

In the United Kingdom of Great Britain and Northern Ireland, a new national influenza pandemic strategy was published for consultation on 22 March 2011.³ This has taken on board many of the lessons learned during the 2009 pandemic. However, the strategy still recognizes the need for an initially precautionary approach, given the speed with which the virus can spread and the paucity of data that will be available at the start of a pandemic, although it states that proportionality and flexibility should guide the response as information about the virus and its effects become available. The strategy is now better adapted to the needs of the United Kingdom and is proposing a new phased response that is not linked to the WHO phases. This reflects the fact that in the United Kingdom the first cases were detected in late April 2009 and that using the WHO phases, which are global indicators of spread, proved to be unhelpful.

Peter Doshi highlights the lack of a definition of a pandemic.⁴ There is also no definition of a pandemic wave or severity, both key issues when it comes to describing the progress and impact of a pandemic. I don't believe this reflects a lack of willingness to formulate such definitions, but rather, a lack of international consensus stemming from the absence of key data and the recognition that severity, impact and other descriptors can only be applied with certainty historically. ■

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Planning for uncertainty: a European approach to informing responses to the severity of influenza epidemics and pandemics

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The internationally accepted definition of a pandemic is straightforward and well known: “an epidemic occurring worldwide, or over a very wide area, crossing international boundaries and usually affecting a large number of people”.¹ However, as Doshi reminds us, for any modern influenza pandemic, with many available powerful countermeasures, it is the detailed description that is crucial in determining proportionate responses, not the definition.²

Because of the inherent unpredictability of influenza viruses, preparing for and responding to epidemics and pandemics will always be an uncertain business.³ Annual epidemics and irregular pandemics have several important characteristics that summary terms such as *mild*, *moderate* and *severe* gloss over.² For example, even the “moderate” or “mild” pandemic of 2009 was severe in its impact on many intensive care units and in its initial pressures on primary care services.^{4,5}

Data and analyses that inform on the relevant features in the early course of pandemics and epidemics become available continuously. Initial analyses can be misleading and the pattern of infection and disease can also change over time. In the 2009 pandemic, the European Centre for Disease Prevention and Control (ECDC) used updatable published risk assessments to organize this information, comment on its implications for the response and identify the most important areas of uncertainty.⁶ This approach was based on a list of “known unknowns” of pandemics, part of a pre-planned “surveillance in a pandemic” strategy.⁷

As recommended by the report adopted by the 64th World Health Assembly,³ ECDC has further developed this approach applying it as a matrix (Table 1) to annual seasonal epidemics, starting with the 2010–2011 season. With powerful countermeasures increasingly available – public health interventions, antivirals, vaccines and higher-level intensive care – the matrix relates more to response than to conventional measures, such as transmission and infection fatality rates. Important as these are, they are rarely available in an accurate form early on, whereas the initial impressions of impact on services often appear rapidly. In the 2009 pandemic, the experience and reports of predominantly mild illness (but with some very severe cases) received from New York City and Melbourne, once verified, were highly informative in determining the proportionate European response.⁸ The risk assessments are undertaken by ECDC staff drawing on both European experience (from the European Influenza Surveillance Network) and whatever verifiable epidemic intelligence is available.⁹ For seasonal epidemics the information will be presented visually using internationally recognizable red, amber and green colours (Table 1 and Table 2). Red signals situations in which the evidence suggests action is justifiable, and amber signals those in which precautionary approaches may be needed. Europe has a particular advantage in that seasonal epidemics tend to progress from west to east, so that early experience and virology can be especially helpful in preparing countries for what they will experience later.¹⁰ Variants on this approach have been used since the 2007–08 season, beginning with the appearance of oseltamivir-resistant viruses in Norway (Table 3) Though concerned with responses, the severity matrix cannot prescribe actions. The ECDC's mandate is to offer scientific information, guidance and options, not to make recommendations. Decisions on risk management are made by its individual Member States and collectively by European Union bodies, such as the Health Security Committee. Capacity, preparation and disease intensity vary across countries; so what can be coped

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Table 1. **Seriousness matrix for pandemic influenza in Europe, 2009**

Category	Seriousness	Potential actions and notes
Personal measures	Amber	Alert public to strengthen personal hygiene and early self isolation
Primary care pressures	Amber	Consider enacting back-up plans
Immunization	Red	Strong arguments for immunizing risk groups when available
Antiviral resistance	Green	No change in policy justifiable
Public health measures	Green	Proactive school closures not justifiable at present
Secondary care pressures	Red	Strong case for enacting surge capacity for intensive care and paediatric capacity
Special groups	Red	Pregnant women, handicapped children risk groups in addition to those with chronic illness
Social care pressures	Green	No case for enacting support plans
Critical cross-sector services	Green	No case for enacting support plans
Special features	Red	Rapid deaths in some young healthy adults and children – acute respiratory distress syndrome

Table 2. **Seriousness matrix for seasonal influenza in Europe, December 2010**

Category	Seriousness	Potential actions and notes
Personal response	Amber	Alert public to strengthen personal hygiene and early self isolation
Primary care pressures	Amber	Consider enacting back-up plans
Immunization	Red	Recommend making clinical groups, including pregnant women, the top priority but continue immunizing older people
Antiviral resistance	Green	No change in policy justifiable but monitor resistance
Public health measures	Green	Not justified by the evidence
Secondary care pressures	Red	Some stresses on intensive care units consider back-up plans
Special groups	Red	Clinical risk groups
Social care pressures	Green	No case for enacting back-up to enact plans
Critical cross-sector services	Green	No threat – no case for enacting back-up plans
Special features	Amber	Need to respond to unexpected deaths in young healthy adults and children. Role of invasive bacterial infections?

Table 3. **Instances in which early experience with influenza in European countries has informed the response elsewhere**

Country and year or season	Characteristic	Public European alert issued ^a
Norway, 2007–08 season	Emergence of oseltamivir-resistant A(H1N1) 2009	Rapid communication in <i>Eurosurveillance</i>
Ireland and Portugal, 2008–09 season	Pressure on primary and secondary care services from A(H3N2) epidemics	ECDC, January 2009
United Kingdom, ^b 2009 pandemic	Lack of major impact on transmission and high human resource cost of attempts to contain pandemic influenza and mild disease spectrum	European Informal Health Council, July 2009
United Kingdom, ^b 2010–11 season	High pressure on some intensive care units	ECDC Director, December 2010

ECDC, European Centre for Disease Prevention and Control.

^a In addition there were earlier rapid communications with Member States by European Union Early Warning and Response Systems and/or through alerting systems falling under the International Health Regulations.

^b United Kingdom of Great Britain and Northern Ireland.

with in one setting may be stressful in another. Hence, the severity matrix will alert Member States as to what *may* give them problems and will suggest options for action. One of the general lessons learned from the pandemic, as indicated by evaluations undertaken in Europe (listed on the ECDC web site), is that interventions that were not

exercised beforehand did not work well. This explains why the ECDC uses inter-pandemic influenza as a practice ground for pandemic preparation, although it also merits public health action in its own right.^{3,11} ■

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