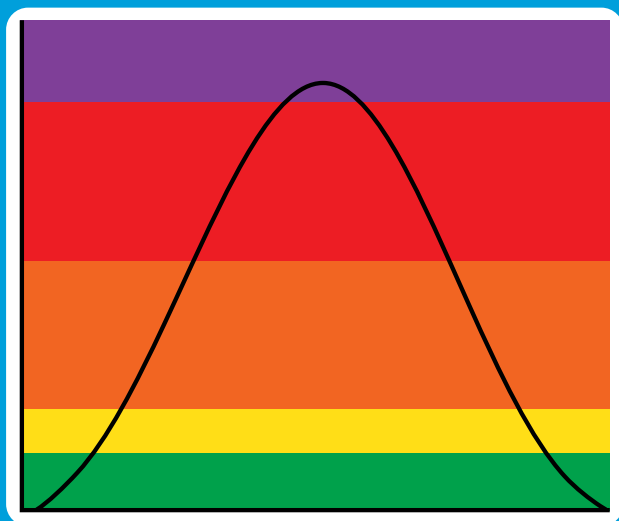


PANDEMIC INFLUENZA SEVERITY ASSESSMENT (PISA)

A WHO guide to assess the severity of influenza
in seasonal epidemics & pandemics



WHO/WHE/IHM/GIP/2017.2

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1 SCOPE OF THE DOCUMENT

1.1 Background and development history

The events of the 2009 H1N1 pandemic revealed that WHO and national organizations did not have a robust and standardized method for making a timely assessment of the severity of pandemic influenza. They also showed that Member States were not fully prepared to rapidly assess the severity of a pandemic, or to implement the necessary risk management and communications plans.

In 2011, the World Health Assembly adopted a report by the Review Committee on the Functioning of the International Health Regulations (2005) and on Pandemic Influenza (H1N1) 2009⁽¹⁾. The committee recommended that WHO should develop and apply measures that can be used to assess the severity of every influenza epidemic, whether seasonal or pandemic. A severity assessment provides the information needed to determine the timing, scale, emphasis, intensity and urgency of pandemic response actions. The report stated that, “by applying, evaluating and refining tools to measure severity every year, WHO and Member States can be better prepared to assess severity in a timely manner in the next pandemic” ⁽¹⁾.

Severity assessments should be conducted in the early phase of a pandemic and regularly thereafter as the pandemic evolves. Since the World Health Assembly highlighted this need, WHO has made great progress on developing a framework on pandemic influenza severity assessment (PISA)⁽²⁾. The framework was developed through several meetings, expert consultations, collaborative WHO projects and the establishment of a technical working group (TWG) on pandemic influenza severity assessment. The framework defines influenza severity in terms of three indicators: transmission, seriousness of disease and impact.

In April 2014, WHO convened a meeting of the TWG to review the scope of surveillance data currently collected by Member States. The TWG reviewed surveillance data in the selected Member States to identify strengths and gaps, and areas for improvement, all of which varied dramatically among Member States.

Interim guidance describing a structured way of assessing influenza severity was developed, based on the results of previous meetings, work that WHO did with the Robert Koch Institute (Germany), a pilot study performed by Member States in the southern Hemisphere (Australia, Chile, New Zealand and South Africa) in 2014, and ongoing conference calls and expert consultations. Development of this framework formed the basis of discussion for the second and third meetings of the TWG, held in November 2014 and June 2015, respectively.

From 2014 to 2016, pilot testing of the interim guidance continued in selected Member States: Australia, Bangladesh, Canada, Chile, China, Egypt, France, Germany, India, Iran, Ireland, Japan, Madagascar, New Zealand, Norway, Portugal, Singapore, South Africa, Spain, Thailand, the United Kingdom of Great Britain and Northern Ireland, and the United States of America.

The guidance was further refined based on the findings and experience from the pilot testing. In March 2017, the PISA approach was launched and Member States were encouraged to start implementation. The immediate use of the tool to assess seasonal epidemic severity will highlight the need for strong baseline data; in addition, it will encourage Member States to refine their available data and familiarize themselves with the severity assessment tool, which would also be used during a pandemic.

1.2 Purpose of the guidance document

This guidance has been developed by WHO to be used by Member States and WHO as part of the pandemic influenza risk management guidance (PIRM)⁽³⁾ to assess the severity of influenza in seasonal epidemics and pandemics, when sustained human-to-human transmission occurs. The assessments will take place continuously during seasonal epidemics or a pandemic, with a conclusive assessment being undertaken once transmission has subsided.

During a pandemic, time and resources are limited. Therefore, countries need to become familiar with the tool as soon as possible (i.e. during seasonal influenza epidemics), and operationalize the methods and outputs in their routine seasonal influenza situation assessments and reports. This will allow countries to assess severity more easily and efficiently during a pandemic.

This guidance does not apply to the alert phase situation⁽³⁾; that is, before sustained human-to-human transmission of zoonotic influenza viruses, when the aim is to define the risk of pandemic spread. Other tools are available from WHO for this purpose; for example, the Rapid risk assessment of acute public health events⁽⁴⁾ or the tool for influenza pandemic risk assessment (TIPRA)⁽⁵⁾.

Information to assess severity early and throughout the course of a pandemic will also be provided through special studies and modelling. However, this guidance focuses mainly on the information collected during routine influenza surveillance.

1.3 Target audience

This document is intended for use primarily by public health professionals at the national level, who perform or plan to perform national influenza severity assessments, and who can contribute to global influenza severity assessments. It is a living document that will be further updated as needed, and will serve as guidance for seasonal and pandemic influenza severity assessments.

2 AIM OF THE INFLUENZA SEVERITY ASSESSMENT

The aim of the influenza severity assessment at the national level is to⁽³⁾:

- describe the epidemiological situation and assess the severity of an influenza epidemic or pandemic based on all available information;
- inform national and global risk assessments; and
- inform public health preparedness, response and recovery measures, as well as resource allocation.

The global influenza severity assessment will be used by WHO to monitor and understand the global situation, and to inform and support global decisions and recommendations on public health interventions.

3 INFLUENZA SEVERITY ASSESSMENT CONCEPT & DEFINITIONS

3.1 Indicators

Based on consultations between external experts and WHO staff between 2011 and 2015, influenza (pandemic) severity is defined in terms of three indicators: transmissibility of an influenza virus, seriousness of influenza disease and impact. These terms are defined in detail below and in [Table 1](#).

3.1.1 Transmissibility

The transmissibility indicator reflects the ease of movement of the influenza virus between individuals and communities. Thus, a virus with high transmissibility will spread rapidly from one person to another. Several factors affect transmissibility: the ability of the virus to spread from person to person, the dynamics of the spread and the susceptibility of the exposed population. Transmissibility will be influenced by social and climatic factors. During seasonal influenza epidemics, transmissibility is usually measured by routine surveillance systems using a proxy (e.g. how many people are seeking health care for influenza-like illness). The actual dynamics of the spread (the reproductive number) and the susceptibility of the exposed population would be measured by ad hoc special studies during a pandemic.

3.1.2 Seriousness of disease

The seriousness of disease (also referred to as “severity of infection”) indicator describes the extent to which individual people get sick when infected with the influenza virus. It describes the frequency of clinical symptoms, complications of influenza illness and outcomes following influenza infection. The seriousness of disease depends on the virus; for example, an influenza virus with a high level of clinical severity can result in a disproportionate number of people with serious illnesses, some of whom will be hospitalized and some of whom will die. Seriousness of

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