Measles Vaccine in Universal Immunization Programme

**What is measles?**
Measles is one of the most infectious diseases. Measles is an acute viral illness caused by a virus from the *paramyxovirus* family. Almost all children with low immunity contract measles if exposed to the virus. Measles virus reduces immunity and children may die of pneumonia, diarrhoea and encephalitis after measles. They may also suffer permanent disability (blindness, encephalitis.). Measles is a human disease with no known animal reservoir. Measles remains a leading cause of death among young children despite the availability of a safe and effective vaccine for the past 40 years.

**Who are the most at risk?**
Non-immunized people, especially young children, are at highest risk for measles and its complications, including death.

**What is the current measles situation?**

**Global:** While measles is now rare in many industrialized countries, it remains a common illness in many developing countries. In 1980, before the use of measles vaccine was widespread, WHO estimates there were 2.6 million deaths from measles worldwide. During 2000–2008, global measles mortality declined by 78%, from an estimated 733 000 deaths in 2000 to 164 000 in 2008. In countries where measles has been largely eliminated, cases imported from other countries remain an important source of infection.

**India:** While India has made significant progress in child survival, measles remains a leading cause of death and disability among young children. An estimated 50,000 to 100,000 children die from measles annually, making it one of the leading causes of child death. National routine measles vaccination coverage is 69% (DLHS-3). When vaccine efficacy of 85% at 9 months of age, is taken into account approximately 41% (31% un-immunized + 15% of immunized who failed to seroconvert) of children in each birth cohort remain susceptible to measles due to dropout, left out, and failure to develop immunity.

**How is the disease prevented?**
Measles can be prevented by immunizing children with measles vaccine. This vaccine is a safe and effective.

**WHO and Govt. of India Recommendations**

WHO currently recommends two doses of measles vaccine for all national immunization programmes.

The Universal Immunization Programme (UIP) of the Govt. of India (GoI) had included one dose of measles vaccine between 9-12 months of age since 1985. The overall coverage with one dose of measles vaccine has been 69% according to DLHS-3 Coverage survey with wide variability between states (47% to 99%).

From 2010, based on recommendations from national expert committees, GoI has decided to introduce a second dose of measles vaccine in the Universal Immunization Programme through state specific strategies based on evaluated coverage of 1st dose of measles containing vaccine (MCV1). Fourteen states with <80% MCV1 coverage will introduce the second dose through a catch-up campaign targeting 9 months to 10 year old children. Of the 21 states and union territories with ≥80% MCV1 coverage, four have already introduced a second dose of measles containing vaccine (MCV2) in their routine immunization (RI) schedule between 16-24 months of age. The remaining 17 states will introduce a second dose of measles vaccine at the same age in their UIP from 2010-2011.

**What is the current routine immunization schedule for measles?**

In the revised routine immunization schedule, every child will get two doses of measles vaccine: the first dose between 9-12 months of age and the second between 16-24 months of age along with DTP booster dose. If a child has missed the first or the second dose, both doses can be given up to 5 years of age maintaining a gap of at least 30 days between the doses.

**Why a second dose?**

Although good routine immunization services exist in the country to immunize children <1 year of age, only 69% have received measles vaccine. Measles vaccination confers immunity in 85% of children when given at 9 months of age. Some
children therefore remain unprotected even after getting this first dose. A second dose of measles vaccine given at 16-24 months of age or later confers immunity to 95% of children. More importantly, most children in whom the vaccine failed to confer immunity with the first dose, are protected with the second dose.

However, it is very important that high coverage >80% is maintained for both doses of MCV in every district.

**If a child has only received the first dose at 16 months of age, should the child get another dose of measles vaccine? If so, when?**

The child should get another dose of measles vaccine as soon as possible after 1 month of the first dose.

**What is Auto Disable Syringe (AD)?**

AD syringe is a type of disposable syringe where one cannot draw vaccine more than the specified dose. Secondly the AD syringe gets locked after full delivery of the vaccine thereby preventing its reuse. These features enable the service provider from giving over dose of vaccine and injection safety by preventing reuse.

**How should the vaccine be administered?**

Only 0.5 ml Auto Disable (AD) syringes will be used to administer the vaccine. The dose of 0.5 ml will be given subcutaneously in the upper outer quadrant of the right arm.

**When should measles vaccination not be administered?**

Children with high fever or other signs of serious disease should be vaccinated only after consultation with their physicians. Most importantly, children with a history of severe reactions to measles vaccine should not be vaccinated.

**What are the waste disposal arrangements?**

CPCB guidelines of immunization waste disposal will be followed. Each vaccinator will have a a Hub-cutter, red and black plastic bags for safe disposal of immunization waste. Arrangements should also be made for collection and transport of the waste from immunization session sites to the PHCs for chemical disinfection and terminal disposal in safety pit.

**Adverse Events Following Immunization (AEFI)**

Measles vaccine has been in use for more than 40 years and has an excellent track record for safety and efficacy. In very rare instances, measles vaccine may give rise to
anaphylaxis reaction which must be treated urgently. The vaccine must also be handled properly to prevent AEFI due to ‘program errors’. All vaccine vials have a vaccine vial monitor (VVM) on the cap which will help vaccinators monitor the cold chain until the vaccine is reconstituted. After reconstitution, the vaccine must be kept at +2 to +8°C Celsius and must be discarded after 4 hours.

Does the risk of adverse effect increase with the second dose?
No. The risk of adverse effects of measles vaccine does not increase with second or subsequent doses.
List of Acronyms

AD    Auto Disable Syringe
AEFI  Adverse Event Following Immunization
ANM   Auxiliary Nurse Midwife
ASHA  Accredited Social Health Activist
AWW   Anganwadi Worker
BEE   Block Extension Educator
CHC   Community Health Centres
CPCB  Central Pollution Control Board
DTP   Diphtheria-Pertussis-Tetanus vaccine
HI    Health Inspector
HS    Health Supervisor
LHV   Lady Health Visitor
MCV   Measles containing vaccine
MO    Medical Officer
PHC   Primary Health Centres
RCA   Rapid Convenience Assessments
UHC   Urban Health Centres
UNICEF United Nations Children Fund
UIP   Universal immunization Programme
VHND  Village Health and Nutrition Day
VHSC  Village Health and Sanitation Committees
VVM   Vaccine Vial Monitor
WHO   World Health Organization