

Measles and Rubella Surveillance

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Measles is one of the world's most contagious diseases. Complications, including otitis media, laryngotracheobronchitis, diarrhea and pneumonia, occur in approximately 30% of reported cases of measles [1]. The risk for severe complications or death from measles increases for children less than five years of age, malnourished children, immune compromised children, and those living in crowded conditions [1]. Rubella is an acute, mild, self-limiting viral illness affecting both children and adults, with the vast majority of cases occurring in children less than 15 years of age. Rubella infection occurring during early pregnancy or immediately before conception may result in congenital rubella syndrome (CRS), miscarriage or fetal death [2]. While measles morbidity and mortality has fallen drastically since 1980, measles caused close to 110,000 deaths globally even in 2017 [3].

Both measles and rubella are preventable, and can be eliminated by vaccination [1,2]. The elimination of measles, and control of rubella require a strong vaccination program where children are vaccinated with two doses of measles- and rubella-containing vaccine (MRCV), as well as a strong measles and rubella surveillance system that is able to detect, investigate and respond to every suspected case [4].

From 2016 to 2018, global coverage with the first dose of measles-containing vaccine (MCV1) has remained at 86%, while global coverage with the second dose of measles-containing vaccine (MCV2) increased from 67% to 69% during this same time period [5]. Global coverage for the first dose of rubella-containing vaccine (RCV1) increased from 48% in 2016 to 69% in 2018 [5].

The number of reported measles cases increased globally in 2019. Preliminary global data show that measles cases rose by 300 percent in the first three months of 2019, compared to the same period in 2018 [3]. In contrast to global trends, India has seen a reduction in measles and rubella cases in states, which have conducted the Measles and Rubella (MR) campaign [6].

In India in 2017, an estimated 2.9 million children did not receive MCV1, and an estimated 6.1 million children did not receive MCV2. Globally, India ranks second behind Nigeria as the country with the largest number of children unvaccinated with MCV1 and MCV2 [7]. In September 2013, India, along with other countries of WHO South-East Asia Region, adopted the goal of measles elimination and rubella/CRS control by 2020. India has made progress towards achieving these goals, including:

- MCV2 was introduced into the routine immunization schedule in 2010.
- A wide-age range Measles and Rubella Supplementary Immunization catch-up campaign (MR-SIA) has been conducted in 32 states between 2017-2019, and is ongoing in two states and yet to be completed in two more states (Delhi and West-Bengal). To date, more than 319 million children have been vaccinated as part of the campaign.
- Rubella-containing vaccine was introduced in routine immunization as the first and second doses of MRCV across the country in 2018.
- India is transitioning from outbreak to case-based MR surveillance, which has been initiated in 32 states, and by October 2019, it is expected the entire country will shift to case-based surveillance.
- Fever rash surveillance has been piloted in three states (Karnataka, Madhya Pradesh and Odisha). Evidence generated from this pilot will provide guidance on operational feasibility, and is likely to inform policy decisions regarding further expansion across the country.

In February 2019, the Indian Expert Advisory Group on Measles and Rubella (MR-IEAG) noted that India is making progress towards achieving measles elimination and rubella control, and commended the Government of India for its strong commitment towards meeting these goals. As of 12th August 2019, about 32 crore children have been successfully vaccinated in the country during

MR campaigns. While noting that India's strategies are sound and there is momentum to achieve measles elimination and rubella control, the MR-IEAG strongly recommended that India further enhance surveillance sensitivity and strengthen routine immunization to meet elimination standards [8].

To achieve these goals, the MR-IEAG recommended the engagement of professional societies, including the Indian Academy of Pediatrics (IAP), to support strengthening routine immunization and surveillance programs at the local level. The IAP's support is needed to increase surveillance sensitivity through the reporting of suspect cases of measles and rubella to the surveillance system, and to achieve and maintain at least 95% vaccination coverage with two doses of MRCV within each district across country, through routine and/or supplementary immunization. The MR-IEAG further recommended that IAP should include MR vaccination status as part of assessment in school health workshops.

There is an urgent need to increase the sensitivity of India's MR surveillance system. In 2018, India's non-measles non-rubella (NMNR) discard rate, a key measure of surveillance sensitivity, was 0.6 per 100,000 population, far below the global standard of ≥ 2.0 per 100,000 population [6]. Additionally, in 2018, 72 districts in India did not report a single suspect case (*i.e.*, silent districts), indicating a need for increased sensitization for reporting. According to administrative data, in India, coverage for first and second dose of MRCV was 86% and 73%, respectively for 2018; and only 32% of districts achieved $\geq 80\%$ coverage with second dose of MRCV [9]. There are pockets of low immunization coverage particularly in high-risk areas such as urban slums and migrant populations.

IAP played a critical role in the success of the ongoing MR campaign. Similarly, IAP's contribution to strengthening MR surveillance and routine immunization will be critical to India achieving measles elimination and rubella/CRS control. To achieve these goals, it is critical for each IAP member to:

- Ensure timely notification and appropriate response to all suspected cases or outbreaks of measles and rubella to the respective district immunization officer and/or National Polio Surveillance Program officer.
- Actively promote routine immunization, especially in hard to reach and high-risk areas, including urban slums.
- Verify the immunization status of all children and adolescents treated by pediatricians and through screenings as a part of assessment in school health workshops. If required, vaccinate any unvaccinated or partially vaccinated children with age-appropriate first or second dose of MRCV or other vaccines as appropriate.
- Increase the visibility of routine immunization through the display of posters encouraging routine immunization in clinics and waiting rooms.
- Optimally utilize opportunities to support messages for routine immunization and MR surveillance through print, electronic and social media.
- Include MR vaccination status as part of assessments in the school health workshops.

I vouch for the IAP's strong commitment to enhance MR surveillance and strengthen routine immunization to achieve the goal of measles elimination and rubella control in India.

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