The Government of India has decided to introduce a combined measles-rubella (MR) vaccine. The vaccine will be introduced through a campaign followed by inclusion of the MR vaccine in the routine immunization programme. This will replace the measles 1st dose and 2nd dose vaccines. The MR vaccine will be introduced in all the states across India in a phased manner. The MR campaign targets all children between 9 months to <15 years of age, regardless of immunization status for measles/rubella.

Part I

What are measles and rubella?

**Measles**
- Measles is a deadly disease and one of the major causes of disability or death in children.
- Measles is highly contagious and spreads through coughing and sneezing of an infected person.
- Measles can make your child vulnerable to life threatening complications such as Pneumonia, Diarrhoea, and brain infection.
- Measles is commonly recognizable as a visible red rash with high fever, cough, runny nose & red eyes.

**Rubella**
- If a woman gets rubella infection in early pregnancy, it can result in Congenital Rubella Syndrome (CRS), which can have severe and even fatal consequences for the foetus and newborns. Children born of unprotected mothers having rubella infection during early pregnancy have high chances of suffering from long term congenital anomalies affecting the eyes (glaucoma, cataract), ears (hearing loss), brain (microcephaly, mental retardation) and heart defects.
- Rubella can also lead to abortions, miscarriages and still births in pregnant women.
What is measles – rubella (MR) campaign?
Measles-Rubella campaign is a special campaign to vaccinate all children in a wide age group with MR vaccine, within a limited timeframe in an entire state. The MR campaign dose will be given to all children present in the state during the campaign period who are within the age group of 9 months to below 15 years old. Both previously vaccinated and un-vaccinated children will be covered. The goal of the MR campaign is to quickly make the population immune from measles and rubella, to reduce deaths from measles and burden from CRS and to immunize maximum children with at least 95% vaccination coverage of the target age group in the community.

Who should be vaccinated?
- All children who have completed 9 months and are less than 15 years of age, regardless of previous vaccination status with measles/rubella vaccine and regardless of measles/rubella infection/disease in the past
- Malnourished children should be given priority for vaccination, as they are more likely to have complications like diarrhea and pneumonia
- Children with minor illnesses such as mild respiratory infection, diarrhoea, and low grade fever

Why should children in the age group 9 months to below 15 years be targeted?
- Majority of measles and rubella cases occur in children below 15 years of age. Therefore this age group is being targeted during the campaign.

Where will the children be vaccinated?
- From fixed posts only. No house-to-house vaccination
- During the first week in schools
- Non-school-going and left out children will be vaccinated in the following two weeks in fixed outreach sessions and mobile posts in villages and urban areas
- If, at any place, 4 or >4 children have been found missed during Rapid Convenience Monitoring, the MR campaign activity should be repeated in the area during fourth week of the MR campaign to cover these missed children.
Who should NOT be vaccinated?

Do not vaccinate a child who has:

- High fever or other serious disease (e.g., unconscious, convulsions, etc.)
- Hospitalized children
- History of a severe allergic reaction to measles/rubella vaccine in the past

Guidelines for issuing invitation cum vaccination cards

1. In consultation with ANM, the ASHA must make plans to deliver filled invitation cards with information about session site, date and time to every beneficiary/care giver in the week before the campaign. One card is given per child, so more than one may be given to a household. Ask household members to bring the cards to the campaign site when they bring their child/children for vaccination. Invitation card will be used for recording vaccination also. Keep extra cards at session site, in case parents forget to bring it along.

2. Develop a plan with ANM to organize village-level meetings for social mobilization through effective inter personal communication (IPC).

3. Decide on the dates for the meeting in each village at least one month before the campaign so that the ASHA or anganwadi worker organizes the meeting and the ANM also participates as a team leader for her vaccination team.
Guidelines for holding community meetings
1. Hold meetings at a convenient time and place after consulting leaders.
2. Identify local community representatives for the meeting.
3. Provide a comfortable and welcoming environment for discussion.
4. Listen to the community and find out what the community already knows.
5. Provide information on the importance of MR routine immunization.
6. Dispel misinformation and doubts that surround vaccination.
7. Encourage community members to ask questions.
8. Convey key messages on MR and the campaign to participants.
9. Motivate caregivers to participate in the campaign:
   i. During house visits for beneficiary listing and invitations
   ii. During session days, visiting the houses of missed children to
       mobilize them

Guidelines for session site
*There will be four types of session sites during the catch-up campaign:*

- Session sites at educational institutes (school-campaign)
- Outreach session sites (regular RI sites and additional sites in village/urban mohalla)
- Mobile teams (to cover hard to reach areas, nomadic population, temporary settlements)
- Facility based session sites (at PHC/CHC/Hospital/Private clinic)
Duration of Session

» Sessions in educational institutes will run as per school timing to complete all vaccinations in a school in one day (micro planning will be based on 200 injections/ single vaccinator).

» Campaign sessions at outreach and fixed sites will run from 8:00 AM to 2:00 p.m. The vaccinators and ASHA/AVW will then perform their other routine activities until 4:00 p.m. at this site.

» Mobile /special vaccinator teams may have to work at unusual hours to reach special population groups. The time of activity for each day and area should be pre-planned and must be specifically recorded on the micro-plan for such flexi-timing activity accordingly.

» Facility based session sites (PHC/CHC/Hospital/Private Clinic) will work during the whole duration of the campaign from 8:00 a.m. to 4:00 p.m.

Instructions to Cold Chain Handlers

- Analyze the available stock of measles vaccine at all levels at least four months in advance of the campaign.
- Any excess stock which cannot be utilized before the MR campaign has to be surrendered at least four months in advance of the proposed MR campaign date.
- Even if some cold chain points experiences measles vaccine stock out just prior to campaign, it should not be a concern as measles containing vaccine will be provided during campaign. As well as these missed children will have the window to get the measles containing vaccine under Routine Immunization at age of 9–12 months and 16–24 months.
- In spite of all these measures, if measles vaccine still remains unutilized by the start of MR campaign, then segregate all the measles vaccines and diluents and seal them in boxes separately.
- Sealed box of measles vaccine to be stored inside LLRs and sealed box of diluents to be stored outside in dry space.
- No measles/MR vaccination to be done in Routine Immunization during MR campaign.
- Stored measles vaccine and diluents in sealed box to be used after MR campaign for routine immunization as 1st dose at 9–12 months and MR vaccine to be given as 2nd dose at 16–24 months.
- After the complete measles vaccine stock is utilized, MR vaccine to be given as two dose schedule at 9–12 months and 16–24 months.
- Only 10 dose diluent provided with MR vaccine to be used for reconstitution of MR vaccine.
Vaccine administration

MR vaccine is available as a dry powder which has to be reconstituted using only the diluent provided by the manufacturer. The dry powder in one vaccine vial must be dissolved using the entire amount of 10 dose diluent in one ampoule. Proper cold chain precautions must be maintained at all stages of vaccine handling, storage and administration. Reconstituted vaccine must be discarded within 4 hours or at the end of session, whichever is earlier.

Each vial contains 10 doses. The dose is 0.5 ml for all ages. The vaccine is injected by the subcutaneous route. The site of administration will be the right upper arm.

Before reconstitution

» Check the expiry date on the label. Do not use if vaccine has expired or label is soiled or missing.

» Check VVM on seal of vaccine vial. Do not use if VVM has been removed from the cap or VVM is not in usable stage.

» Check expiry date on diluent ampoule. Do not use if diluent has expired.

» Check that both diluent and vaccine are from same manufacturer and the label on diluent vial states that the diluent is for MR vaccine.

» Check that both diluent and vaccine vials are free from visible dirt outside and that no extraneous particles are visible inside either vaccine or diluent vials. Check for any visible cracks in the vaccine vial or diluent. If you find any, then use a fresh vial/diluent.

» Check that cold chain has been maintained for both vaccine and diluent and both are at the same temperature.
During reconstitution
» Reconstitute only one vial at a time
» Use entire amount of 10 dose diluent provided in the ampoule to reconstitute 10 dose MR vaccine
» Use a new reconstitution syringe (5 ml) to reconstitute each vial of vaccine maintaining full aseptic precautions. Do not use the same syringe to reconstitute vaccine in another vial.
» Dispose-off needle cap and outer packaging in black plastic bag as per routine RI practice
» Do not touch needle or rubber cap during reconstitution.
» After reconstitution, the vial should not be rolled between the palms. The vial should be shaken gently upside down a few times, holding the neck for mixing appropriately.
» Cut the hub of the reconstitution syringe with a hub-cutter.
» Dispose-off plastic part of reconstitution syringe in a red plastic bag.
» Record the time of reconstitution on MR vaccine vial label.
» Use only AD syringe to administer vaccine to every child.
» Never pre-fill and store AD syringes before vaccination.

After reconstitution
» Always keep only one reconstituted vaccine in the hole in the ice pack to maintain temperature at +2 to +8°C.
» Keep the reconstituted vaccine out of direct sunlight.
» Never use reconstituted MR Vaccine beyond 4 hours after reconstitution.
  Using MR vaccine beyond 4 hours after reconstitution may result in Toxic Shock Syndrome (TSS) leading to death.
» Never carry and use reconstituted vaccine from one session site to another.

Injecting MR vaccine:
» Use only AD syringes to inject vaccine.
» Dose is 0.5 ml for all ages.
After injecting MR vaccine

» Do not attempt to re-cap/bend needle.

» Cut the hub of AD syringe in hub-cutter. The cut needles should remain in hub-cutter until disposed-off at a designated site in a safety pit available at the PHC/CHC/hospital.

» Dispose-off the plastic part of the cut AD syringe in a red plastic bag.

» Mark left thumb of the child after vaccinating.

» Mark tally sheet, one at a time, only after vaccinating a child.

» Give vaccination card to child after vaccination.

» Child should wait for at least 30 minutes after injection at session site.

» At the end of each session, use the given format to record all the vaccine vials, diluents, syringes received and utilized.

Remind about scheduled routine immunization doses, as appropriate, and inform about the nearest place and day of RI session in the village.

Cold Chain maintenance at session site

» All ANMs will get two vaccine carriers. At session site, take out one ice pack from the second vaccine carrier to keep one vial of reconstituted vaccine in the hole of the ice pack.

» MR vaccine is very sensitive to heat and sunlight. Never expose the vaccine carrier, the vaccine vial or ice pack to direct sunlight.
» Once the reconstituted vial is finished, take out the next vial from the vaccine carrier for reconstitution only after arrival of another child in the vaccination session site or if another child is waiting for vaccination.

» The VVM on the cap of MR vaccine indicates whether the dry vaccine is usable or not. Once reconstituted, VVM is of no use to indicate the usability of the vaccine.

» At the end of the session, send back all vaccine carriers with all icepacks, unopened vaccine vials and diluents inside, to the vaccine distribution centre

Management of AEFI at the session site

MR vaccine is an extremely safe vaccine. But like all medicines including vaccines, it does have some side effects or adverse effects. The more common adverse effects are mild and have no long term consequences. One very rare and serious adverse effect is anaphylaxis.

It is important that vaccinators should be able to distinguish anaphylaxis from fainting, anxiety and breath-holding spells, which are common benign reactions. The following table describes how to differentiate between fainting and anaphylaxis:

<table>
<thead>
<tr>
<th>Table 1: Distinguish anaphylaxis from fainting</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Onset</strong></td>
</tr>
<tr>
<td>System</td>
</tr>
<tr>
<td>Skin</td>
</tr>
<tr>
<td>Respiratory</td>
</tr>
<tr>
<td>Cardiovascular</td>
</tr>
<tr>
<td>Gastro-intestinal</td>
</tr>
<tr>
<td>Neurological</td>
</tr>
</tbody>
</table>
How should the adverse effects be managed?

» Supervisor, ANM, ASHA, AWW should know the name and telephone number of the nearest AEFI treatment/management centre included in the micro plans

» For minor AEFI like fever, etc. treat with paracetamol as per IMNCI guidelines

» For serious/severe AEFI, e.g. convulsions or anaphylaxis:
  • Give primary care: lay child flat; ensure airway is clear. If child is unconscious, put in semi-prone position
  • Refer immediately to the nearest AEFI treatment/management centre
  • Call (telephone) the AEFI treatment/management centre and inform them of the referral
  • Inform the immediate supervisor and block medical officer

Injection safety and safe waste disposal

» Use a new sterile packed AD syringe for each injection for each child

» **Do not attempt to recap** the needle. This practice can lead to needle stick injuries

» Cut the hub of the AD syringe immediately after administering the injection using the hub cutter

» Store broken vials in the same hub cutter

» Segregate and store the plastic portion of the cut syringes and unbroken (but discarded) vials in the red bag

» Send the immunization waste generated in the outreach session to the PHC, for further disposal as per CPCB guidelines
### Role of team members

<table>
<thead>
<tr>
<th>Vaccinator (ANM, LHV, etc.)</th>
<th>ASHA/AWW</th>
<th>Volunteer</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Prepare micro plan of their respective areas/villages/ward</td>
<td>• Participate in orientation-training at PHC</td>
<td>• Crowd management</td>
</tr>
<tr>
<td>• Participate in training and inform/motivate AWW/ASHA to attend orientation training</td>
<td>• Distribute invitation cum vaccination cards to parents at least 3-7 days prior to the campaign</td>
<td>• Tally marking for vaccinated children</td>
</tr>
<tr>
<td>• Ensure AWW/ASHA prepare due-list and distribute invitation cards in their areas</td>
<td>• Mobilize community and parents to bring target children for vaccination</td>
<td>• Remind parents of eligible children to complete routine immunization</td>
</tr>
<tr>
<td>• Inform/contact community leaders/PRI to make campaign successful</td>
<td>• Mark left thumb of vaccinated child</td>
<td>• Mark left thumb of vaccinated child</td>
</tr>
<tr>
<td>• Maintain cold chain and follow safe injection practices</td>
<td>• Ask each beneficiary to wait for half an hour after vaccination</td>
<td>• Give completed invitation cum vaccination card to the child</td>
</tr>
<tr>
<td>• Dispose waste safely as per CPCB guideline</td>
<td>• Mobilize missed children to a nearby session site</td>
<td>• Help in mobilizing all age eligible children from the community to the vaccination session sites</td>
</tr>
<tr>
<td>• Record campaign dose in tally sheet</td>
<td>• Plan and display IEC materials to enhance visibility of the campaign</td>
<td></td>
</tr>
<tr>
<td>• Supervise and guide other team members (ASHA, AWW, volunteers)</td>
<td>• After the campaign is over, identify left-out children and help ANM to immunize them on RI sessions or nearby fixed session sites</td>
<td></td>
</tr>
<tr>
<td>• Wait for one hour after vaccinating the last child at the site to respond to AEFI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Ensure vaccination of left-out children during and post MR campaign</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Part 2

Frequently asked questions on measles

?! What causes measles and rubella?
Measles and Rubella are caused by a virus.

?! How does measles spread?
Through the air by infectious droplets and is highly contagious.

?! How does rubella spread?
Through airborne droplets when infected people sneeze or cough. Pregnant women may pass the virus on to their fetuses.

?! What are the symptoms of measles?
Fever and a rash, cough, runny nose, "redness in eye".

?! What are the symptoms of rubella?
In children, the disease is usually mild, with symptoms including a rash, low fever, nausea and mild conjunctivitis. Swollen lymph glands behind the ears and in the neck are the most characteristic clinical feature. Infected adults, more commonly women, may develop arthritis and painful joints.

?! How long does it take to show signs of measles after being exposed?
It takes about 10 to 12 days from exposure to first symptom, which is usually fever. The measles rash appears approximately 2 to 3 days after the fever begins.

?! How long does it take to show signs of rubella after being exposed?
Once a person is infected, the virus spreads throughout the body in about 5–7 days. Symptoms usually appear 2–3 weeks after exposure.

?! How serious is measles?
Measles can be a serious disease among very young children (less than five years of age) and adults (more than 20 years of age) and cause death due to complications of diarrhoea, pneumonia and brain infection.
How serious is rubella?
In children, the disease is usually mild but when a woman is infected with the rubella virus early in pregnancy, she has great chance of passing the virus on to her fetus. This can cause serious consequences for the foetus, like miscarriage, stillbirth or severe birth defects known as CRS (Congenital Rubella Syndrome), causing defects in heart, eyes, ears, brain, etc. An infant with CRS can excrete rubella virus for more than a year and is infectious to others in the community.

What are the possible complications from measles?
Diarrhoea, pneumonia and encephalitis account for 60% of measles-related deaths.

What are the possible complications from rubella?
Children with CRS can suffer hearing impairments, blindness, heart defects and other lifelong disabilities.

Who are at risk of getting severe measles?
Persons with low immunity, malnourished children and Vit-A deficiency.

Who are the people at risk of getting rubella?
Children or adults who are not vaccinated or a person who has not been vaccinated and comes in close contact with infants who have CRS/rubella.

Is there a treatment for measles and rubella?
There is no specific treatment for measles or rubella. People with measles need bed rest, lots of fluids, and control of fever. Patient should receive two doses of Vitamin A on subsequent days immediately after diagnosis of measles.

For how long is a person with measles contagious?
Measles is highly contagious and can be transmitted from 4 days before the rash becomes visible to 4 days after the onset of rash.
For how long is a person with rubella contagious?
The most infectious period is usually 1–5 days after the appearance of the rash but rubella may be transmitted from 7 days before to 7 days after the rash appears.

How is the measles-rubella vaccine given?
It is given by subcutaneous injection in the right upper arm.

What side effects have been reported with the MR vaccine?
The vaccine may cause slight fever or a mild rash in some children, 7–12 days after vaccination. Severe reactions are rare.

Does one have to pay for the MR vaccine during a campaign or in RI?
No. MR vaccine is provided free of cost during the campaign and in RI in all government health facilities.

Why MR and not MMR (measles, mumps & rubella) vaccination?
There is not enough evidence to suggest that mumps is a disease of public health importance in the country. Therefore only MR vaccine is being introduced.

MR vaccine introduction in Routine Immunization?
During MR campaign, Measles/MR vaccination to be withheld during Routine Immunization sessions.

After the MR campaign is completed, MR vaccine will replace measles vaccine in Routine Immunization.

Will MR vaccine be given during routine immunization?
Every child in 9–12 months age will be given the 1st dose and 2nd dose of MR vaccine between the ages of 16–24 months. After completion of MR campaign two doses of MR vaccine will be given in Routine Immunization at age of 9–12 months and 16–24 months.
**National Immunization Schedule**

## For Infants

### Vaccinations

<table>
<thead>
<tr>
<th>Age</th>
<th>BCG</th>
<th>OPV</th>
<th>Hep-B</th>
<th>Penta</th>
<th>Rota*</th>
<th>IPV</th>
<th>PCV*</th>
<th>MR</th>
<th>JE*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth</td>
<td></td>
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<td>6 Weeks</td>
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<td>9-12 months</td>
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</tr>
</tbody>
</table>

## For Children

### Vaccinations

<table>
<thead>
<tr>
<th>Age</th>
<th>OPV Booster</th>
<th>MR</th>
<th>JE*</th>
<th>DPT Booster</th>
<th>TT</th>
</tr>
</thead>
<tbody>
<tr>
<td>16-24 months</td>
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<tr>
<td>5-6 years</td>
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<tr>
<td>10 years</td>
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<td></td>
</tr>
<tr>
<td>16 years</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Pregnant Mother²</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*in select states/districts

- booster dose

#TT1, 2 or TT Booster (one dose if previously vaccinated within 3 years)
Measles-Rubella Vaccination-Campaign

Does the child need MR vaccination campaign dose even if she/he has had all her/his routine vaccinations?

» Yes, the campaign dose will be administered to all the children falling between the age group of 9 months to <15 years of age, irrespective of any past history of disease or vaccination.

» MR campaign dose is in addition to RI dose

What should be the minimum time interval between a routine vaccination and campaign vaccination?

» If the campaign dose is due as per the guideline, it will be given irrespective of any gap between the last RI received by the child, as this is a one-time activity and there is no harm done to the child with an extra dose.

An 11-month old child has got one dose of measles vaccine through routine immunization one week before start of campaign. Should the child get the campaign dose now?

» Yes, this child should be immunized with the campaign MR dose too. There is no added risk of side effects because of the second dose. In addition, the child should be brought for routine 2nd dose of MR vaccine at 16–24 months of age.

A 14 year old girl is having menses. Should the girl get the MR vaccine during campaign?

» Yes, this girl should be immunized with the campaign MR dose. There is no harm in vaccinating girls who are having menses.
Measles-Rubella Vaccination - Routine Immunization

If a child due for measles vaccine comes to the Routine Immunization session during MR campaign, should the child receive measles dose?

- During MR campaign, measles vaccination in Routine Immunization will be withheld.
- No measles/MR vaccination will be done during RI.
- MR vaccine will be introduced in RI after completion of campaign.
- However, ANM should ensure that child receives MR campaign dose during the campaign period.

Which child is eligible for MR vaccine under the Routine Immunization?

- Every child who is eligible for either first dose or second dose of measles vaccine in his/her RI schedule will be provided with combined MR vaccine in place of measles only vaccine.

If a child received one dose of MR vaccine during the MR Campaign, should he/she receive the routine dose of MR vaccine?

- Yes, the child should receive routine doses of MR vaccine according to the National Immunization Schedule, irrespective of any MR campaign dose in the past.

If a child has received MR vaccine before 9 months of age, is it necessary to repeat the vaccine later?

- Yes.

- According to the Immunization Schedule, the MR vaccine needs to be administered as MR-1 at 9–12 months of age and MR-2 at 16–24 months

Till what age MR vaccine can be given to children under Routine Immunization?

- Two doses of MR vaccine should be given at 9–12 months and 16–24 months of age. However, if a child misses the scheduled dose, MR vaccine can be given till 5 years of age.
Key facts about measles and rubella

1. Measles kills nearly 49,200 children every year in India.

2. Measles and rubella are highly infectious diseases caused by a virus. They spread from person to person through droplets, mainly from coughing and sneezing.

3. A measles case is infectious from 4 days before appearance of rash to 4 days after the rash has subsided. A rubella case is infectious 7 days before and 7 days after the appearance of the rash.

4. Measles can cause complications such as diarrhoea, pneumonia, mouth ulcers, ear infection, damage to eyes, brain infection and can even lead to death.

5. Rubella infection during pregnancy can cause abortion, still birth and may lead to multiple birth defects in the newborn, like blindness/deafness heart defects (known as Congenital Rubella Syndrome).

6. Un-immunized children are at high risk of getting measles or rubella infection.

7. Vaccination is the only way of preventing measles and rubella/CRS and this MR vaccine is provided by the government of India free of cost in campaigns as well as in routine immunization.

8. During the campaign every child of the age group 9 months to below 15 years should get MR vaccine even if the child has already been vaccinated with MR/MMR vaccine or had either of the diseases.

9. Continue routine immunization as per schedule.