

SYNOPSIS

1. TITLE

Evaluating the Implementation of the Immunisation Wheel in Madhya Pradesh: Frontline Worker Perspectives, field adaptation, and its role in enhancing Vaccine Uptake and Communication.

2. INTRODUCTION

Immunisation is one of the most cost-effective and widely implemented public health interventions, with the potential to prevent millions of child deaths each year. India, through its Universal Immunisation Programme (UIP), aims to reach over 26 million infants annually. Despite these efforts, full immunisation coverage (FIC) remains uneven, particularly in states like Madhya Pradesh where service delivery and adherence challenges continue to hamper outcomes. Dropouts—children who start but do not complete their vaccination schedule—remain a key concern in achieving immunisation targets.

Global initiatives such as the Immunization Agenda 2030 (IA2030) stress the importance of equity, last-mile delivery, and behaviour change to address persistent gaps in immunisation coverage. Within this context, Madhya Pradesh has introduced a visual communication tool—the Immunisation Wheel—as part of its state-level innovations to improve interpersonal communication between frontline health workers (ASHAs and ANMs) and caregivers. This rotating plastic disc, designed to simplify vaccination date calculations and improve schedule visibility, has been distributed across districts for use during counselling and home visits.

The current study seeks to assess the field-level use and effectiveness of the Immunisation Wheel in enhancing communication, improving schedule adherence, and supporting frontline workers' routine activities. The results are expected to inform government decision-making on scaling and sustaining similar tools in routine immunisation delivery.

3. RESEARCH QUESTION

How is the Immunisation Wheel being used by frontline health workers in Madhya Pradesh, and what is its perceived impact on communication, caregiver engagement, and immunisation dropout reduction?

4. OBJECTIVES

- To understand how frontline workers (ASHAs and ANMs) are using the Immunisation Wheel during routine immunisation delivery.
- To assess the perceived utility and operational fit of the tool in home visits, counselling sessions, and session site interactions.
- To explore the perceived behavioural impact on caregivers with regard to immunisation adherence.
- To identify barriers and facilitators for sustained tool use, and assess the tool's potential for scale-up.

5. HYPOTHESIS

(Not applicable, as this is a qualitative exploratory study.)

6. MATERIAL AND METHODS

STUDY DESIGN: Qualitative cross-sectional exploratory study.

SETTING: The study will be conducted at Anganwadi Centres across urban and rural areas of Bhopal district, Madhya Pradesh.

STUDY POPULATION

1. ASHAs and ANMs using the Immunisation Wheel.
2. Caregivers of children aged 0–12 months who have been exposed to the wheel.
3. Supervisory staff and program managers involved in implementation.

INCLUSION CRITERIA

1. Health-care workers who have received the wheel and are active in their field areas.
2. Beneficiaries who have interacted with health-care workers using the wheel in the past 6 months.

EXCLUSION CRITERIA

1. FLWs and beneficiaries unwilling or unable to provide informed consent.
2. Facilities where the wheel has not yet been introduced.

STUDY TOOLS

1. Semi-structured in-depth interview guide for ASHAs and ANMs
2. Knowledge, Attitude, and Practices (KAP) questionnaire for caregivers
3. Observation notes from field visits

DURATION OF STUDY: April 2025 - June 2025. Visits to the field to be done in the month of May.

SAMPLE SIZE: (to be determined when on field)

SAMPLING TECHNIQUE

Purposive sampling for health workers; convenience sampling for caregivers

DATA COLLECTION PROCEDURE

Data will be collected through in-depth interviews conducted in Hindi and translated into English for analysis. Notes and audio recordings will be transcribed, and confidentiality maintained. Field observations and contextual notes will also be compiled.

OPERATIONAL DEFINITIONS:

1. **Immunisation Wheel:** A laminated, plastic disc designed and distributed by the state health authorities as a visual Behaviour Change Communication (BCC) tool to calculate due dates for childhood vaccines. It is intended for use by frontline health workers (ASHAs and ANMs) during counselling sessions, home visits, and immunisation sessions.
2. **Routine Immunisation (RI):** A component of the Universal Immunisation Programme (UIP) in India that delivers vaccines according to the national schedule at regular fixed sites and outreach sessions to ensure full coverage for all eligible children under five years of age.
3. **Dropout:** A child who receives an initial vaccine dose (e.g., BCG or Pentavalent-1) but fails to complete the full course of the scheduled vaccines (e.g., Pentavalent-3 or Measles-Rubella).
4. **Frontline Health Workers (FLWs):** Community-level public health providers, including ASHAs (Accredited Social Health Activists) and ANMs (Auxiliary Nurse Midwives), who deliver and support maternal, newborn, and child health services, including immunisation counselling, mobilisation, and administration.

5. **ASHAs (Accredited Social Health Activists):** Community-based female health workers instituted under the National Rural Health Mission to act as a link between the health system and the community. In immunisation, they mobilise caregivers, track due lists, and engage in counselling.
6. **ANMs (Auxiliary Nurse Midwives):** Trained paramedical staff stationed at health sub-centres and PHCs who are responsible for administering vaccines, maintaining cold chain protocols, and conducting immunisation sessions.
7. **Caregivers:** Parents or primary family members responsible for making health decisions for children under two years of age. In this study, caregivers are interviewed to assess their understanding, experience, and response to immunisation messages and services.
8. **Behaviour Change Communication (BCC):** A strategic communication approach aimed at promoting health-enhancing behaviours through visual, interpersonal, and participatory methods. In this context, the Immunisation Wheel serves as a BCC tool to improve understanding and adherence to vaccination schedules.
9. **Full Immunisation Coverage (FIC):** Proportion of children aged 12–23 months who have received all scheduled vaccines under the UIP, including BCG, 3 doses of DPT/Pentavalent, OPV, and 1 dose of Measles-Rubella by their first birthday.

7. DATA ANALYSIS PLAN

Thematic analysis will be used for qualitative data. Transcripts will be coded using both inductive and deductive techniques. Microsoft Excel will be used for creating the thematic matrix, however the analysis will be done manually. Data will be organised into themes and sub-themes to draw interpretations based on the study objectives.

8. ETHICAL CONSIDERATIONS

Informed verbal and written consent will be obtained from all participants. Identities will be anonymised during transcription and data reporting. The study will ensure data security and uphold privacy in line with research ethics norms.

9. IMPLICATIONS OF RESEARCH

The findings will offer valuable insights for government stakeholders and programme managers on the use of low-cost behaviour change tools in improving routine immunisation delivery. It will also help inform decisions on potential scale-up and necessary design or

process improvements, aligning with the broader goals of reducing vaccine dropout and enhancing caregiver engagement. This study will contribute to understanding how simple visual tools like the Immunisation Wheel can be operationalised to enhance immunisation outcomes in low-resource settings. It will also offer actionable recommendations for improving training, communication, and monitoring systems in immunisation programs.

10. REFERENCES

1. Rachlin A, Adegoke OJ, Bohara R, Edson Rwagasore, Sibomana H, Kabeja A, et al. Building Data Triangulation Capacity for Routine Immunization and Vaccine Preventable Disease Surveillance Programs to Identify Immunization Coverage Inequities. *Vaccines* [Internet]. 2024 Jun 11 [cited 2025 Mar 29];12(6):646–6.
2. Dhawan V, Chakraborty AB, Dhandore S, Dhalaria P, Agarwal D, Singh AK. Mission Indradhanush and Intensified Mission Indradhanush—Success Story of India’s Universal Immunization Program and the Role of *Mann Ki Baat* in Bridging the Immunization Gap. *Indian J Community Med.* 2023;48(6):823–827.
3. Pradhan SK. Time to Revamp the Universal Immunization Program in India. *Indian J Public Health.* 2010;54(2):71–74.
4. Saikia N, Kumar K, Bora JK, Mondal S, Phad S, Agarwal S. What Determines the District-Level Disparities in Immunization Coverage in India: Findings from Five Rounds of the National Family Health Survey. *Vaccines (Basel).* 2023;11(4):851.