Influenza A (H1N1) 2009 monovalent vaccine (I A /H1N1/ 2009 MV) "PANVAX™ "

Epidemiology Unit
Ministry of Health

Why vaccinate in the post pandemic ?

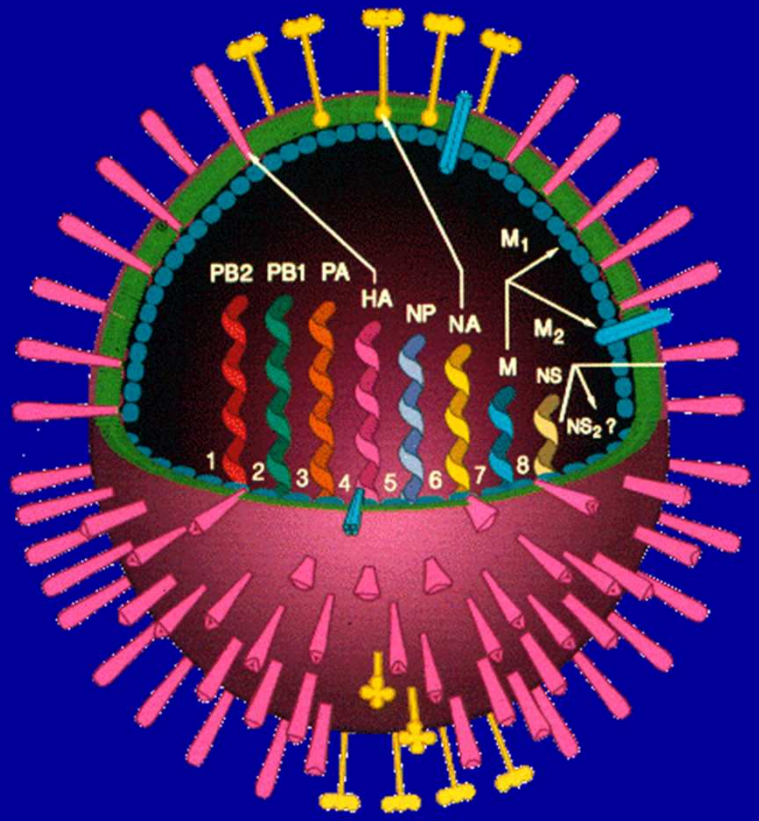
- Pandemic influenza virus is expected to remain for many years
  - Cases and outbreaks
- Intensified activity in India (Maharastra, Tamil Nadu, Kerala)
- Global virological surveillance
  - 51% of sub typed influenza A – pandemic strain
  - 302 cases of oseltamivir resistance
- Severe disease for some risk categories
- Need for protecting themselves

Influenza A/H1N1 vaccine

- Monovalent, unadjuvented, inactivated, split-virus vaccine
- Prepared in embryonated chicken eggs
  - Purification by zonal centrifugation
  - Inactivation with beta propiolactone
  - Obtaining split virion with Na taurodeoxycholate
- Same technology used for manufacturing Trivalent Inactivated seasonal influenza Vaccines (TIV)
- Seed virus -from the reassortant vaccine virus NYMC X-179A derived from the virus A/California/7/2009 (H1N1)

Pharmacology

- Induction of antibodies to the viral surface antigens; neuraminidase and haemoagglutinin



Prioritization for vaccination by WHO's SAGE

- Health workers
- Pregnant women
- Individuals above 6 months with one of several chronic medical conditions
- Healthy young adults (15 -49 years of age)
- Healthy young children
- Healthy adults >49 years < 65 years
- Healthy adults aged >65 years

Priority groups for vaccination in Sri Lanka

- **Health workers (Public and private sector)**
  - **Curative health institutions :**
    - All Medical Officers, Assistant and Registered Medical Officers,
    - Nursing Officers , Paramedical staff , clerical staff,
    - Attendants, laborers ,
    - security staff and any other staff attached to curative health care institutions
  - **Preventive health care institutions,**
    - MOH, AMOH, other Medical Officers,
    - PHNS, SPHM, PHM, SPHI, PHI,
    - PPO, HMA, laborers or
    - any other staff attached to preventive health institutions (RDHS, MOH offices, and special campaigns)

Priority groups for vaccination in Sri Lanka

- Individuals with potential high risk of severe disease and complications of pandemic influenza A/H1N1 at any age
  - People with at least one chronic morbidity potentially capable of leading to severe disease, rapid progression or complication of pandemic influenza A/H1N1
    - chronic lung diseases including bronchial asthma
    - Chronic cardiovascular disorders excluding hypertension
    - Chronic renal, hepatic and haematological conditions including sickle cell disease,
    - metabolic disorders including diabetes mellitus

Priority groups for vaccination in Sri Lanka

- Individuals with potential high risk of severe disease and complications of pandemic influenza A/H1N1 at any age
  - People with immunosuppressive conditions
    - Immunosuppression caused by medications
    - HIV/AIDS
  - Those with disorders compromising respiratory function
    - e.g. spinal cord injuries, seizure disorders
  - Any other disease deemed high risk by a consultant physician /paediatrician or any other specialist medical officer

Priority groups for vaccination in Sri Lanka

- **Any front line worker who is at risk of influenza A/H1N1**
  - Staff at entry point to the country (Air/sea ports)
  - Members of the armed forces and police
  - Individuals involved in tourism industry
- **Any person who travels to a foreign country**
- **Any other person who considers him/herself at risk**

Priortising high risk individuals

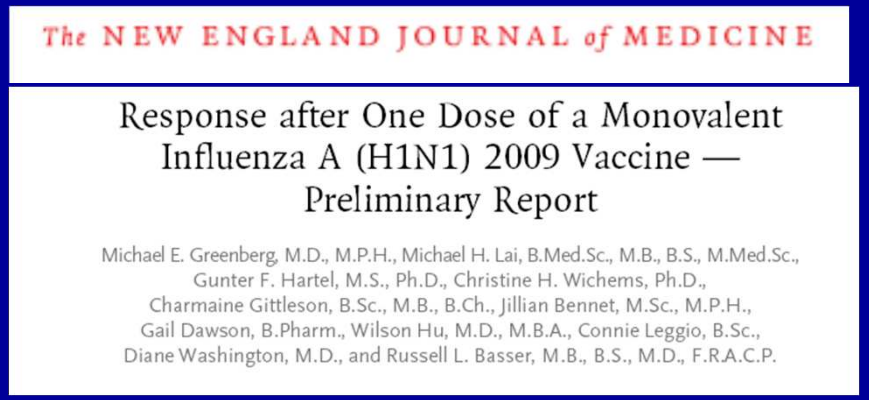
- Majority – uncomplicated, self limited, mild disease
- Severe disease - among known high risk groups
- A majority of hospitalized patients - at least one chronic morbidity
- Development of severe course of pandemic influenza A/H1N1
- Rapid progression of pandemic influenza A/H1N1
- Development of complications of pandemic influenza A/H1N1
  - Major complication – ARDS due to viral pneumonitis
  - Multi organ failure, septic shock
  - Exacerbation of existing morbidity conditions
  - Encephalopathy, encephalitis

Dose, schedule & route of administration

- **Intramuscular or deep subcutaneous administration**
- **Children aged 10 years to 18 years**
  - A single dose of 0.5 ml
- **Adults over 18 years**
  - A single dose of 0.5 ml.

Efficacy and protection

- Efficacy in the clinical trial
  - Titers > 1:40 on HI assay - 96.7%
- Adequate immunity 2-3 weeks after vaccination
- Immunity – strain specific for H1N1
- Cross-protection by exposure to antigenically drifted strains of the same influenza subtype reported
- Duration of protection – at least a year



Contraindications

- Vaccine contains a limited amount of egg protein
- In persons who have severe egg allergy
  - Egg protein can induce immediate hypersensitivity reactions
- Known hypersensitivity to eggs, chicken protein, neomycin or polymyxin
- Hypersensitivity to seasonal influenza vaccines previously
- Hypersensitivity to Thiomersal containing vaccines previously

Precautions

- Review previous medical history on hypersensitivity to any type of vaccine
  - not a contraindication.
- Postpone vaccination during febrile and acute illness
- Guillain Barre Syndrome (GBS) within 6 months of previous influenza vaccination,
  - I A /H1N1/ 2009 MV vaccination - based on potential benefits and risks.
- Immunocompromised individuals- diminished immune response
- Availability of emergency trays and staff to manage hypersensitivity reactions

Safety

- Conclusions are based on
  - relatively limited use of IA/H1N1 MV vaccine
  - extensive use of seasonal TIV in industrialized countries
- AEFI in adults:
  - Most common local AEFI
    - tenderness, pain, redness and swelling at the injection site
    - Majority - mild and self limiting
  - Most common systemic AEFI
    - headache, malaise and muscle ache
    - Majority- mild and self limiting

Safety

- AEFI in children:
  - Most common local AEFI
    - pain redness and swelling at the injection site.
    - Majority - mild and self limiting
  - Most common systemic AEFI
    - irritability, rhinitis, fever, cough, loss of appetite, vomiting, diarrhea, headache, muscle ache and sore throat
    - Majority - mild and self limiting

WHO experience : 1st safety review by GACVS

- Vaccine use ->50 countries since September
- Passive PMS- since introduction
- 150 million doses distributed (from 21.09-02.12)
- 45 million doses – adjuvanted vaccines
- Reported AEFI- within the known safety profile
- Severe AEFI – very limited
  - mainly allergic reactions
  - Immediate hypersensitivity reactions (urticarea, angioedema and anaphylaxis)
  - Overall reporting rate of anaphylaxis- 0.1-1.0 per 100000 doses
  - Reporting rate in Canada- 4.0 per 100000 doses (adjuvanted vaccine)

WHO experience : 1st safety review by GACVS

- Deaths related to IA/H1N1 MV vaccine
  - temporally associated deaths- small number
  - Cause of death – majority unrelated to vaccination
  - Related to vaccination - due to anaphylactic shock
- Safety in immunocompromised – no evidence of safety concerns

VAERS surveillance of H1N1 vac.

June 2010 report

- In USA- 127 million doses as of 28/5/10
- 11180 AEFI reported
- 92.2% non serious AEFI (local)
- 868 (7.7 %) serious AEFI (not different from seasonal influenza vaccines)
  - 60 deaths – Preliminary findings indicate no common cause or pattern to causally associate with vaccine
  - 143 GBS cases (back ground rate 80-160 cases per week)
- No new or unusual events or patterns

Important information

- Clear to slightly opaque liquid with some sediment that resuspends upon shaking.
- Multi dose vials contain 5ml or 10ml
- Multi dose vials
  - Storage – 2-8^0 C
  - Must not be frozen
  - Protect from light
  - Discard within 24 hours after piercing the stopper (local recommendation – 6 hours)
  - Shelf life – 12 months in 2-8^0 C

Epidemiology of H1N1 in Pregnancy in Sri Lanka

- No of lab confirmed deaths due to H1N1: 46
- Deaths due to H1N1 among pregnant women : 7
- Deaths due to H1N1 in the general population: 39
- H1N1 specific death rate among pregnant women = 3.5/100000 pregnant women
- H1N1 specific death rate in the general population = 0.2 per 100000 population
- 17.5 fold higher deaths among pregnant women

Use of the vaccine in pregnancy

- Safety and effectiveness
  - not established in clinical trials in pregnant women.
- Acceptance by regulatory authorities worldwide (ACIP, TGA, WHO)
  - benefits of vaccinating pregnant women outweigh the risks.
- Pregnancy – an increased risk for severe disease,
  - Potential for spontaneous abortion and/or death, especially during the second and third trimesters
- Inactivated non-adjuvanted Influenza A /H1N1/ 2009 vaccines-
  - the preferred option
  - based on the extensive safety data on their (inactivated, non-adjuvanted seasonal influenza vaccine) use in pregnant women.
- USA, Canada, Australia, UK and many other countries
  - recommend vaccination of pregnant women irrespective of the trimester against pandemic influenza A/H1N1.

Use of the vaccine in pregnancy

- AEFI with inactivated seasonal influenza vaccines
  - not differed among pregnant and non-pregnant vaccinees.
- The CDC Immunization Safety Office (2006)
  - no unexpected adverse events following trivalent influenza vaccines in approximately 2 million pregnant women vaccinated between 2000 and 2003
- Recommendations given the current epidemiological situation of H1N1 pandemic ,
  - Consider the benefits and risks of vaccination on individual case by case basis before administering the vaccine to a pregnant lady in Sri Lanka.