

ACT subsidy would be successful. However, a report compiled by the Clinton Foundation and others⁴ of the lessons learned from these country case studies offers no conclusive evidence that the AMFm will achieve its goals and would therefore caution against such enthusiasm.

There are always costs of both action and inaction; however, before a costly scheme is funded, better evidence of its effectiveness should be established. As the Global Fund delays new funding rounds and cuts back on its core functions, it risks wasting public funds pursuing a scheme that might have been appropriate 4 years ago, but which could undermine malaria control and treatment programmes and impose considerable opportunity costs today.

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We declare that we have no conflicts of interest.

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Reacting to the emergence of swine-origin influenza A H1N1

2009 saw a new swine-origin influenza A H1N1 virus emerge in Mexico, then the USA, and, in a matter of weeks, multiple countries in four continents.¹ The initial perception of high mortality among young Mexicans coupled with its rapid spread worldwide raised the spectre of the devastating severe acute respiratory syndrome (SARS) epidemic of 2003. WHO raised its pandemic alert level from three to five—signifying an imminent pandemic—within 3 days.^{1,2} The US Centers for Disease Control and Prevention rapidly characterised the virus, providing information on its antiviral susceptibility, molecular biology, and epidemiology online^{3,4} and through international teleconferences organised by WHO.

Countries rushed to control the epidemic. Some of the most drastic actions were taken by China and Hong Kong. The former quarantined Canadian and Mexican nationals, while the latter sealed off an entire hotel when the first case of H1N1 influenza was detected in a Mexican guest, placing all other guests and staff under quarantine.⁵

Singapore, which has no confirmed cases so far, activated its pandemic plan immediately after WHO raised their alert level from three to four. The Disease Outbreak Response System (DORSCON)-FLU framework—a series of colour-coded alert levels—was designed for a stepwise national pandemic response.⁶ A yellow alert was declared on April 28, 2009, one day after WHO raised the pandemic threat to level four. Installation of thermal scanners at the borders to detect

febrile travellers entering the country was implemented, with a dedicated ambulance service to send suspected cases to the designated hospital. Health-care workers at all emergency departments, isolation wards, and intensive care units were required to wear full personal-protective equipment including N95 masks, gloves, and gowns. Each inpatient was restricted to two visitors, who had their details recorded to help with contact tracing.

When WHO raised the pandemic alert level to five an orange alert was declared. All health-care workers were required to wear N95 masks at work and had their temperatures monitored twice-daily. Office staff in health-care facilities wore surgical masks. Medical and nursing student clinical postings were cancelled. Each patient could only have one visitor per day, and checkpoints were established at all hospital entrances. Movement of patients and health-care workers between hospitals was restricted, and rotations of junior doctors suspended. Medical conferences were cancelled, leave for health-care workers was curtailed, and elective surgical procedures were postponed. Hospitals restricted overseas travel for their employees, mandating quarantine or virological screening on return from countries that had reported local transmission. Additionally, travellers who had returned from Mexico were quarantined for 7 days. Schools were required to begin temperature monitoring of all students. Public health messages went out on social distancing, hand hygiene, and social responsibility. These



China, Hong Kong, and Singapore imposed some of the toughest measures to contain H1N1

measures were only de-escalated to DORSCON yellow on May 7, when it became apparent that the disease was not as virulent as predicted. Visitor restrictions with staff temperature surveillance and enhanced infection control in hospitals continued.

The drastic measures taken in Singapore, Hong Kong, and China might seem excessive compared with other responses that focused on heightened influenza surveillance, enhanced infection control, limited travel restrictions, and school closures. However, it is important to bear in mind that Singapore, Hong Kong, and China were among the worst hit by the SARS epidemic. The deaths of many dedicated health-care workers during SARS,⁷ and the economic devastation wrought by the outbreak,⁸⁻¹⁰ have clearly influenced policy makers in their decision to rapidly implement draconian measures.

Influenza A H1N1 is virologically and epidemiologically a different virus from SARS. Although a nurse in Germany is reported to have acquired the virus nosocomially, the overwhelming majority of infections were community-acquired. Isolation of patients has been associated with adverse outcomes¹¹ as has the prolonged use of personal-protective equipment by health-care workers.^{12,13} The unintended consequences of resource diversion on the rest of the health-care system during SARS have been reported.¹⁴ It remains to be seen if the draconian measures taken by previously

SARS-affected countries will be cost-effective in the control of pandemic influenza. There is a crucial need for well designed prospective quasiexperimental studies to evaluate these responses. These studies will form the evidence base in preparation for a pandemic of emerging infections with different degrees of virulence.

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