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Mass vaccination with H1N1 pandemic influenza vaccines: The role of safety surveillance

As the world's leading influenza vaccine manufacturers, IFPMA IVS members are committed to the rapid and safe supply of vaccines to protect populations against H1N1 pandemic influenza. IFPMA IVS members work with regulators and health authorities around the world to ensure that the vaccines against (H1N1) meet rigorous safety and efficacy standards.

Rapid response to the H1N1 pandemic

The onset of the current H1N1 influenza pandemic requires the development of multiple strategies to rapidly vaccinate large populations safely in as short a period of time as possible. In early June, WHO held a consultation of experts that reassessed the safety of vaccines and associated adjuvants, or substances added to vaccines to improve the recipient's response to the vaccine thus making them more effective. At this meeting of global experts, no significant safety issues were identified and no barriers to using adjuvanted vaccines for the current H1N1 vaccine were raised. H1N1 vaccine safety will be monitored through post-marketing surveillance which is standard practice for all vaccines. Before making their recent decisions to license the new pandemic vaccines, regulatory authorities carefully evaluated their safety by reviewing results from clinical trials conducted with the H5N1 antigen (manufactured using the same processes as used for the H1N1 vaccines), as well as evaluating initial data generated in clinical studies using the H1N1 antigen from each manufacturer.

With the production, release, and delivery of large quantities of vaccine, mass vaccination campaigns were determined to be the most efficient way of protecting the population. A comprehensive range of measures has been put in place to review and monitor the safety of pandemic vaccines as these campaigns are rolled out. These include continued regulatory assessment, ongoing clinical testing in thousands of adults, children, and other special populations, as well as wide-scale surveillance. These measures are designed to quickly detect any potential issues that may emerge as part of broader vaccine use, which will allow authorities to take the appropriate actions. Importantly, this approach has the potential to rapidly generate significant information about the vaccines' use in a way that even very large clinical trials could not.

Safety surveillance in vaccination campaigns

Vaccine safety monitoring is a shared responsibility among regulatory authorities, national governments, local health departments, vaccine manufacturers, healthcare providers, and other partners. Vaccines, like any medical product, may carry some unknown risks at the time of licensure. However, it is anticipated that the safety profile of licensed H1N1 vaccines will be similar to seasonal influenza vaccines, for which serious adverse events after vaccination are uncommon.

Adverse events following immunization may be coincidental or causally related to the vaccine. Vaccine pharmacovigilance is the detection, assessment, understanding, prevention, and communication of adverse events following immunization. In mass vaccination campaigns a large number of events might be expected, simply because individuals within the population have an expected incidence of underlying disease. The goal in safety surveillance is to be able to detect significant relationships to a new vaccine before they become large scale problems. In support of this goal, IFPMA IVS members have adopted the following objectives for their respective 2009 H1N1 monovalent vaccine safety monitoring responses:

- Timely monitoring and identification of clinically significant adverse events following receipt of the H1N1 vaccine
- Rapid evaluation of serious adverse events identified after H1N1 vaccine to determine the potential public health importance
- Detection of signal events with an unknown causal relationship to vaccination that is recognised as worthy of further exploration and continued surveillance
- Special monitoring of Adverse Events of Special Interest (AESIs), which include neuritis, convulsions, anaphylaxis, encephalitis, vasculitis, Guillain-Barré syndrome, Bell's palsy, demyelinating disorders, and vaccination failure

Reporting of adverse events

As is standard with any vaccination, healthcare providers are encouraged to report clinically significant adverse events after administration of the H1N1 vaccine. A safety report should be submitted even if the reporter is not certain that the vaccine caused the event. Reports can be submitted by anyone, including healthcare providers, vaccine providers, public health officials, vaccine manufacturers, and persons vaccinated or their caregivers. Safety reports may be filed securely online, by mail, or by fax using the systems that have been put in place for this purpose by national authorities or vaccine manufacturers. In the setting of mass vaccination, reporting systems have been upgraded to handle the expected increase in the number of reports and follow them up in a timely manner. After a safety report is received, staff will collect additional information on reports of clinically serious adverse events by contacting the reporter and/or through other sources that may have relevant information. The data will be further analyzed to evaluate the safety of the H1N1 pandemic vaccines.

Additional activities to monitor safety

Spontaneous reporting systems provide important early signals of safety concerns, as well as a means of continuous surveillance. Formal studies to evaluate safety are also being conducted to identify previously unrecognised safety issues, if any, investigate potential and identified risks in order to assess whether they are causally related to vaccination, or to confirm the known safety profile of the vaccine during post-authorisation use. In addition, special epidemiological studies will be conducted to evaluate potential adverse events on a large scale. The objective of these studies is to assess any potential relationship between pandemic vaccines and the specific adverse events of interest listed above, as well as the safety of the H1N1 vaccine among pregnant women and the effectiveness of the vaccine.

The aim of pharmacovigilance is to protect public health by carefully monitoring vaccines to identify and evaluate potential issues. Manufacturers have worked hard over many years to optimize pandemic vaccine manufacturing, testing and monitoring processes. The procedures put in place by regulators ensure that these vaccines can be provided as quickly as possible in mass vaccination campaigns, so that their benefits continue to far outweigh potential risks.

Further information

- WHO paper on the safety and approval of pandemic influenza vaccines: http://www.who.int/csr/disease/swineflu/frequently_asked_questions/vaccine_preparedness/safety_approval/en/
- European regulatory review for pandemic influenza vaccines: <http://www.emea.europa.eu/influenza/home.htm>
- EMEA/CHMP Recommendations for the Pharmacovigilance Plan as part of the Risk Management Plan: <http://www.emea.europa.eu/pdfs/human/pandemicinfluenza/35938109en.pdf>
- CIOMS/WHO working group on vaccine pharmacovigilance – definitions: <http://www.cioms.ch/finalvpvdef.pdf>
- CDC planning recommendations for Influenza A (H1N1) 2009 monovalent vaccine safety monitoring: http://www.cdc.gov/h1n1flu/vaccination/safety_planning.htm