# Coverage of pentavalent vaccine third dose and reasons for dropout among children receiving immunization at Sirsi CHC in Jaipur Rajasthan India

**Name of the student:** Kulmie Mohamud Abdulle

MPHIS Cohort 1

**Faculty Advisor:** Dr. Vinod Kumar

IIHMR UNIVERSITY

# General objectives:

- To assess the coverage of third dose of Pentavalent vaccine among children at CHC Sirsi, Jaipur.
- To identify the determinants affecting the Pentavalent vaccine in children under 5 years
- To determine possible reasons for sub optimal coverage of Pentavalent vaccine administration after first dose of Pentavalent.

# Background

- Vaccination is considered the most successful and effective public health intervention against infectious diseases(1) and significantly lowers the morbidity and mortality rates in children by protecting them from Vaccine Preventable Diseases(2)
- It is estimated that each year about two million deaths occur globally due to VPDs with approximately around 1.5 million occurring in children under five years of age (4)
- Vaccine-preventable diseases are major causes of under-5 mortality in India. As per World Health Organization (WHO) estimates, India has the largest dropout rate for three doses of pentavalent vaccine(2)
- In India Dropout rate from pentavalent 1 to pentavalent 3 was 7.4% on 29 December 2022(9)
- The dropout rate is one of the determinants of immunization coverage and program performance, program continuity, and follow-up. Immunization dropout signifies that the child has received the first recommended dose of the vaccine yet has missed the next recommended dose.

# Capstone work area

Capstone area is Sirsi community health center that located in Jaipur city Rajasthan India that provide wide range of community health services typically include preventive care immunization service

Maternal and child health service

Health education and family planning and

Treatment for common illness and injuries.

Prevention and control of communicable and non-communicable diseases.

Basic laboratory and diagnostic services.

# Sirsi CHC

- **Population:** 50,000
- **Staff:** 14 staff 2 ANM and 1 MD/Senior medical officer
- **Schedule:** from 8:00am to 2:00pm 6 hours/day
- **Routine Immunization:** BCG DPT Hep B, OPV, ROTA, IPV, MR, TD and Covid Vaccine.

# Methods and Data Source

- This study used based on secondary data sources from the Sirsi CHC vaccine data records and primary data also that I used.

Mixed methods design

- Quantitative (Observation checklists)
- Qualitative design (Semi-structured interviews)

| A | **Program management** | |
|---|---|---|
| 1. | **Concepts of IR micro plan (for dependent sub sub-centers available** | |
| | a. Map of catchment area indicating SCs and distances from vaccine | yes |
| | a. Estimation of beneficiaries (village/ area wise) for current year | yes |
| | a. Estimation of logistics vaccine syringes immunization cards etc. in village wise | yes |
| | a. ANM roster and immunization calendar | yes |
| | a. Day wise plan for supervisory visits | yes |
| 2. | ANM roster and immunization calendar displayed at facility | yes |
| 3. | Coverage monitoring chart/drop out chart DPT3 displayed at facility | no |
| 4. | Supervisory visits by district level Govt health officials in the last calendar | yes |

## Cold chain Management

The vaccine equipment that we observed are as follows.

- Deep freezer and ice lined refrigerators with about 240 litter capacity Placed on wooden blocks and at least 10 cm away from walls and surrounding equipment and Dedicated voltage stabilizer for each equipment
- Functional thermometer inside every ILR and DF and temperature sensors

## Temperature and Logbooks

- That are twice daily monitored of temperature in respective logbooks and Periodic checks of logbooks by facility in charge (signature)

**Cold  chain Management**

The vaccine equipment that we observed are as follows.

**ILR:** Cabinet temperature was between +2 - +8c and all vaccine vials stored correctly inside cartons (Expiry date, batch)

**DF:** the Cabinet temperature was between -15c – 25c with Correct placement of ice packs inside the DF (in cross manner, while freezing)

No RI vaccines stored inside DF (including reconstituted vaccines)

## 1. Pentavalent Coverage and drop rates in Sirsi CHC.

Pentavalent Dropout rate

1. In 2021, 467 children received Pentavalent 1 while 445 children received Pentavalent3, and the target coverage was 567.

   467-445/467×100= 4.7% it means the dropout rate of pentavalent3, was 4.7% in 2021

2. In 2022 541 children received Pentavalent1 were 541 while 519 children received Pentavalent3, and the target was 699 children.

   541-519/541×100=4% that means in the year 2022 the dropout rate of pentavalent3, was 4%

**Pentavalent Coverage rate in 2021 and 2022**

1. 445/567×100= 78.5% and this shows that 21.5 percent was remaining in 2021
2. 519/699×100= 74.2% this means that 25.7 percent was remaining in 2022

# Results

| Year | Target No | No pentavalent 1 | No of pentavalent 3 | Dropout rate | Coverage rate |
|---|---|---|---|---|---|
| 2021 | 567 | 467 | 445 | 4.7% | 78.5% |
| 2022 | 699 | 541 | 519 | 4.06% | 74.2% |

The above table summarises the coverage and drop out results of pentavalent 3 in 2021 and 2022 and shows that the vaccination coverage was <80% and poor.

And the drop out rate was <10 that shows the vaccine utilization was good.

**Table for Pentavalent immunized Children in 2021 to 2022 at Sirsi CHC**

| **I. CHILD Immunization (0-9 Months)** | 2021 | 2022 | 2023 |
|---|---|---|---|
| a. DPT1/Pentavalent 1 | **467** | **541** | **N/A** |
| a. DPT3/Pentavalent 3 | **445** | **519** | **N/A** |
| **IV. Number of Immunization Sessions** | | | |
| a. Immunization Sessions Planned | **7** | **8** | **16** |
| a. Immunization Sessions Held | **7** | **8** | **8** |
| a. Number of Immunization Sessions where ASHAs were present | **7** | **6** | **7** |
| **V. Adverse Event Following Immunization (AEFI)** | | | |
| a. Number of cases of AEFI – Abscess | **0** | **0** | **0** |

**Reasons for dropout (Pentavalent 3 dose)**

The reasons for dropout of third dose pentavalent are included.

- Migration of some parents from the district before completing third dose of pentavalent to their children.
- In adequate visit and access to immunization service for some caregivers while they are busy for their daily work and hesitate to complete pentavalent vaccine doses to their children due to in adequate awareness of vaccine importance to their children’s health.

# Challenges And Enablers for RI Service

| Challenges |
| --- |
| • Illiteracy and in adequate of knowledge and awareness about benefits of completed immunization for child survival |
| • Vaccine hesitance of some parents to vaccine their children due to moving or travelling to another villages |
| • Shortage of vaccine supply at district level due to transportation issues |
| • Visiting each household in population of 15,000 can be logistical challenges for implementation of routine immunization services |
| • Vaccination teams do not have transportation facilities in reaching the Health center that are far |
| • High workload and low salary level |

| Enablers |
| --- |
| • The government invests in all the necessary infrastructure, and the immunization service provided by Community health Centers is free |
| • The use of social media, electronics and mobile applications can help to improve the efficiency and effectiveness of routine immunization program |
| • Community engagement and awareness campaign can help promote benefits of routine immunization program and encourage parents to vaccine the children. |
| • Receiving training of routine immunization program, vaccine storage and handling |
| • Awareness and accessibility of routine immunization service by the most of community<br>• Reminders and health education provided by ASHA workers. |

| | Problems | Suggestive Actions | Feasibility | Priority |
|---|---|---|---|---|
| 1 | Vaccine hesitance of some parents to vaccine their children | Informing the parents to timely visit the health facility to vaccine child. | Swift | |
| 2 | Shortage of vaccine supply at district level due to transportation | Improving the supply chain management system | Swift | |
| 3 | Lack of awareness of some parents of the importance of immunization | Conducting awareness campaign | Swift | |
| 4 | High workload and low salary level | Provision of non-financial incentives like Certificate of Appreciation or other means of recognizing good performers | Swift | |
| | | Increasing the salary and Increasing number of healthcare workers | Difficult | |
| | | Giving breaks and vacations. | Difficult | |

| | Problems | Suggestive Actions | Feasibility | Priority |
|---|---|---|---|---|
| 5 | Visiting each household in population of 15,000 can be logistical challenges | Creating campaigns that are tailored to parents of young children | Challenging | |
| | | Recruiting additional health workers ANM and CHWs | Difficulty | |
| | | | | |

| Best Practices | Supporting actions required to sustain the best practices |
| --- | --- |
| The government invests in all the necessary infrastructure, and the immunization service provided by Community health Centers is free | Ensuring that free immunization service is sustained |
| The use of social media, electronics and mobile applications can help to improve the efficiency and effectiveness of routine immunization programs. | Supervision to monitor immunization activity at health center. |
| Community engagement and awareness campaigns can help promote the benefits of routine immunization programs. | Ensure the community are satisfied to the service provided by the center |
| Proper vaccine provision, vaccine storage and handling techniques | Training or coaching of primary care providers in strategies for effective vaccine |
| Awareness and accessibility of routine immunization service by the most of community | Reminders and health education provided by ASHA workers.<br>Promotion and ensuring that immunization are accessible |

## Recommendations

- Improve vaccine supply transportation system.
- Training health providers every six month.
- Informing migrant parents to visit in service delivery areas.
- Maintain good record keeping.

# Acknowledgments

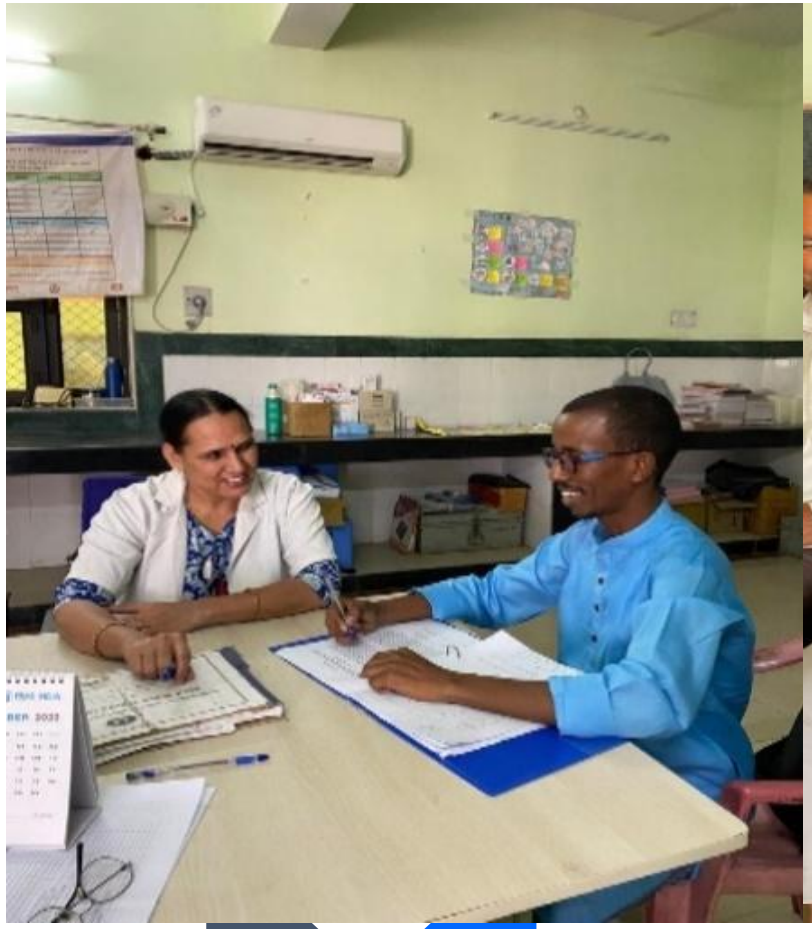
First and foremost, I would like to thank my faculty advisor, Dr Vinod Kumar for his unwavering support, expert guidance, Insightful feedback and greatly enhanced the quality of this project. I am truly grateful for his dedication and mentorship.

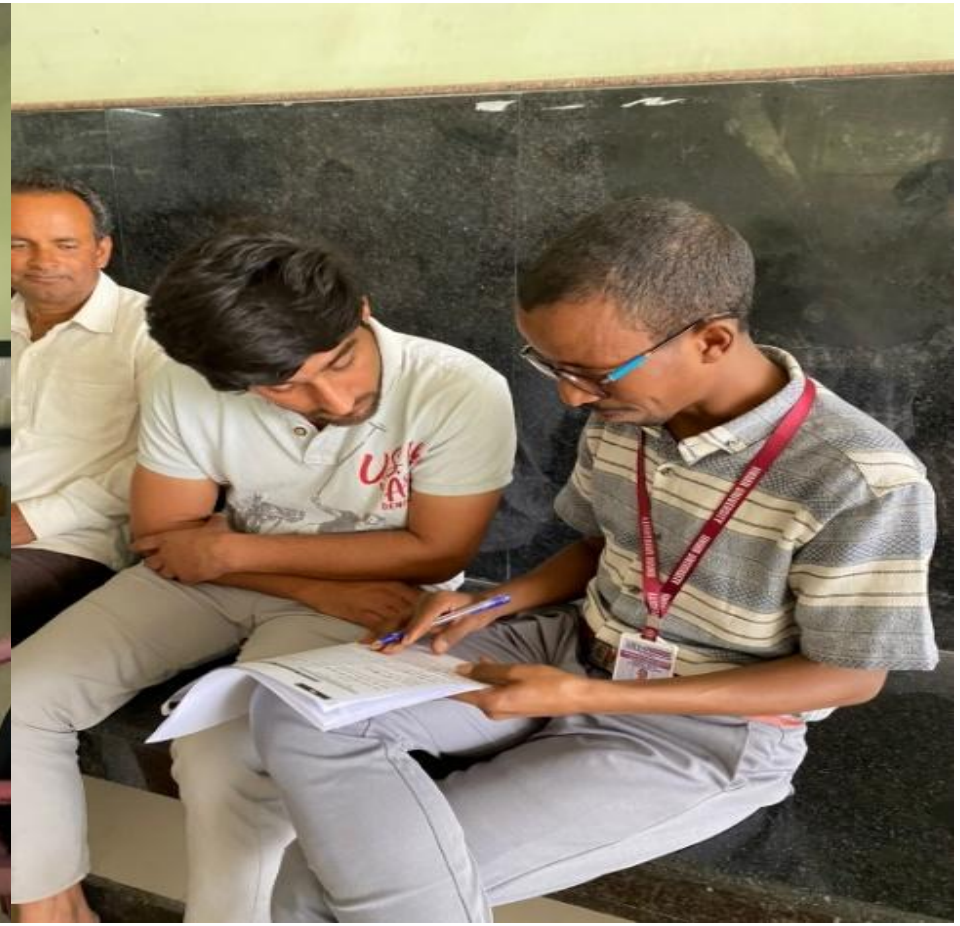
I would also like to extend my gratitude to the faculty members of IIHMR University management team, their relevant field in shaping my approach to this project

, I would like to express my appreciation to all health providers of Sirsi CHC for their flexibility, interaction and facilitating my field observation.

Furthermore  to All my collogues like Aditi, Abdirahman, Karma and Navnit .

# Field Visit interaction Pictures





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# Thank you