread of this [new H1N1] virus [has] really highlighted the fact that this is a very different situation.”

In revising the alert system, the WHO will be taking an in-depth look at two questions, added Fukuda: whether the severity of the impact on people or countries should make a difference in deciding to move up the pandemic alert scale, and at which point is there clear evidence that the virus is spreading within the community.

Japan has recorded 350 cases of swine flu, according to the WHO’s most recent tally, and the **latest figures** released by the UK Health Protection Agency put the number of confirmed cases at 185. But neither country has said the virus has established itself with “sustained transmission” — spreading widely and persistently in the community. Criticising the UK’s response to the epidemic, **experts have suggested** the outbreak could be much larger than official data suggest.

“Proactive foraging”

As things stand, countries are doing whatever is necessary to address the situation, said Fukuda in the press briefing. But there is concern that moving to phase 6 without evidence of a global outbreak can lead to extra response activities without much public health gain, he explained, adding that going ahead to declare a pandemic now could even lead to panic and cynicism. “These are some of the considerations that countries are wrestling with.”

Fukuda notes that perhaps the biggest lesson learned from the swine flu outbreak of 1976 is the need to “take stock”. It would be easy to simply do what has already been written down in the existing alert scale, he points out, but the complex reality is good reason to look at how the current system can be improved.

Garrett and Caldwell’s framework looks at a hypothetical pandemic from the planner’s perspective, an approach that differs from the WHO’s alert phases which are characterised by epidemiological decision points. In their model, decision points are instead determined by detection and response capability, for example by estimating the time needed to gather resources for a response. Their description of preparedness at the different stages during an event might help to better understand the current evolving situation. This model suggests that parts of the world are now in a state of “proactive foraging”: actively looking for resources to deal with a future pandemic. This stage comes after having detected the “trigger” for a future event — a new virus with pandemic potential — and before the arrival of a full-blown pandemic.

Once an evolving situation like the current swine flu epidemic becomes global, the world's response can only be reactive, according to the authors. The **time needed to build sufficient stockpiles** of vaccine is an example of how acting during this phase can help to mount an effective response, explain Garrett and Caldwell. Some resources can also be spent effectively in educating people, especially children, on good hygiene practices.

"When to activate local pandemic response and alternative care system strategies may include a combination of general messages created and standardized for each phase, along with the design and dissemination of an event trigger notification system," write Garrett and Caldwell.

Links

WHO information about influenza A(H1N1)

WHO information about pandemic preparedness

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