

Launching the Tool for Influenza Pandemic
Risk Assessment (TIPRA)
Meeting Report

4-5 May 2016
St Moritz Room, Starling Hotel,
Geneva, Switzerland



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Abbreviations

CDC	Centers for Disease Control and Prevention
EFSA	European Food Safety Authority
FAO	Food and Agriculture Organization
GLEWS+	The Joint FAO–OIE–WHO Global Early Warning System for health threats and emerging risks at the human–animal–ecosystems interface
IHR	International Health Regulations
IRAT	Influenza Risk Assessment Tool
MERS	Middle East Respiratory Syndrome
NFP	National Focal Point
NIC	National Influenza Center
OFFLU	OIE-FAO global network of expertise on animal influenza
OIE	World Organization for Animal Health
PIP	Pandemic Influenza Preparedness
PIRM	Pandemic Influenza Risk Management
PISA	Pandemic Influenza Severity Assessment
TIPRA	Tool for Influenza Pandemic Risk Assessment
WHO	World Health Organization

Executive Summary

Assessing the pandemic risk of influenza viruses is complex, requiring critical review of diverse and available data by specialists. The WHO Tool for Influenza Pandemic Risk Assessment (TIPRA) is an influenza hazard assessment tool designed to assess the likelihood and potential impact of a virus becoming a pandemic strain. TIPRA has been designed to support influenza pandemic risk management planning and preparedness. TIPRA can be used to support public health decision-making by identifying information gaps, prioritizing viruses for further actions and informing comprehensive risk assessments, incorporating exposure and context assessments, in a transparent, systematic and timely manner.

The launch of TIPRA version 1 convened public and animal health expert collaborators from national and global authorities and research institutes. The TIPRA principles, methods, application, limitations, and place within the influenza risk assessment landscape were presented and discussed.

Objectives

- ❖ Introduce and launch TIPRA version 1
- ❖ Identify appropriate applications and limitations of TIPRA
- ❖ Refine the tool through participant feedback
- ❖ Examine where TIPRA fits in the influenza risk assessment landscape
- ❖ Establish the way forward for TIPRA and develop a strategy to roll out the tool
- ❖ Elicit participant commitment to ongoing engagement with TIPRA

Outcomes

Earlier versions of TIPRA were tested and refined by stakeholders. However, it is a new and evolving tool in need of further validation of the process and results in order to ensure consistency between assessments of different viruses and to maximize utility of outputs for global and national risk management decision-making. Because TIPRA is still in early development, its users are advised to communicate with and seek support from WHO prior to and during the use of TIPRA.

Key outcomes of the launch:

- ❖ increased awareness among stakeholders of TIPRA version 1;
- ❖ positioning of TIPRA in the current animal-human non-seasonal influenza risk assessment landscape;
- ❖ establishment of the role and limitations of TIPRA version 1;
- ❖ commitment of key stakeholders to use and advance TIPRA;
- ❖ selection of candidate viruses to challenge TIPRA version 1; and
- ❖ timeframe for assessment of selected viruses to inform future refinement of the tool.

Eight candidate viruses have been identified for TIPRA application in the immediate future. WHO has committed to lead TIPRA application for four to six viruses over the next six to 12 months.

The way forward

- ❖ Establish a TIPRA community of experts and national stakeholders with open, two-way communication pathways.
- ❖ Run, monitor, validate and refine: test TIPRA with more viruses to fine-tune the tool.
- ❖ Align TIPRA in the animal-human influenza risk assessment landscape; work towards consistent, holistic influenza risk assessment.

Introduction and Scope of the Meeting

Influenza pandemics are complex, unpredictable yet inevitable events. A pandemic occurs when an influenza A virus, to which the population has limited or no immunity, acquires the ability to efficiently transmit from humans to humans. Effective strategies and actions to manage and mitigate pandemic influenza risk rely on robust risk assessment. Comparing and prioritizing specific viruses can facilitate effective planning and preparation for pandemic influenza. Influenza risk assessment requires the specific hazard – the influenza virus – to be characterized as exhaustively and efficiently as possible under knowledge, data and time constraints. The characteristics of the virus and the human population will affect the likelihood of efficient human-to-human virus transmission and the subsequent impact on public health. To effectively assess virus pandemic potential and impact requires timely and reliable assessment of emerging and re-emerging strains. Virus characterization can directly inform prioritization of strains for further action and/or initiate situational, or context, and exposure assessments to complete a comprehensive risk assessment. This can then inform risk management and risk communication decisions.

Launch of the Tool for Influenza Pandemic Risk Assessment (TIPRA) version 1 was a key milestone in its development, establishing its readiness for further application. The launch reinforced the need for TIPRA as a global tool for influenza virus pandemic hazard assessment and provided an opportunity to introduce and disseminate the TIPRA concept. Participants critically discussed the tool's uses, limitations and application within the broader landscape of animal-human influenza risk analysis and public health decision-making. The next steps in the evolution of TIPRA are to apply it to additional viruses; to monitor, validate and refine the tool as required; and to align it within the landscape of influenza and broader public health risk assessment strategies.

The main objectives of the meeting were to:

- ❖ introduce and launch TIPRA version 1;
- ❖ identify appropriate applications and limitations of TIPRA;
- ❖ refine the tool through participant feedback;
- ❖ examine where TIPRA fits in the current influenza risk assessment landscape;
- ❖ establish the way forward for TIPRA and develop a strategy to roll out the tool; and
- ❖ elicit participant commitment to ongoing engagement with TIPRA.

Organization of the Meeting

The launch convened 59 TIPRA stakeholders from 25 countries, including participation of six persons through Webex. Participants represented public and animal health authorities, research institutes, WHO National Influenza Centres and WHO Collaborating Centres for influenza staff, and experts from WHO headquarters. The meeting included presentations, group work, plenary sessions and open discussions. The list of participants, participant declarations of interests and the meeting agenda are provided as annexes to this report.

In preparation for the launch, participants were provided with:

- ❖ TIPRA version 1;
- ❖ the Risk Assessment for Influenza A(H5N6) virus – an output of the TIPRA global pilot; and
- ❖ the global TIPRA Influenza A(H5N6) Pilot Report

1. Background

TIPRA is a hazard-assessment tool designed to identify information gaps, facilitate prioritization of viruses for further action, such as to direct research and surveillance efforts, and to inform comprehensive risk assessments that also incorporate assessment of exposures and context. TIPRA was developed to provide a systematic, streamlined and transparent approach and methodology to assess influenza pandemic virus hazards.

The objectives of TIPRA are to:

- ❖ support a timely, updatable virological risk assessment for influenza viruses with pandemic potential;
- ❖ transparently document features of the virus that might pose threats to a human population;
- ❖ identify knowledge gaps and prompt further investigations including research and surveillance; and
- ❖ facilitate information-sharing among scientists, policy-makers and other stakeholders

TIPRA was modeled on the US Centers for Disease Control and Prevention (CDC) Influenza Risk Assessment Tool (IRAT) in recognition that a globally-applicable influenza virus hazard assessment tool would assist public health planning and preparedness. The development of TIPRA was led by WHO's Global Influenza Programme in collaboration with international experts and stakeholders from national and global public and animal health authorities. Research institutes, including the CDC, were also involved.

TIPRA was developed through an iterative process involving technical experts in influenza virology, epidemiology, and animal and public health and consultation. WHO has since led exercises in China, Bangladesh and Egypt in 2015 and a global pilot in early 2016. The initial pilots addressed both the zoonotic and pandemic risks of influenza viruses. However, the tool has evolved to focus specifically on the pandemic potential of viruses. A virus with pandemic potential is defined as an influenza type A virus with a hemagglutinin gene, and possibly other genes, distinct from those in contemporary seasonal influenza viruses that have been found to infect one or more humans. This thereby indicates that the virus has potential to be associated with pandemic spread within human populations.

TIPRA is designed to produce robust risk characterization for specific influenza A strains (hazards) through collation of available published and unpublished data, and harnessing national and global expertise. A specific virus profile and available data are provided to experts who score the virus against pre-defined risk elements in accordance with score strata definitions, enabling comparability between viruses. The TIPRA risk elements and scoring strata have been adapted from the CDC IRAT risk elements, while risk element weighting is pre-determined. Expert scores are combined using a multi-attribute additive model, and score confidence is assessed through minimum and maximum score bands and expert assessment of the quality of available data. Experts also provide justification for their scores. TIPRA experts are encouraged to identify information gaps that have affected confidence levels and to make recommendations on filling these gaps, typically through targeted surveillance and/or research. With due caution and in concert with exposure, context and risk management information, TIPRA can be used to aid public health decision-making, such as in the direction of resources for surveillance and research and/or vaccine production and stockpiling.

TIPRA is:

- ❖ a standardized, streamlined, transparent hazard assessment tool designed for influenza A viruses with pandemic potential;
- ❖ a tool to assist global and Member State pandemic influenza planning and preparedness, particularly states affected by viruses of concern;

- ❖ a tool for informing comprehensive influenza and public health risk assessment, risk management and risk communication; and
- ❖ a tool designed to allow hazard assessment with incomplete data, providing a robust means of identifying information gaps, which may direct surveillance and research resources.

TIPRA is not:

- ❖ a predictive tool;
- ❖ a tool for assessing seasonal influenza viruses; or
- ❖ a tool for assessing the zoonotic potential of viruses that have yet to cause a human infection.

TIPRA is a hazard assessment tool designed to identify information gaps, facilitate prioritization of viruses for further actions, and inform more comprehensive risk assessment in a transparent, systematic and timely manner.

2. TIPRA in the Influenza Risk Assessment Landscape

TIPRA is a specialized hazard assessment tool that compliments influenza risk analysis platforms and tools currently available or in development (examples described below). Influenza risk analysis tools vary in scope, objectives, risk questions and requisite data sources. Synergies exist and there is potential for integration either in parallel or sequentially.

TIPRA was developed within the context of the WHO Pandemic Influenza Preparedness (PIP) Framework and the WHO Pandemic Influenza Response Management (PIRM) Framework. The PIRM introduces a risk-based approach to pandemic influenza risk management and encourages Member States to develop flexible plans, based on national risk assessment, taking account of the global risk assessment conducted by WHO. During interpandemic and alert phases, WHO will conduct global risk assessments to inform decision-making for influenza viruses with pandemic potential. TIPRA complements the *WHO Rapid Risk Assessment of Acute Public Health Events* and the *WHO Pandemic Influenza Severity Assessment (PISA)* (WHO, 2013). The framework, guidelines and tools harmonize preparedness and responses while articulating the roles and responsibilities of WHO and Member States for pandemic influenza risk analysis. Global TIPRA hazard assessment can be used to inform broader national risk assessments and national preparedness.

TIPRA is closely aligned with the CDC IRAT, as reflected in the tool processes, data sources and risk elements. However, they differ in their objectives and the risk questions they address. The IRAT was developed to evaluate the risk of influenza viruses, not currently circulating in the human population, acquiring the ability to spread easily and efficiently between humans. The IRAT has been used to inform vaccine-related decision-making, guide research and surveillance to fill information gaps and provide input into public health risk management in the United States of America. In contrast, TIPRA currently

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