Evidence brief #3

Assessing the timeliness *in* Routine Immunization

What is timeliness in vaccination?

A vaccination is considered to have been given on time if the vaccination was given within 35 days of recommended age of vaccination. The importance of timeliness lies with the fact that delayed doses provide a window of vulnerability against vaccine preventable diseases.

Timeliness in vaccination was analysed using data from Rapid Assessment Survey (RAS) to understand the timely coverage of the applicable vaccines included in the immunization schedule. The RAS was conducted in the 100 focus blocks of Uttar Pradesh as a part of the Uttar Pradesh Routine Immunization (UPRI) strengthening program to understand the coverage as well as barriers in the RI ecosystem in reaching the SDG target of 90% immunization coverage. The timeliness was computed among 2528 children aged 12-15 months for each vaccine (Hep-B and OPV-0 vaccines were excluded from analysis as these are primarily administered at the time of birth). It was assumed that the children for which the date was not available either from MCP card or recall would be similar as those for which date was available. The date of vaccination was available for more than 95% for all of the vaccines. In computing timeliness, an exposure period of 35 days was considered from the recommended date as the data suggested around 92% of the vaccination happens at the Village Health Nutrition Day (VHND) and these VHNDs are organized using a fixed day fixed site approach wherein the minimum interval between two VHNDs is 28 days and maximum 35 days.

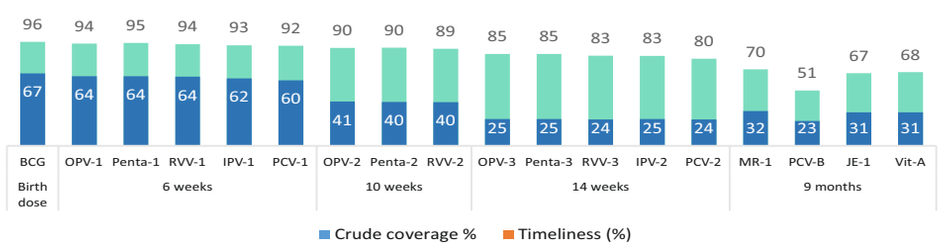
Table-1: Vaccination (upto 9 month) as per the National Immunization Schedule by Government of India

Recommended age	Vaccines given
Birth	Hep-B birth dose, OPV-0, Bacillus Calmette Guerin (BCG)
6 Weeks	OPV-1, Pentavalent-1, Rotavirus Vaccine (RVV)-1, Fractional dose of Inactivated Polio Vaccine (fIPV)-1, Pneumococcal Conjugate Vaccine (PCV) -1
10 weeks	OPV-2, Pentavalent-2, RVV-2
14 weeks	OPV-3, Pentavalent-3, fIPV-2, RVV-3, PCV-2
9 months	Measles & Rubella (MR)-1, JE-1 (JE in endemic districts only), PCV-Booster, fIPV-3

Timely coverage Vs Crude coverage

The timely vaccination coverage varied between 23% (PCV-B) and 67% (BCG). The findings showed a significant delay in vaccination. While the coverage of all vaccines administered at 6 weeks was over 90%, less than 2/3rds of children received vaccines by the recommended age of 6 weeks (Fig 1). The delay was much higher with vaccines being administered subsequently, which is on the expected lines due to delayed initiation of primary series. Even for MR-1 vaccine which is to be administered at 9 months, only 32% of the children received the vaccine within 35 days of them being eligible for vaccination.

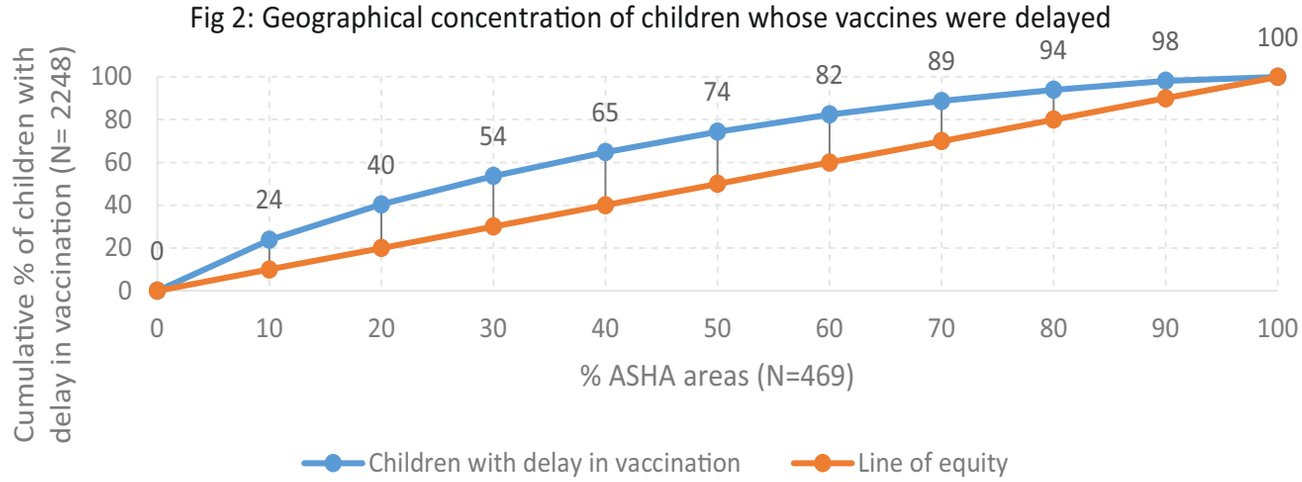
Fig 1: Crude coverage and timeliness for different vaccines among children in 12-15 months



[1] 2386 children aged 12-15 months for PCV-1, PCV-2 and PCV-B, and 1433 for JE-1 as these vaccinations are not applicable for all surveyed geographies.

To understand the delay in vaccination across geography, we assessed the contribution of ASHA areas to the total children with delay in either Pentavalent doses or MR vaccination. The data showed that out of 2248 children who had a delay in vaccination, three-fourth of them belonged to half of the total 469 ASHA areas (Fig 2). As the majority of the delayed vaccination children were coming from a few ASHA areas, it points to the possibility for targeted actions.

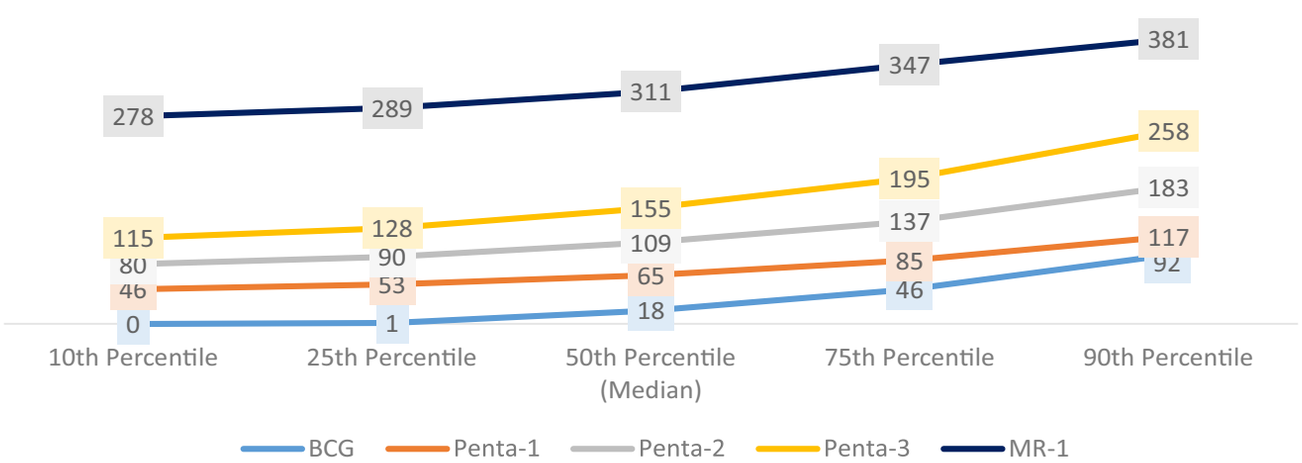
Fig 2: Geographical concentration of children whose vaccines were delayed



Age at receiving vaccinations

Age at vaccination was computed for BCG, Pentavalent doses and MR-1 among the children for whom date of vaccination was available to quantify the delay in vaccination. The data showed a wide variation in the distribution of age at receiving vaccinations. The median age for receiving BCG vaccination was 18 days (IQR: 1-46 days), 65 days (IQR: 53-85) for Penta-1, 109 days (IQR: 90-137) for Penta-2, 155 days (IQR: 128-195) for Penta-3 and 311 days (IQR: 289-347) for MR-1 compared to the recommended age of 0, 42, 70, 98 and 270 days respectively.

Fig 3: Distribution of children by age (in days) at vaccination



Conclusion

The key findings showed that timely vaccination is a concern in the project blocks. Tracking the timeliness indicators in the universal immunization programmes would be a preliminary step in the right direction. There should also be efforts to improve the awareness regarding the same among the providers and clients. Additionally, further research is needed on the implications of delayed immunization as limited literature is available on the same.

Varma R., Dehury B., Thacker D, Singh S., Anthony J. and Prakash R. (2023). Assessing the timeliness in the routineimmunization Evidence Brief #3. Lucknow: India Health Action Trust.