



Measles-Rubella (MR) Vaccine Introduction Plan

Ministry of Health & Family Welfare

Government of India



MEASLES-RUBELLA VACCINE INTRODUCTION PLAN - INDIA

Background

Measles, one of the most infectious diseases, remains a leading cause of death globally inspite of the availability of a safe and effective vaccine for over 50 years. Globally, measles accounted for estimated 114,900 deaths in the year 2014 in the world (Source WHO Weekly Epidemiological Record Nov. 2015). India accounted for more than one third (34%) of net global measles mortality in the year 2014 (Source: WER No 46,2015,90, 617-632).

Congenital Rubella Syndrome (CRS) is one of the most serious complication following rubella infection during pregnancy. Up to 90% of infants infected during the first trimester of pregnancy in an unimmunized women are likely to be born with some type of birth defects, including deafness, eye defects, heart defects, and mental retardation. Infection early in the pregnancy (less than 12 weeks gestation) is the most dangerous; birth defects are rare when infection occurs after 20 weeks of gestation. Worldwide an estimated 110,000 children are born with Congenital Rubella Syndrome (CRS), the highest risk of CRS is in women of childbearing age who do not have immunity to the disease (Source: WHO fact sheet Rubella updated Nov. 2014); an estimated ~48% of these are from South East Asia. There is no nationwide surveillance on CRS, but various studies of CRS carried out between 1975 to 2008, in specific populations have reported confirmed CRS ranging from 1% to 50%. Additionally, 10-30% in adolescent girls and 12-30% in reproductive age group are susceptible to rubella infection in India. (Source: Dewan P, Gupta P. Burden of congenital rubella syndrome (CRS) in India: A systematic review. Indian Pediatrics 2012;49:377-399).

In September 2013, at the 66th Meeting of the South East Asia (SEA) Regional Committee, a resolution was passed by all the eleven member states of the SEAR region of WHO, setting 2020 as the target year for the region to eliminate measles and control rubella/CRS. India, being a signatory to the resolution, is committed to the same. The National Technical Advisory Group on Immunization (NTAGI) has recommended the introduction of Measles Rubella (MR) vaccine, replacing both doses of the Measles Containing Vaccine (MCV) at 9-12 months and 16 -24 months.

Until 2010, India was the only country in the WHO member states that administered single dose of Measles vaccine and was home to a significant proportion of measles related

mortality across the globe. To mitigate the measles related morbidity and mortality, India introduced second dose of measles in a two pronged strategy. Twenty one states with better immunization coverage introduced 2nd dose measles vaccine directly under routine immunization (RI) while fourteen states with lower immunization coverage conducted a measles catch-up campaign, covering 366 districts, during the period 2010-13. The campaign was successful and reached out to over 118 million children with 90% coverage (administrative) of the target children (9 months to <10 years of age) as shown in Table 1.

Table 1: Coverage figures for the Measles catch-up campaign 2010-13

Phase	Year	Districts covered	Target population	Population immunized	Coverage (%)
I	2010-11	45	13845686	12076836	87.22%
II	2011-12	152	40167580	36134669	89.96%
III	2012-13	169	76730639	70616293	92.03%
Total		366	130,743,905	118,827,798	90.89%

Source: Ministry of Health and Family Welfare

<http://www.mohfw.nic.in/index1.php?lang=1&level=3&sublinkid=2654&lid=2064>

1. Rationale and decision process for MR introduction

1.1 Introduction of MR vaccine – Rationale

India conducts laboratory supported surveillance for Measles and Rubella (rash and fever surveillance) through an integrated approach along with Acute Flaccid Paralysis (AFP) surveillance, thus leveraging the polio surveillance model. This Acute Flaccid Paralysis (AFP) linked, laboratory supported Measles-Rubella surveillance system is outbreak-based surveillance where the suspected measles or rubella outbreaks are confirmed through laboratory investigation and are lab-classified accordingly. This was initiated in 2005 in Tamil Nadu and thereafter, it has been rolled out in all the States/UTs covering the entire country population at present. The current system comprises of a network of >41,000 reporting sites, 14 laboratories to confirm suspected outbreaks of measles and rubella in the country using serum samples for laboratory investigations (IgM ELISA).

The details of cases from laboratory confirmed measles, rubella and mixed outbreaks for the last three years are shown in Table 2 below.

Table 2: Reported outbreaks of Measles and Rubella over the last few years

Year	No of reporting States/UTs	Measles		Rubella		Mixed (Measles + Rubella)	
		No. of Outbreaks	No. of Cases	No. of Outbreaks	No. of Cases	No. of Outbreaks	No. of Cases
2013	16	209	7858	71	2,734	13	617
2014	34	775	26,461	113	5,227	17	614
2015	36	1,108	28,808	126	4,364	44	1,474
2016	36	410	8,358	158	3,974	36	1,046

Measles-Rubella Bulletin, July 2016 (WHO-NPSP)

The overall reported trend in the confirmed cases of measles and rubella is shown in **Figure 1** below:

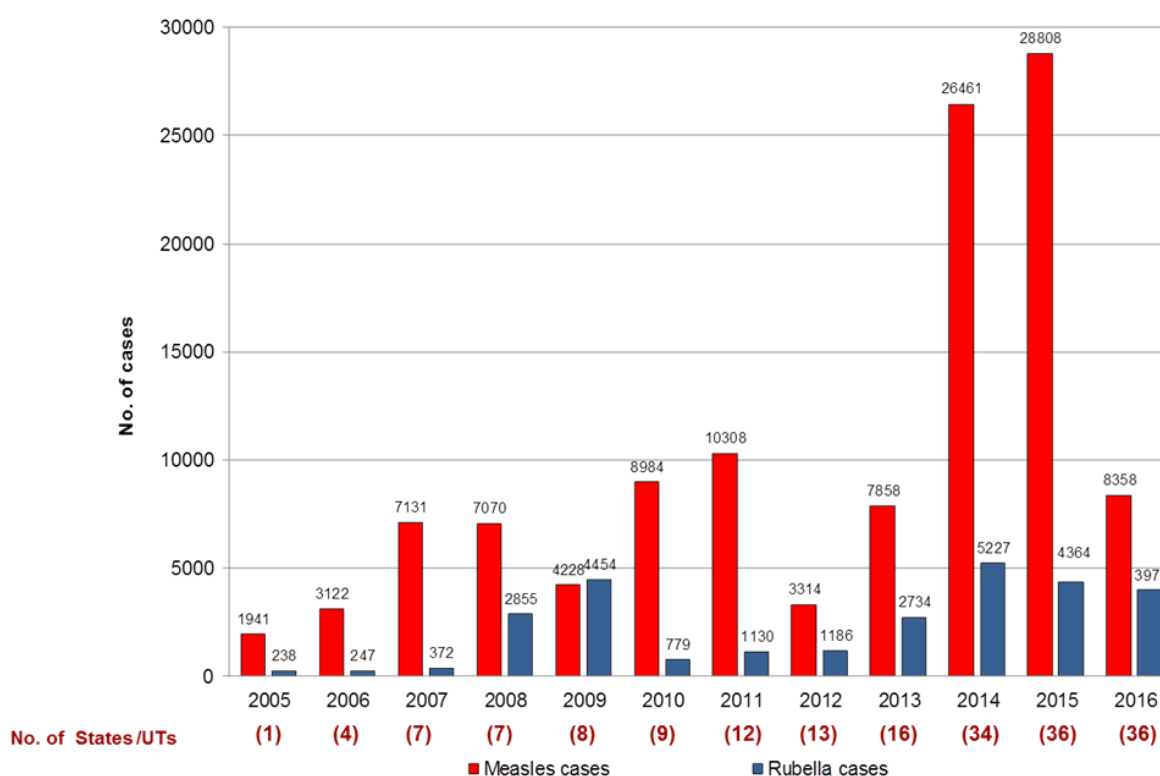


Figure 1: Confirmed cases of Measles and Rubella (*Source: WHO India, NPSP*)

In the year 2015 there were 1108 lab-confirmed outbreaks of Measles and 126 lab-confirmed outbreaks of Rubella and 44 mixed outbreaks (Measles & Rubella) in the country. States where measles catch-up campaigns had taken place had fewer outbreaks than states where MCV2 was introduced directly. Most of the outbreaks were observed in children less than 15 years of age.

1.2 Decision process

India is signatory to the resolution of the 66th meeting of SEA Regional Committee in Sept. 2013 to eliminate measles and control Rubella/CRS by 2020. The National Technical Advisory Group on immunization (NTAGI) at its meeting held on 18th May 2012, recommended that an expert group led by ICMR review the evidence on rubella and the SAGE recommendations on rubella vaccine, and to provide its recommendations on the issue of rubella vaccine at 16-24 months as MR vaccine, and vaccinating adolescent girls with rubella vaccine in the age group 10-15 years through SIAs. The ICMR Expert Group at its meeting held on 13th Sept. 2012 recommended introduction of rubella vaccine as MR vaccine at the time of first DPT booster at 16-24 months in states which have achieved and can sustain measles first dose coverage of >80% and a one-time catch up campaign of adolescent girls with rubella vaccine to offset the potential of increase of susceptible women in reproductive age group if children alone are vaccinated. Subsequently, NTAGI Standing Technical Sub Committee (STSC) on 26th Feb 2014 reviewed the previous recommendation and the Measles-Rubella epidemiological profile and recommended that Rubella Containing Vaccine be introduced in the Universal Immunization Programme as MR vaccine replacing both doses of measles containing vaccine at 9-12 months and 16-24 months. To account for any potential paradoxical increase in cases of Congenital Rubella Syndrome, NTAGI recommended conducting MR campaigns targeting all individuals from 9 months to <15 years of age in the country. Further, it was recommended that future periodicity of the campaign should be decided based on epidemiological data. The NTAGI at its meeting held on 12th June 2014 endorsed the recommendation of the NTAGI Standing Technical Sub Committee for introduction of MR vaccine in routine immunization program following a nationwide MR campaign. The recommendation of the NTAGI were approved by the Empowered Programme Committee of the National Health Mission at its meeting held in November, 2014 and subsequently by the Mission Steering Group at its meeting held in February 2015.

2. Overview of MR Vaccine

2.1 Presentation of the vaccine and timeline for introduction

Currently, WHO PQS MR vaccine is available as a lyophilized vaccine along with diluent. The PQS certificated vaccine is available in one, two, five and ten dose presentation from one manufacturer.

Under the current Universal Immunization Programme (UIP) in India, a child receives two doses of Measles vaccine at 9-12 months and 16-24 months age group. The National Technical Advisory Group on Immunization (NTAGI) recommended replacing both the doses of Measles vaccine with MR vaccine under the routine immunization. The MR vaccine will be administered as a 0.5ml dose through sub-cutaneous route.

All individuals between 9 months to <15 year age group will be vaccinated with one dose of MR vaccine in a nation-wide MR campaign. The campaign will be staggered in phases to cover the entire country in a span of two to three years, starting last quarter 2016. MR vaccine will be introduced in routine immunization immediately after campaign in individual states. This will lead to a pan-India introduction of MR vaccine in routine immunization by the end of the campaign.

2.2 Country licensure status

The Central Drugs and Standards Control Organization (CDSCO) is the National Regulatory Authority (NRA) in India. CDSCO is headed by the Drugs Controller General (India) [DCG (I)]. It approves vaccines that are introduced in the country. The Central License Approving Authority (CLAA) issues licenses for the manufacture of vaccines, while the Central Drugs Laboratory (CDL), Kasauli performs lot release for all imported vaccines as well as locally produced vaccines.

Licensure for the one, two, five and ten dose lyophilised vaccine is available in the country. Only one manufacturer is licenced for MR vaccine in India.

2.3 Targeted population

India has an estimated birth cohort of 27 million children per year. The MR campaign will target ~410 million children in the age-group of 9 months to <15 years of age over a period of two to three years from first quarter of 2017 to 2019. The timelines are however, tentative. Each state will introduce MR vaccine in routine immunization immediately after the campaign. Therefore an increasing cohort of children will be eligible for MR vaccine under routine immunization finally leading to all ~52 million children eligible for MR vaccine after the completion of campaign. The planned phased approach for the campaign is shown in Figure 2 below.

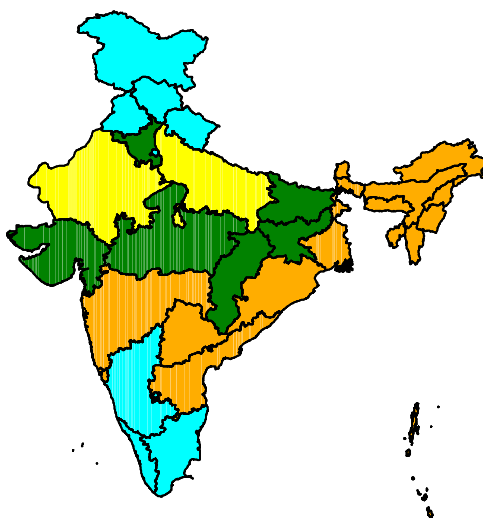
2.4 Vaccine Wastage & Buffer stocks

The wastage rate for MR campaign with a 10 dose vial is calculated at 15%. Rolling stock will be maintained for MR campaign to provide the buffer margin.

Reduction of vaccine wastage will be a focus and trainings of all frontline health staff will be conducted to help them better understand the importance of careful utilization of the vaccine.

2.5 Vaccine requirement

The MR campaign in India will require 483 million doses in a phased manner with a 15% wastage rate.



Phase	MR campaign Duration	No. of States	No. of Districts	Estimated Target Population (9 m<15 yrs)	MR vaccine required for campaign
Phase 1	Jan 2017 - Jun 2017	10	161	66,017,000	77,900,060
Phase 2	Jul 2017 – Dec 2017	18	212	111,100,000	131,098,000
Phase 3	Jan 2018 - Jun 2018	6	202	123,101,000	145,259,180
Phase 4	Jul 2018 - Sep 2018	2	108	108,582,000	128,126,760
Total	Jan 2017 – Sep 2018	36	683	408,800,000	482,384,000

Figure 2: Proposed MR campaign January 2017- September 2018. The timing of MR campaign and duration of each Phase indicated in the table above is tentative and may undergo change.

3. Introduction and implementation considerations

3.1 Vaccination Schedule

The MR vaccine will be administered as a 0.5ml dose through sub-cutaneous route. All individuals between 9 months to <15 years age group will be vaccinated with one dose of MR vaccine in a nation-wide MR campaign. MR vaccine will be introduced in routine immunization immediately after the campaign in individual states.

In routine immunization, 1st dose of MR vaccine will be administered at 9-12 months of age, with first dose of Vitamin A and 1st dose of JE vaccine (in JE endemic areas only). The 2nd dose of MR vaccine will be administered at 16-24 months of age, along with 1st booster dose of DPT and OPV, 2nd dose of Vitamin A and 2nd dose of JE vaccine (in JE endemic districts only).

3.2 Synchronized Switch from MCV to MRCV across the state before campaign starts

A well planned and closely coordinated switch plan will be operational in the states going for the MR campaigns, in such a manner so as to use up or redistribute all the measles vaccines in the districts/state before the campaign starts in that particular state. This switch plan will be effective on the day of the campaign start date across the state, as only measles-rubella vaccine will be administered under the UIP schedule from the 1st day of the campaign and no district/block/PHC/ILR points in the state will be allowed to hold /keep measles vaccine on the day of the campaign to avoid mix-up of both vaccine and diluent for MCV and MRCV. This switch will be closely monitored and supervised before the campaign is launched in the state.

Table 3: Comparison of current and post MR introduction Routine Immunization schedule in India

Age	Current scheduled vaccines	After introduction of PCV and MR
At Birth	BCG, bOPV-0, Hep B-birth dose	BCG, bOPV-0, Hep B-Birth dose
6 weeks	bOPV-1, Pentavalent-1, Rota*, fIPV*	bOPV-1, Pentavalent-1, Rota*, fIPV*, PCV1*
10 weeks	bOPV-2, Pentavalent-2, Rota*	bOPV-2, Pentavalent-2, Rota*,
14 weeks	bOPV-3, Pentavalent-3, Rota*, IPV/fIPV*	bOPV-3, Pentavalent-3, Rota*, IPV/fIPV*, PCV 2*
9 months	Measles-1, JE-1*	MR -1 , JE-1*, PCV 3*
16-24 months	Measles-2, DPT-B1, bOPV-B, JE-2*	DPT-B1, bOPV-B, JE-2*, MR -2

5-6 years	DPT-B2	DPT-B2
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*where applicable

3.3 Injection safety and waste management

Injection safety protocols are incorporated into existing routine immunization guidelines. All health staff dealing with injections including routine immunization injectable vaccines are regularly trained on these protocols. Information from monitoring of session-sites is shared with districts and states for appropriate response. During training for MR vaccine introduction, injection safety and its benefits for the health worker, beneficiary and community will be reemphasized.

Waste sharps generated from immunization with MR vaccine will be handled as per guidelines prescribed by the Biomedical Waste Management and Handling Rules.

Based on the experience from the measles catch-up campaigns, anticipated surge in the volume of immunization waste including both sharp as well as non-sharp type waste generated will be managed based on the existing country protocols that is described in the MR campaign operational guideline. Additional hub cutters will be procured and distributed based on injection load per vaccinators as per standard practice and will be part of the micro-plans. Special dedicated persons will be identified in each cold chain point for handling this extra volume of waste generated. Existing mechanisms at Block/PHC/District level for disinfection and disposal of vaccine waste will be strengthened to manage the additional waste from MR campaigns. The waste management process will be closely monitored as part of the preparedness assessment.

3.4 National coordination mechanism to ensure the successful introduction

The Ministry of Health and Family Welfare (MoHFW) will coordinate the introduction of MR vaccine across the country. The Immunization Division of MoHFW will oversee the process and regularly apprise the Ministry of the state-wise progress. An India Expert Advisory Group on Measles and Rubella (IEAG-MR) was formulated by Government of India on 1st December 2014 to provide technical oversight to attain the overall objective of measles elimination and rubella control, with MR vaccine introduction as one of the critical activities.

The Immunization Division will have the responsibility of deciding the activities and timelines required to ensure MR vaccine campaign. It will issue relevant guidelines, conduct sensitization and training meetings/workshops at the national level towards this objective. Support for state and district level training of trainers will be sourced from key partner agencies at each level.

MR campaign implementation committees will be formulated at national, state, district and sub-district levels for all aspects of the campaign. At National level, a Steering Committee chaired by Secretary (Health & Family Welfare), Government of India will be constituted with member from other Ministries, Departments and bilateral partner organizations. In addition, a Central Operations Group will be constituted for day-to-day oversight. Similar bodies will be formulated at State and District level for effective planning and close coordination/monitoring of MR campaign implementation. The existing accountability framework of STFI (state task-force for immunization) and DTFI (district task-force for immunization) must be used for the purpose of reviewing the campaign quality and safety.

3.5 Affordability and financial sustainability

The Government of India has included the introduction of MR vaccine into routine immunization with government financing as part of its strategic objectives on new vaccine introduction in its comprehensive Multi Year Plan 2013–2017 (cMYP).

3.6 Overview of cold chain capacity and Vaccine logistics

The cold chain infrastructure is a wide network of cold chain stores consisting of Government Medical Supply Depots (GMSD), State, Regional/Divisional Vaccine stores, District and PHC/CHC vaccine storage points. The Cold Chain system spans all 36 States and UTs, 683 districts, 28882 CHCs and PHCs, along with Cold Chain points at Defence/Railway/ESI hospitals and such associated health facilities, and even up to sub-centres and immunization sites level in certain places. The logistics is managed through storing and transporting vaccine in a pre-defined network. The vaccines typically arrives at the primary stores and then are transported to regional vaccine stores and through district vaccine store, it reaches the service delivery point. Cold chain network in the country has been the backbone to ensure that right quantity and right quality of vaccine reaches the target population.

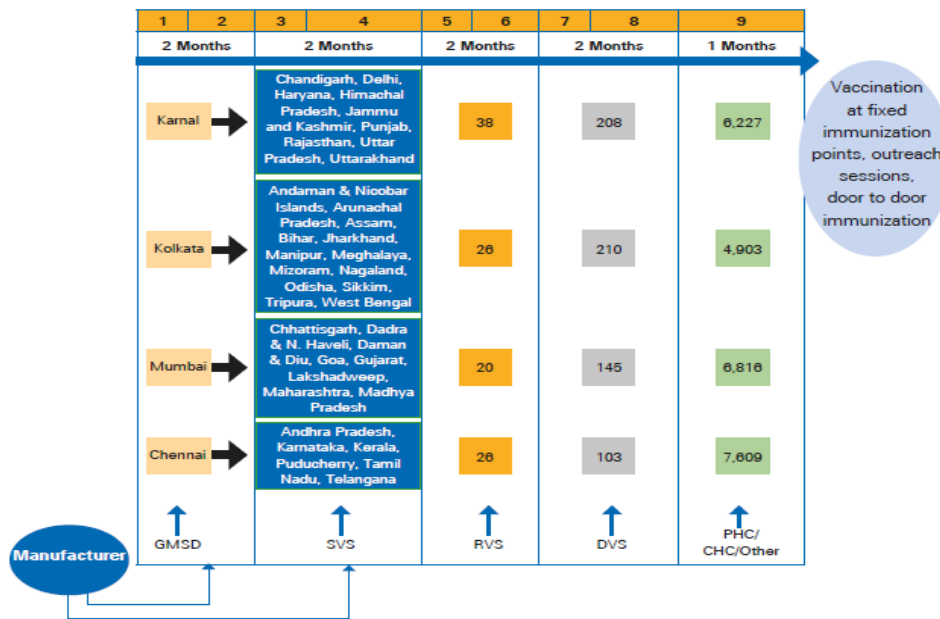


Figure 3: Vaccine storage network and storage timelines in India.

Source: National Cold Chain Assessment 2014

The monitoring of the Cold Chain system in India takes place through the National Cold Chain Management Information System (NCCMIS) operational across all States and UTs. The NCCMIS has the provisions for providing the mandated proforma based reports as required to be submitted by the district and State to the MoHFW. It provides more than 60 detailed reports on cold chain inventory, cold chain point information, and equipment related information and performance indicators at all levels of the immunization supply chain.

India recently conducted a national effective vaccine management (EVM) assessment and has also developed electronic vaccine intelligence network (eVIN), an online system that digitalizes the entire vaccine stock and their storage temperature information at various levels, assessing cold chain equipment functionality and space availability. Under Gavi Health System Strengthening Grant phase I, eVIN is being scaled up to 12 states. It is currently being rolled out in Madhya Pradesh, Uttar Pradesh and Rajasthan; and will be scaled up to the remaining nine states by the end of current grant period.

Introduction of Pentavalent vaccine across the country has further freed cold chain space within the existing equipment. Additionally, there is an ongoing procurement which will substantially extend the cold chain space availability sufficiently to accommodate all new vaccine introductions. With these procurements, soon the cold chain space in terms of number of ILRs and Deep Freezers is expected to increase by over 30%; walk-in coolers and

walk-in freezers would increase by 8% and 26% respectively (Source: MoHFW, Government of India). Also, if required, additional human resource such as cold chain technicians and cold chain handlers will be hired and trained to support vaccine logistics and cold chain management.

The Government of India is implementing an alternate vaccine delivery (AVD) system, to ensure that the immunization session starts on time, vaccines are collected on the same day and unused/opened vials and immunization waste are brought to PHC on the same days. There are various ways of implementation of AVD system such as hiring of vehicle/auto-rickshaw, motor cycle/bicycle, potter, boats etc. Under the National Health Mission, flexible funds are available for the AVD system, which can be utilized based on the local conditions.

3.7 Training activities

Health workers: communication and training materials

Cascade trainings will be conducted for MR introduction at all levels. Training activities will commence at the national level, with an orientation workshop of state level officers on MR introduction.

Subsequently, these state level officers will conduct trainings in their respective states, beginning with a state level training for district level officials in the form of a State TOT.

Further, the district level officers will conduct a district level training for block medical officers of their district in the form of a district SIA planning workshop. These medical officers will, in-turn, be responsible for training health workers/vaccinators, including ANMs, supervisors and cold chain handlers.

The ASHAs and AWWs will play a crucial role for the successful and smooth implementation of the wide age-range campaigns and MR vaccine introduction through effective social mobilization using interpersonal communication in the community. The Child Development Project Officers, officials from Dept. of Primary and Secondary Education, ICDS Supervisors will also be sensitized on the need and process for introduction of MR vaccine. The State/District Health Departments, Education Dept. and the Department Of Women and Child Development will coordinate their efforts to ensure smooth implementation of these trainings (for ASHA and AWW), sensitization and further implementation.

Sensitization of pediatricians/medical practitioners through involvement of Indian Medical Association (IMA), Indian Academy of Pediatrics (IAP) and Indian Public Health Association (IPHA) will also be a focus and given priority in the district before the campaign starts.

Revised national campaign operational guidelines and SIA-field guide:

In addition the MR/SIA planning will be based on the guidance in the national revised MR campaign operational guideline that has been developed at the country level and also the newly published SIA field guide form WHO-HQ (http://www.who.int/immunization/diseases/measles/SIA-Field-Guide_DRAFT.pdf?ua=1)

3.8 Monitoring and Evaluation

Supervision and Monitoring

With the introduction of any new vaccine, regular monitoring of the process combined with timely feedback will ensure effective implementation. Progress in implementation will be monitored over all the phases of preparation, introduction and post-introduction.

During the preparedness phase, districts and states will be expected to assess their preparations through check-lists that will be devised for this purpose at all levels. These check-lists will be reviewed at state and national levels to identify gaps and suggest solutions.

National observers will review the preparedness, vaccine requirements and cold chain capacities at state and district levels during their field visits. This will provide the state and national level with information on progress as well as reflect on the capacity of a state / district to effectively introduce the vaccine. Special attention will be paid to high priority districts and those with lower coverage with MCV1 & MCV2 and MR outbreaks based on surveillance data.

State observers and WHO-NPSP will monitor district and block level trainings. Data on the conduction of trainings will be collected bi-monthly from districts and states. Feedback on trainings will be shared during district and state task force meetings for immunization for corrective actions. Partner agencies such as WHO, UNICEF and others will actively support to monitor the preparedness and introduction. During the MR campaign and thereafter monitoring of routine immunization sessions and coverage of the community will be done to provide feedback to district and state health departments to enable timely response.

Strengthening of RI and the introduction of MR are synergistic and require the involvement of all stakeholders for success. At the national, state and district levels, the Departments of Child Development, Education and Panchayat Raj will be sensitized and encouraged to be actively involved in monitoring of the MR campaigns and RI strengthening activities in all phases. WHO Country Office (WCO) for India will conduct training programs for monitors on MR vaccine introduction and RI strengthening. Post Introduction Evaluation (PIE) survey will be conducted by WCO India 6 to 12 months after the introduction of MR.

3.9 Post MR Campaign Coverage Evaluation Surveys:

A post-campaign coverage survey was conducted after each phase during country's past measles supplementary immunization activity (2010-13). WHO Country office for India will provide technical assistance for conducting post MR campaign coverage evaluation surveys in selected states using EPI probabilistic sampling methods, to assess the expected high quality of campaign coverage (> 90% evaluated).

4. Challenges

4.1 Key lessons learnt

The key lessons learnt from the previous phased Measles campaigns which will now be addressed in the upcoming MR campaign, are described as below.

Phasing large campaigns considering geographical contiguity:

Phasing campaigns over large intervals is not ideal in terms of having an impact and attaining herd immunity. Thus the MR campaign will need to be planned in a manner so as to cover maximum contiguous areas in shortest possible time to avoid intermixing of immunized and un-immunized population so that there is no dilution of herd immunity.

Special task force at every level for regular review:

Steering committees at the national level and state levels including operational groups helps in better strategic planning and program review at every level to ensure quality campaigns with safety. Similarly an efficient district task force chaired by the district magistrate is the critical platform for effective intersectoral coordination which is vital for the success of future campaigns. STFI and DTFIs needs to be activated for periodic review and actions.

Inter departmental coordination is the key to success:

The three key departments of Health, Education and Women and Child Development (WCD) must work in coordination and synergy to get good results in terms of campaigns coverage as was the experience consistently observed across the three phases in multiple states in the past measles campaigns. This inter departmental coordination needs to be ensured in all future wide age range campaigns including schools.

Sensitization of key stakeholders before the campaign

Sensitizing leading paediatricians, private school principals and local media representatives is an absolute requirement before launching campaign in the state and district. This is essential to mitigate any risks to noncompliance, community participation, vaccine avoidance behavior and risk communication for any AEFIs that can jeopardize the campaign, as was observed in few states in the last campaign especially in big urban areas and cities.

Monitoring and supervision to ensure quality:

Monitoring and supervision with real time data feedback at every level helps in both coverage and safety of the campaigns, leading to improved coverage and overall success.

Injection safety, AEFI surveillance and waste management are critical components:

Based on the experiences from the last measles catch-up campaign, safety and waste management needs a serious look out as it is critical to implement standardized vaccination waste management protocols. Also important is an active AEFI surveillance and management network with well-trained/sensitized medical officers from both government and private sectors, equipped with standardized AEFI management kits having injection adrenaline and hydrocortisone for uniform practice. This helps in preventing any death from serious anaphylaxis as was successfully demonstrated in the last measles campaign.

Preparing for surge capacity for vaccine chain logistics before campaigns:

A pre campaign survey conducted across the states is essential to ensure adequate cold chain space and equipment for both electrical and non-electrical cold chain logistics. These equipment should be made available at every level to match the surge capacity required by the states.

Due-listing by health-link workers in advance for true enumeration:

Due listing through house visits by health-link workers (AWW/ASHA) before the campaigns helped in enumerating the true target population for high campaign coverage and must be

done for any such future campaigns

Social mobilization and communication with special emphasis on IPC is a must:

From past campaign monitoring it was evidenced that communication and social mobilization in the form of IEC, BCC with special emphasis on IPC will pay rich dividends in terms of getting higher coverage, as reasons for most unimmunized children were all related to communication and social mobilization resulting in many caregivers not being aware of the campaign.

Training and micro planning are pivotal:

High quality cascading training workshops and effective micro plans at every level helped in reaching higher levels of coverage on the ground that needs to be optimized further in future campaigns.

Partner coordination for successful campaigns:

Union and state government program managers with support of WHO and UNICEF as the key operational partners at every level, with both organization working to their strengths was a successful endeavour as experienced from the past measles campaigns. Similar coordination among the key partners needs to be replicated in future MR campaigns for success.

Introduction in RI:

Immediate introduction of MR following campaigns (on the day of the campaign): Keeping a long gap of 6 months interval between end of campaign and incorporation of MCV2 in routine immunization lead to loss of momentum and variable staggering across the states/districts, leading to slow pick up of MCV2 coverage in RI. This practice should be refrained from and a state must introduce MR vaccine all across the districts on the campaign date itself as the switch day for the respective states from MCV to MRCV across all districts.

4.2 Synergies

Capacity building training/workshops of key program managers and health workers will be a platform for synergies in components that are common for both campaigns and routine immunization including other new vaccine introductions. Training, monitoring and communication plans will be developed keeping this synergy in mind so that duplication of efforts is minimised in a state. Trainings for IPV and pentavalent vaccines were also carried

out together in states with simultaneous vaccine introduction. Communication activities such as media sensitization workshops were synchronized in the past in many states. Post introduction evaluation can be also clubbed as was done in the past with both 2nd dose MCV and pentavalent vaccine introductions in states.

5. Laboratory supported Measles-Rubella Surveillance established across the country

Surveillance is the keystone in detecting the effectiveness of strategies adopted for elimination of measles and rubella/CRS control. India conducts lab-based surveillance for Measles and Rubella (rash and fever surveillance) through an integrated approach along with Acute Flaccid Paralysis (AFP) surveillance, thus leveraging the polio surveillance model. The present Measles-Rubella surveillance system is an outbreak-based surveillance where the suspected measles or rubella outbreaks are confirmed through laboratory investigation and lab-classified accordingly. The current laboratory supported surveillance system covers the entire country through a network of > 41,000 reporting sites, 14 WHO accredited laboratories to confirm suspected outbreaks of measles and rubella in the country using serum samples for laboratory investigations (IgM ELISA).

Selected five proficient laboratories among the country's 14 MR lab-net are also equipped to conduct virological genetic characterization for developing country's genetic data base, on both circulating endemic stains of measles and rubella viruses across the states.

5.1 Transitioning to lab-supported, case-based surveillance system in phases across states:

There is a definite plan at the country level to transition in to a case-based surveillance system across all the states in phases. Case-based MR surveillance will be rolled out with technical support from WHO Country Office for India through 2016-18, where both state and district launch workshops will be supported through the existing WHO-NPSP SMO network. The challenges will be the expected case load of suspected cases (~80,000-100,000) cases per year that will require case investigation and lab-classification, going by the projected surveillance data available before the campaigns. The country is also planning to enhance the WHO proficient MR laboratory network in states to match the anticipated case load of states.

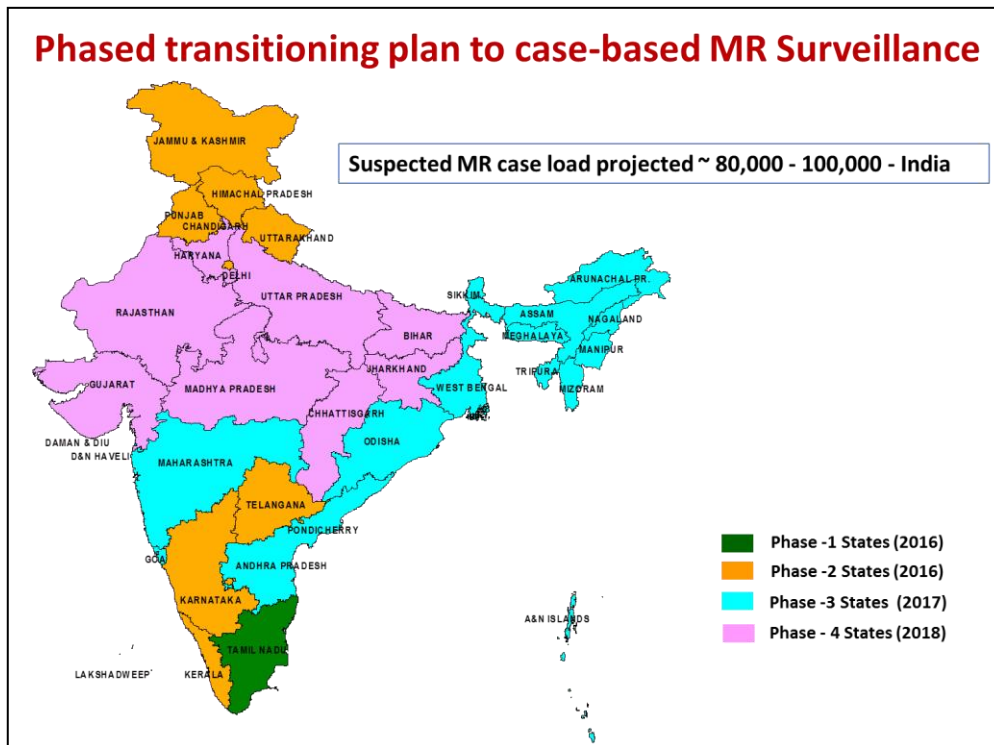


Figure 4: Phased transitioning to case-based MR surveillance

The country is also in the process to initiate sentinel-site CRS surveillance in selected sites in few selected states, in coordination with the ICMR network and technical assistance from WHO-India.

5.2 Assessment of Campaign impact:

Surveillance data will provide evidence on campaign impact in terms of reduction of measles/rubella outbreaks in size as well as frequency and also mortality/morbidity burden. (approximately 16.5 deaths averted per 1000 vaccinated by MCV-1 and 1.9 additional lives averted per 1000 vaccinated by MCV2).

5.3 AEFI surveillance system

Adverse events following vaccination with MR vaccine will be reported and investigated existing through the existing routine AEFI reporting mechanism.

The current AEFI surveillance system in place in India involves the immediate response to such incidents anywhere in the country. During the training of medical officers and health staff, refresher training on AEFI surveillance and case management using the standardized AEFI management kits will also be provided for appropriate sensitization in the district, just

prior to the MR campaigns. This will have the added benefit of strengthening the existing AEFI surveillance system along with a safe MR campaign.

6. Equity Issues

There are significant inequities in vaccine coverage in different states based on factors related to individual (birth order), family (area of residence, wealth, and parental education), demography (religion, caste) and the society (access to health care, community literacy level) characteristics. Efforts will be to ensure coverage of all children in the target age group during the campaign and also in RI. Improving programme service delivery for equitable and efficient immunization services by all districts is the first key objective of the UIP strategic plan framework for 2013-2017 as per the cMYP. Immunization is provided free of cost to all beneficiaries who access the public health system. The cMYP also includes strategies to reduce left outs, missed opportunities and drop outs by using due list by front line health workers for tracking beneficiaries, strengthen mother and child tracking system (MCTS), planning and conducting immunization weeks at regular intervals and strengthening routine immunization system to improve coverage among children who are missed out and putting in place system led accountability. Increasing demand and reducing barriers for people to access immunization services through improved social mobilization is the second key objective of the strategic framework of cMYP and is part of the ongoing efforts to improve access. The Mission Indradhanush, which was launched in 2014, aims to help achieve 90% immunization coverage and sustain the same by 2020, by addressing the equity gaps in immunization coverage along with sustained efforts to improve routine immunization coverage.

7. Communication Plan

Communication strategy and materials will be developed to support the introduction of MR vaccine. Partner agencies including WHO and UNICEF will support the development of this plan.

The plan will guide national, state and district level communication efforts. It will provide a set of standardized messages which will assist immunization partners and stakeholders in understanding and implementing the introduction of MR. It shall be the responsibility of each state to disseminate the information as per the timeline recommended.

The communication plan shall include the following content:

1. Objectives and rationale for MR vaccine introduction

2. Key communication messages and messaging challenges
3. Segmentation of key stakeholders and audiences:
 - National and State officials
 - Health workers, vaccinators and other healthcare delivery staff
 - Link-workers (AWW /ASHA/Teachers) for IPC in the community
 - Community and traditional leaders
 - National and local medical bodies – IAP/IMA
 - Parents and caregivers
4. List of communication materials and templates to be developed, with corresponding timelines and responsible individuals/organizations. This will include:
 - Briefs and FAQs – both general and technical
 - Media and issues management
 - Social mobilization
 - Health worker training materials
 - Guidance on event planning

Multiple media channels would be utilized to ensure wide and effective dissemination.

Timelines for communication activities

Following is a draft timeline of subsequent steps for communication activities:

- Q3 to Q4 2016: Development and finalization of all materials, communication plan and messaging
- Q4 2016: initiation of national and state communication plans
- Jan 2017: follow up and any communications technical support for states to assist in adaptation of messaging, as well as to capture and document any relevant learning

8. Role of Partner Agencies

The technical and monitoring support of partner agencies such as WHO, UNICEF and Lions clubs / Rotary international continues to be of significance in strengthening of health systems and programs in India. The technical support provided by WHO and UNICEF to the introduction of pentavalent vaccine demonstrates the value addition to the process.

WHO

- Provide technical expertise in the development of plans for MR introduction at national and state levels; (revision of campaign guidelines and training resources)
- Provide support in conducting key workshops at the national, state and district level
- Give recommendations on customization of the preparedness checklists and support the district and state governments in completion of these pre campaign preparedness checklists;
- Provide assistance in the review of information derived at the state and national level;
- Track the progress in implementation of actions in strengthening RI and sharing of the findings at district, state and national levels;
- Revise and customize the monitoring tools and pre campaign preparedness checklist
- Monitor implementation at the block, district and state levels with feedback to District and State Task Force for Immunization (DTFI and STFI);
- Share monitoring feedback and recommendations to guide further strategies in MR vaccine introduction, through campaign and routine immunization monitoring.

UNICEF

- Provide technical expertise in development of operational guideline including communication and cold chain guidelines for MR campaign
- Support development of training materials, dissemination & facilitation of national & state level training workshops
- Cold chain & vaccine management assessments, including forecasting, supportive supervision
- Develop communications strategy (including IEC, SBCC & social mobilization), advocacy with Media and professional bodies and its timeline for MR introduction at both the national and state levels;
- Use polio assets such as SMNet in UP, Bihar and West Bengal in creating demand for measles campaign & routine immunization
- Monitor field implementation, provide regular feedback and recommendations.

Others

All other state and local bodies such as IMA, IAP, Red Cross societies and civil society bodies including Lions club and Rotary International will be identified as per state requirements. These organizations can play an important role in information dissemination and advocacy at various levels. Their involvement at district and state task force meetings can

be encouraged based on decisions by state and district health department needs. Their capacities and roles can be reviewed at local level.

Annexure: MR Campaign Activity Checklist & Timeline

Country: **India**

New Vaccine: **MR Vaccine**

Planned introduction Date: **First Quarter 2017 (tentative)**

Lead Agency: **MoHFW and RI**

Partners

Theme	Activity/Action to be taken	2016												Introduction of MR					2017	
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
Preparatory activities	Having Established IEAG-MR (International expert advisory group on MR) and national verification committee																			
	National operational group established and activated																			
	Modification of already submitted application and revised introduction plan to GAVI																			
	In country review by GAVI expert team Preparedness Assessment Checklist at state and district levels and compilation at the national level																			
Development & revision of MR campaign operational guidelines	Development and finalization of the MR campaign operational guidelines including introduction plan in RI																			
	Revision of existing measles SIA training modules and resource materials in coordination of partners																			
Building capacity through training workshop	Printing and distribution of training resource materials and standard training package																			
	Review and update UIP training manuals and reference materials																			
	Develop a training plan																			
	Training of trainers																			
	Conduct training at state/ district level																			
	Conduct training for block level																			
Logistics, injection safety, wastage & procureme	Monitor/replace/ provide/ repair cold chain equipment at all levels																			
	Vaccine supply plan /distribution																			
	Waste management plan in place																			
Strengthening and monitoring and supervision	Supervisory checklists developed																			
	Reporting tools finalized																			
	Establishment of supervisory teams																			
	Conduct supervision visits at all levels																			
	Coverage Monitoring using RCM																			
Communication & Advocacy	Post Campaign Coverage Evaluation																			
	Develop IEC materials and messages																			
	Develop media kit for journalists																			
	Publish information about new vaccine in mass media including TV, radio, online information agencies, medical journals																			
AEFI Surveillance	Conduct meetings with community leaders																			
	Monitor communication activities at all levels																			
	Sensitization on AEFI surveillance and management using standard AEFI kit																			
DTFIs and STFIs	Develop AEFI crisis communication plan and designated AEFI focal point																			
	STFIs to be chaired by SEPIO/MD-NHM																			
Switch Plan	DTFIs to be chaired by CMO/DIO/DM																			
	Programed re-distribution and replacement of Measles vaccine in the state with MR vaccine																			
MR Campaign Start date	Campaign Launched in states																			
Transitioning to case-based MR surveillance	Transitioning plan in the states to be implemented in phases																			