

Measles Surge: A Trigger to Inspect Immunization Coverage and Strengthen Health Delivery System

Running Title: Measles as proxy for immunization coverage

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Abstract

The surge in measles cases in India is a matter of concern and should activate the health authorities to investigate the contributing factors. There has been decreased coverage (0.5% to 8.0%) of Measles Rubella vaccine in 9 out of 35 states of India between NFHS-4 and NFHS-5. Emergence of one vaccine preventable disease (VPD) raise concern about the status of other VPDs and their immunization coverage. An efficient surveillance and monitoring system along with community participation can help in finding gaps/ barriers in immunisation services and overcoming the gaps or barriers to improve immunization coverage.

Keywords: Emergence, Immunization, Measles, Re-emergence, Vaccine preventable diseases.

Introduction

Low immunization coverage encourages the highly contagious measles virus to circulate in surroundings, leaving no country exempted to this vaccine preventable disease (VPDs) as evident by the surge in measles cases worldwide. India alone has contributed to around 67,592 cases which is almost thrice than the next country Yemen (23,680 cases) as of early July 2023. [1] Is this an alarm for other emergence of other VPDs? The rise in measles cases could be taken as trigger to assess the immunization coverage for measles and other VPDs.

How the immunization coverage changed from NFHS-4 to NFHS-5? In India, between National Family Health Survey (NFHS) 4 and

5, nine out of 35 states has reported decreased percentage of a measles rubella (MR) vaccine coverage ranging from 0.5% to 8.0% among children in their first year of life. A similar decline for other VPD's (BCG, polio, diphtheria, pertussis, tetanus, haemophilus influenza b, hepatitis B) was also found between these two national surveys with highest decline for 3rd dose of Polio (14.0%) and lowest for 3rd dose of Pentavalent vaccine at 14 weeks and 10 weeks of life respectively. There was also decline in percentage of fully vaccinated children in NFHS-5 as compared to NFHS-4 which ranges from 0.5% to 12.8% in various states of India [2]. This declining rate of vaccination is a risk of re-emergence of these diseases in future which may become a challenge to tackle with.

What could be the reasons for decreased immunization coverage? COVID-19 has hit the global immunization efforts rendering millions of children vulnerable to VPD's like measles, polio, tetanus, etc. and has put the immunization efforts on backfoot. It has added six million more children than that were in pre pandemic era who missed out on one or more vaccines delivered through routine immunization services [3]. The rapid mobility of people and sharing boundaries leave adjacent countries vulnerable to VPDs. Other reasons could be low participation by people, logistics constraints, issues related to data updating in health management information system (HMIS) portal. Unvaccinated or partially vaccinated children are most susceptible of developing childhood diseases and disabilities and have three to six times higher risk of death as compared to fully immunized children [4].

What can be done to improve immunization coverage? Involving state of art techniques and raising awareness among community may have favourable results in increasing immunization. Tracking partially immunized children and immunizing them is a cost effective step in halting the morbidity and mortality due to VPDs. Auxiliary Nurse Midwife online (ANMOL) is mobile tablet based android application used by the Auxiliary Nurse Midwife (ANMs) to track the immunization status of children in India. This helps in line-listing the beneficiaries and help in completing the vaccination. Similarly, Integrated Child Development Services - Common Application Software (ICDS-CAS) can also track immunization status of children in a particular area. mHealth is used for practice of medicine and public health by mobile devices but has limitations. A smartphone is required for mobile applications which is not possible for everyone in lower income countries like India. Similarly for getting immunization alerts, registration by parents is required, which is again not feasible for everyone. Instead, the existing Reproductive and Child health (RCH) portal should be revamped in a manner that personal details registered at the time of visit can be used to make them eligible for short message services (SMS) without

being dependent on the beneficiaries [5]. Tailored messages can be curated in regional languages to remind mothers of immunization of their children before the scheduled date and even after till she brings the child for immunization. The idea is to change the approach of being dependent on people for enrolment to actively deliver them the SMS.

In some cases the child misses immunization when his/her family moves to other place after child receive first/second dose of vaccine. The immunization services for these children can be strengthened if there is active participation by the beneficiary as well as the health care providers. The people should be aware about the benefits of immunization and before moving out of station they can inform the health care provider about the place of migration. The health care provider can contact her counterpart in the other area and immunization of that child can be arranged and same can be updated on HMIS portal. A balanced role of health delivery system and community participation has witnessed eradication of small pox and polio in past.

The programme implementation guidelines should be backed by the surveys at local levels to capture any behavioural, social, cultural political and topographical change/gaps at grass root level to check the feasibility of guideline and correct at the earliest to overcome the existing gaps in the delivering immunization services. An alert and actionable health system may prove to be promising in achieving the defined targets of immunization and prevention of re-emergence of measles and other vaccine preventable diseases in future.

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