

The ASSET FINAL EVENT

Share and move for mobilization and mutual learning at local, national and international levels on Science in Society related issues in epidemics and pandemics

New insights on unsolved scientific questions related to pandemics and epidemics

Mitra Saadatian-Elahi (Lyon-Biopôle)

30th – 31st October 2017
NH Hotel Via dei Gracchi 324
Rome

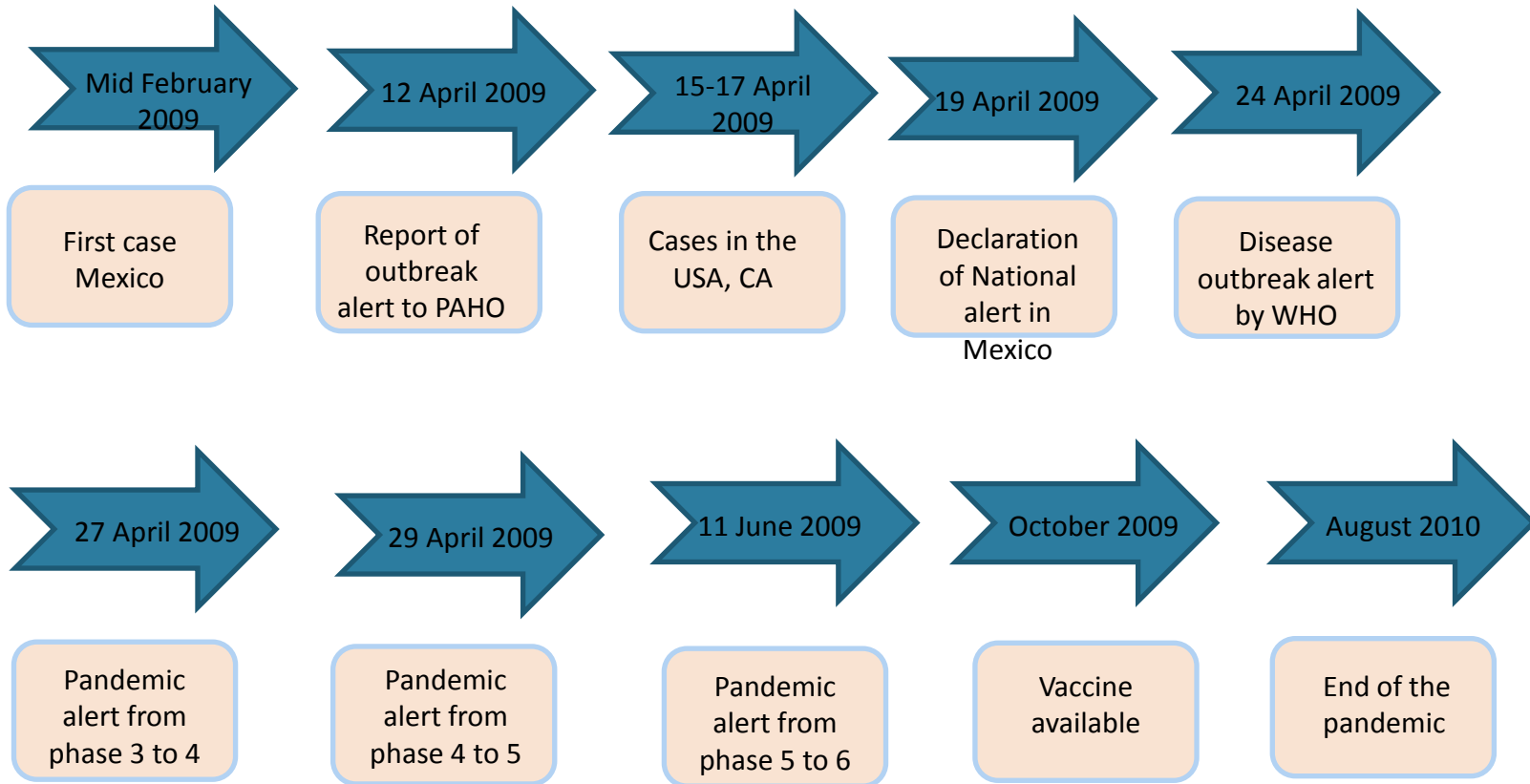


Overview of presentation

1. Review of the chronology of H1N1 events
2. ASSET task 2.2: Unsolved scientific questions
 - Literature review
 - Expert panel workshop
3. Conclusion and recommendations



Chronology of the most important events



Unsolved scientific questions related to H1N1 pandemic

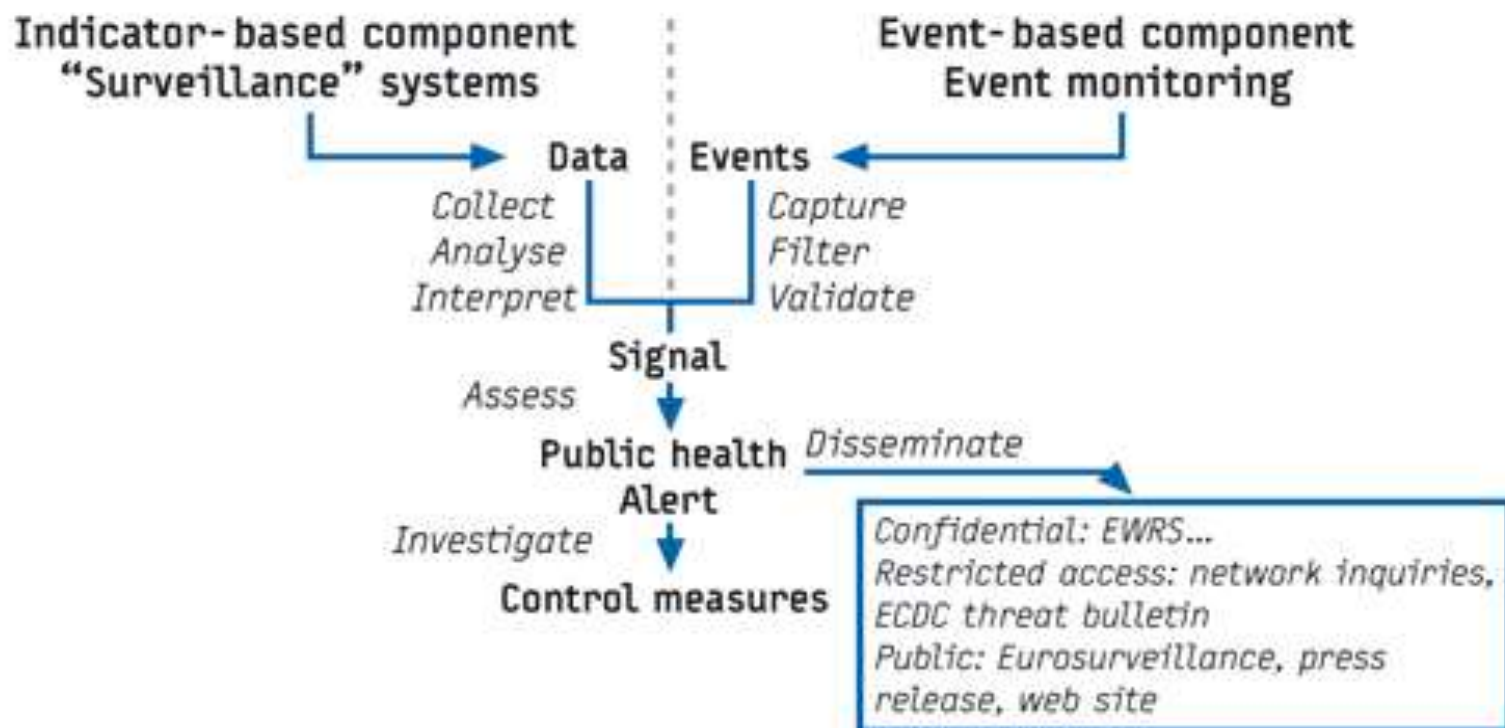
Literature review

- Address knowledge gaps about H1N1 that mainly impact on Science in Society
- Identify research needs which are at the intersection of scientific expertise, citizen's risk assessment and new governance models related to Influenza A (H1N1) and other cases of pandemics



Decision-making process

Epidemic intelligence framework



From Paquet *et al.* Euro Surveillace 2006

WHO Decision-making process during H1N1 pandemic

- Early data reported high morbidity and mortality
- Fast spread but mild character of H1N1 was evidenced by:
 - Data from a larger number of affected countries
 - First modeling study (Fraser et al. 2009)
 - WHO (May 2009)

But

Phase VI pandemic was maintained based on the spread of the disease without taking into consideration the severity

Globally, WHO did not follow iterative process of the epidemic intelligence framework



Preparedness and response: the problem of heterogeneity

Differences across European legal and public health systems



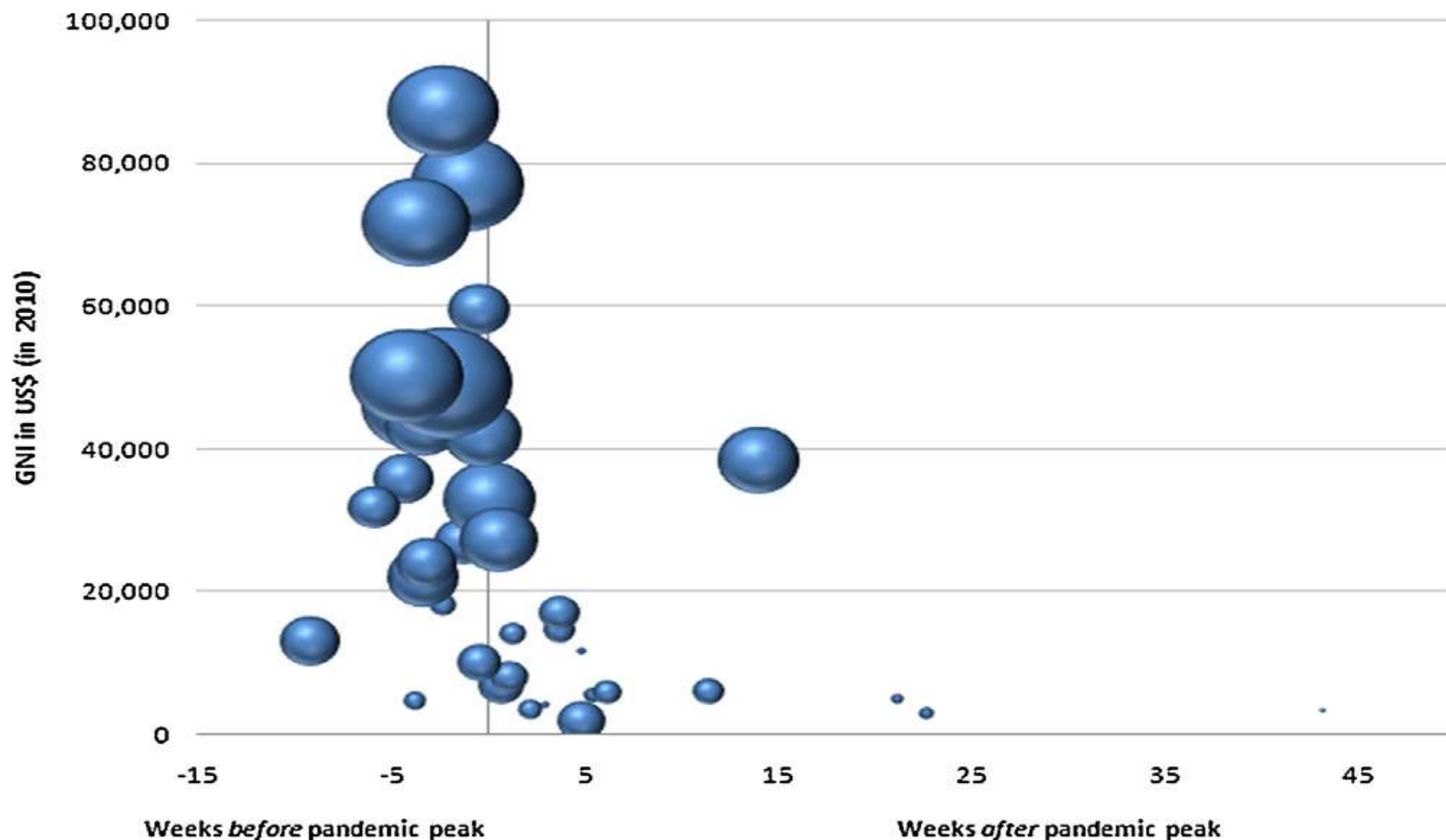
Heterogeneous decisions taken by the Member States



Heterogeneous actions and results in:

- Vaccine delivery
- Vaccination strategy
- Target populations
- Vaccination uptake
- Infectious controls measures

Vaccine delivery



From Jorgensen P *et al.* vaccine 2013



Target population

Recommendation of the European Union Health Security Committee and the Early Warning and Response authorities (HSC/EWRS):

- Health care workers
- Persons aged > 6 months with underlying chronic diseases
- Pregnant women

(19.5% of the overall European population)

- Recommendation followed by 22 Member States at early stage of the pandemic
- Seven countries switched to vaccinating the whole population at the late stage of the pandemic
- Cocooning approach implemented in Five countries
- Non-vaccination campaign in Poland

Source: Mereckiene et al. Euro Surveill 2012



Vaccination uptake

- Population-wide coverage rates (22 countries): range 0.4% to 59%
 - Highest coverage rates in Norway, Sweden, the Netherlands and Hungary
 - Low vaccination uptake in France despite the availability of sufficient vaccine doses

- HCWs (13 countries): range 3% to 68%
 - Highest coverage rates in the Netherlands, Romania and Hungary

- Pregnant women (12 countries): range 0% to 58%
 - Highest coverage rates in the Netherlands, and Ireland

- Children (12 countries): range 0.2% to 74%
 - Highest coverage rates in the Netherlands, Finland and Norway

Source: Mereckiene et al. Euro Surveillance 2012



Preparedness

Lack of shared responsibility and of multi-front actions

Vaccine

First vaccine available several months after the start of the pandemic

Vaccine shortage, delay and access inequities

Missed common strategy

Huge differences in the target population, coverage rate, vaccination strategy



Unsolved Problems concerning Risk communication during Pandemics

Facts

- Pandemics have both temporal and geographical scales



RC during pandemics has to be effective at both scales

- Public are different



RC must be “appropriate and tailored for different communities”

- Structure of international guidelines is top-down



A two-way communication strategy shifting from the traditional top-down approach is needed

Unsolved Problems concerning Risk communication during Pandemics



What happened during the H1N1 pandemic

- Lack of sufficient coordination across the geographical and hierarchical scales of public health authorities
- Lack of appropriate communication on the uncertainties related to factuality and severity of the pandemic
- Lack of adequate information on benefits and potential adverse effects of a newly developed vaccine
- Rumours on conspiracy between PH authorities and pharma industries



Unsolved Problems concerning Risk communication during Pandemics

Consequences

- Development of “sensation of conspiracy”
- Distrust in governments and public health authorities
- Low vaccine coverage

Unsolved scientific questions related to H1N1 pandemic

Workshop panel of experts

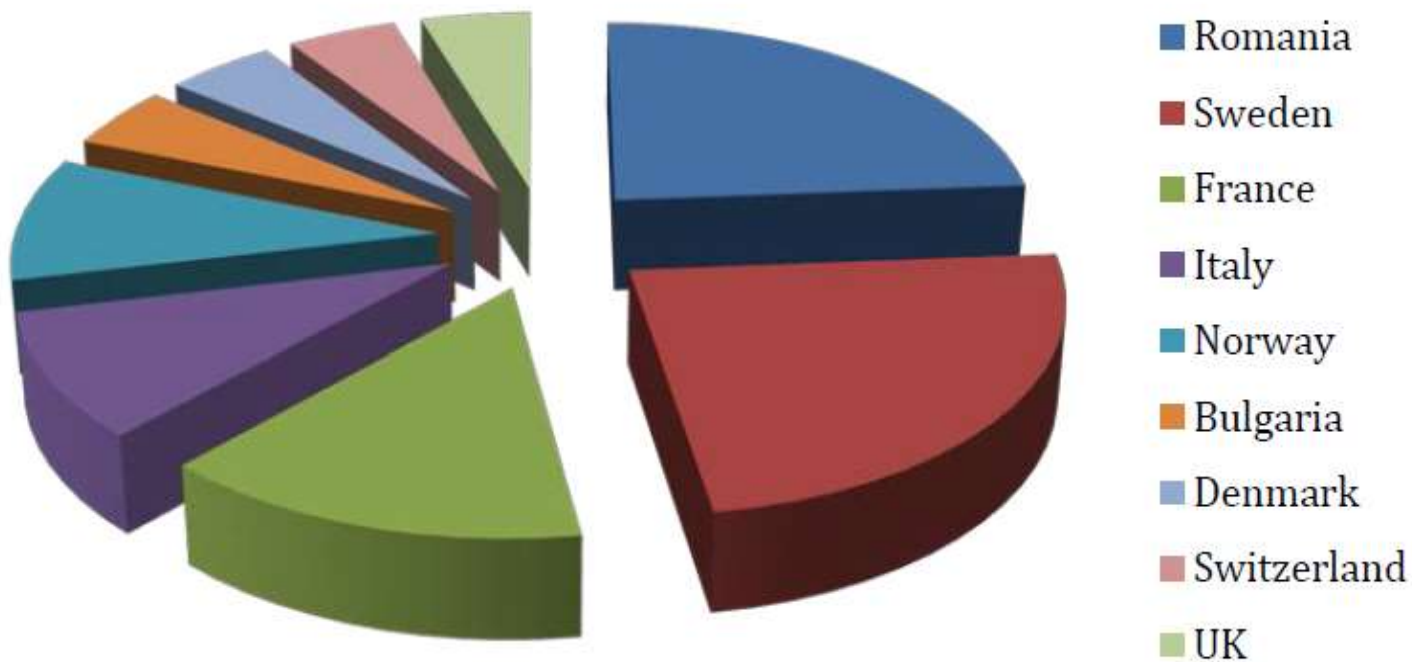
- Experts concerned with the 2009 pandemic were identified and interviewed via a dedicated questionnaire, individual meetings, phone interviews, etc..

- Focused workshop involving the most relevant representative experts
 - Discuss the main finding of the literature review

 - Map the main research needs that were not adequately investigated during the H1N1 pandemic



21 experts from 9 European countries



Issues **not enough** investigated during H1N1 pandemic

- Lack of adequate communication between national/international health authorities and populations
- Lack of networking between different actors involved in the decision-making process
- Lack of robust preparedness plans
- Vaccines issues including perception, timely manufacturing and delivery
- Lack of sufficient input from epidemiological and mathematical models
- Lack of flexibility in strategies that have been set-up in different countries
- Lack of animal-human research



Issues **to be** investigated for **future pandemics**

- Vaccines issues including perception, timely manufacturing and delivery
- Early epidemiology of pathogens with potential to cause pandemics (i.e. better surveillance)
- Strategies to improve preparedness plans
- The role of social media
- Importance of setting-up common database for early analysis and modelling
- Strategies to improve transparency



Issues **excessively** investigated or stressed during H1N1 pandemics

Overall, 3 items were reported recurrently:

- Information on severity of the disease;
- Issues related to containments;
- Features of H1N1 virus (mutation, recombination, etc.)



Communication

- Design, from the beginning, a transparent and coherent communication strategy on risk and uncertainties
- Define key messages
- Develop a paradigm to take care of cultural differences
- Stay tuned with Society
- Communicate at large
- Keep in mind the roles of Social Networks and internet

Vaccination

- Avoid conflict of interest with pharmaceutical companies as it is another source of distrust
- Reduce distrust in flu vaccine
- Do not convey the idea that a vaccine is totally safe, as it could lead to rumors and further distrust
- Improve reports on the adverse effects of vaccines to minimize rumors
- Focus efforts on persuading the “hesitant” and keeping the “pro-vaccine” people: it is difficult to convince the “anti-vaccine” people

Preparedness

- Real understanding of the role of the International Health Regulations (IHR), Coherence between national laws and the IHR
- Guidance from the EU to design more common legal approaches across states
- Retrospective analysis of H1N1 (and other pandemics) during inter-pandemic time may provide lessons

Vaccine

- Improvement of influenza vaccines: longer and wider protection, easier route of administration
- WHO initiative to support for technology transfer to enable domestic influenza vaccine production in developing countries

Non-pharmaceutical infection control measures

- Close interaction between parents, health authorities and different level of policy

Communication

- Transition to a two-way strategies with feedback from lower hierarchical scales and public to the top deciders
- Clear, transparent and tailored messages



Useful Guide: The WHO/University of Nottingham (UK) review/evaluation of pandemic planning

- WHO should intervene by supporting regional & national pandemic plans
- Countries have to develop flexible plans and define “practical thresholds” to trigger action (e.g. for escalation and de-escalation)
- A revision of the WHO pandemic guidance concerning phases is warranted in order to include, apart spread also other epidemiological indicators, among which severity;
- Templates for various kinds of pandemic planning should be provided by WHO (e.g. vaccine deployment plans)



challenges and recommendations: **Future direction**



Useful Guide: The WHO/University of Nottingham (UK) review/evaluation of pandemic planning

- A key issue is the timeliness of availability of pandemic vaccines, and donation issues from the WHO stockpile
- Vaccine distribution must be needs-oriented NOT market-oriented: Equity of access during pandemics is a priority
- Across hospitals coordination of resources is now mandatory
- Triage tools linked to severity assessment are required



Key home message

A new flu pandemic is likely to emerge, and the lessons learned from the public and political responses to the 2009 pandemic should serve in dealing with future challenges





**AND IF IT WAS TO HAPPEN
AGAIN?**

