STRENGTHENING IMMUNIZATION SYSTEMS: EVALUATING ANMOL 2.0 AND DIGITAL HEALTH INTEGRATION IN INDIA

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by

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Under the Supervision and Guidance of

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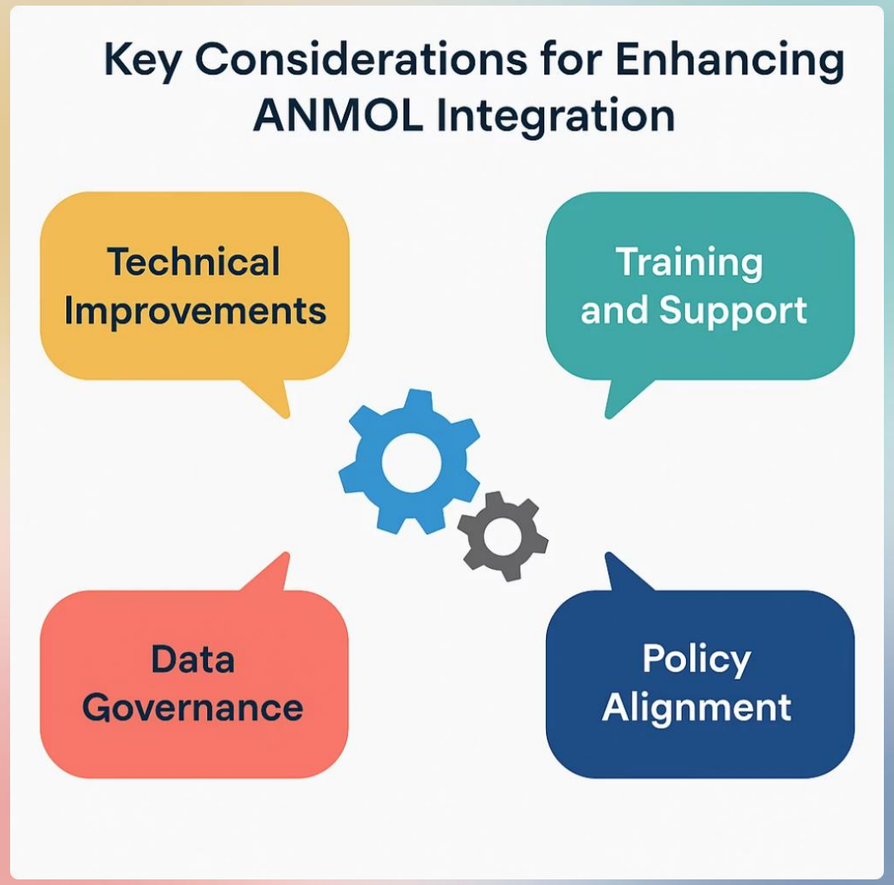
Strengthening Immunisation Systems in India

This dissertation evaluates ANMOL 2.0 and digital health integration in India, submitted to The IIHMR University, Jaipur, for the partial fulfilment of the MBA in Pharmaceutical Management by Sanad Paliwal, under the guidance of Dr. Rahul Sharma, 2025.

The study focuses on how ANMOL 2.0, a tablet-based mHealth platform, digitises immunization data for Auxiliary Nurse Midwives (ANMs) under the National Health Mission (NHM). It addresses operational inefficiencies due to fragmented data systems and redundant record-keeping in India's Universal Immunisation Programme (UIP).



Understanding ANMOL 2.0 and Its Objectives

Background

India's immunization landscape has evolved under the Universal Immunisation Programme (UIP). However, fragmented data systems and redundant record-keeping have limited effectiveness. The National Health Mission (NHM) introduced ANMOL 2.0, a tablet-based mHealth platform for Auxiliary Nurse Midwives (ANMs), to digitise immunization data.

Objective

This study evaluates ANMOL 2.0's support for immunization service delivery and its integration within India’s digital health ecosystem. It examines challenges faced by users, such as ABHA ID linkage, data syncing, and system usability, aiming to enhance immunization outcomes through digital tools.

ABHA ID: The Vision for Unified Health Records

What is ABHA ID?

ABHA (Ayushman Bharat Health Account) is a 14-digit unique digital health ID under the Ayushman Bharat Digital Mission (ABDM). It's like an Aadhaar for health records, ensuring secure, lifetime health data.

One Patient, One Record

Linking ABHA ensures a child’s immunization history, antenatal care, and future health data are stored under one unified profile, eliminating duplication and fragmentation.

Improved Continuity of Care

If a family migrates, the child’s records remain digitally available anywhere in India, ensuring seamless healthcare access.

Reduced Fraud and Errors

ABHA uniquely identifies each beneficiary, preventing double entries or identity mismatches, enhancing data integrity.

Methodology: A Mixed-Methods Approach

Study Setting

Conducted across five health blocks in Madhya Pradesh: Burhanpur, Shahpur, Nimbola, Nepanagar, and Borgaon, chosen for diverse geographic and infrastructural representation.

Study Population & Sampling

30 purposively selected stakeholders: 20 ANMs, 5 MOICs, and 5 DEOs, ensuring hands-on experience with ANMOL 2.0.

Data Collection

Structured questionnaires for quantitative data, semi-structured interviews for qualitative insights, and field observations for real-time usage assessment.

Data Analysis

Quantitative data analysed descriptively using Microsoft Excel; qualitative responses thematically coded using inductive techniques.

The Crucial Role of ASHA Workers

Community Mobilisation

ASHAs are the first point of contact, identifying beneficiaries, educating families, and motivating parents for vaccination, ensuring turnout at immunization days.

Beneficiary Identification

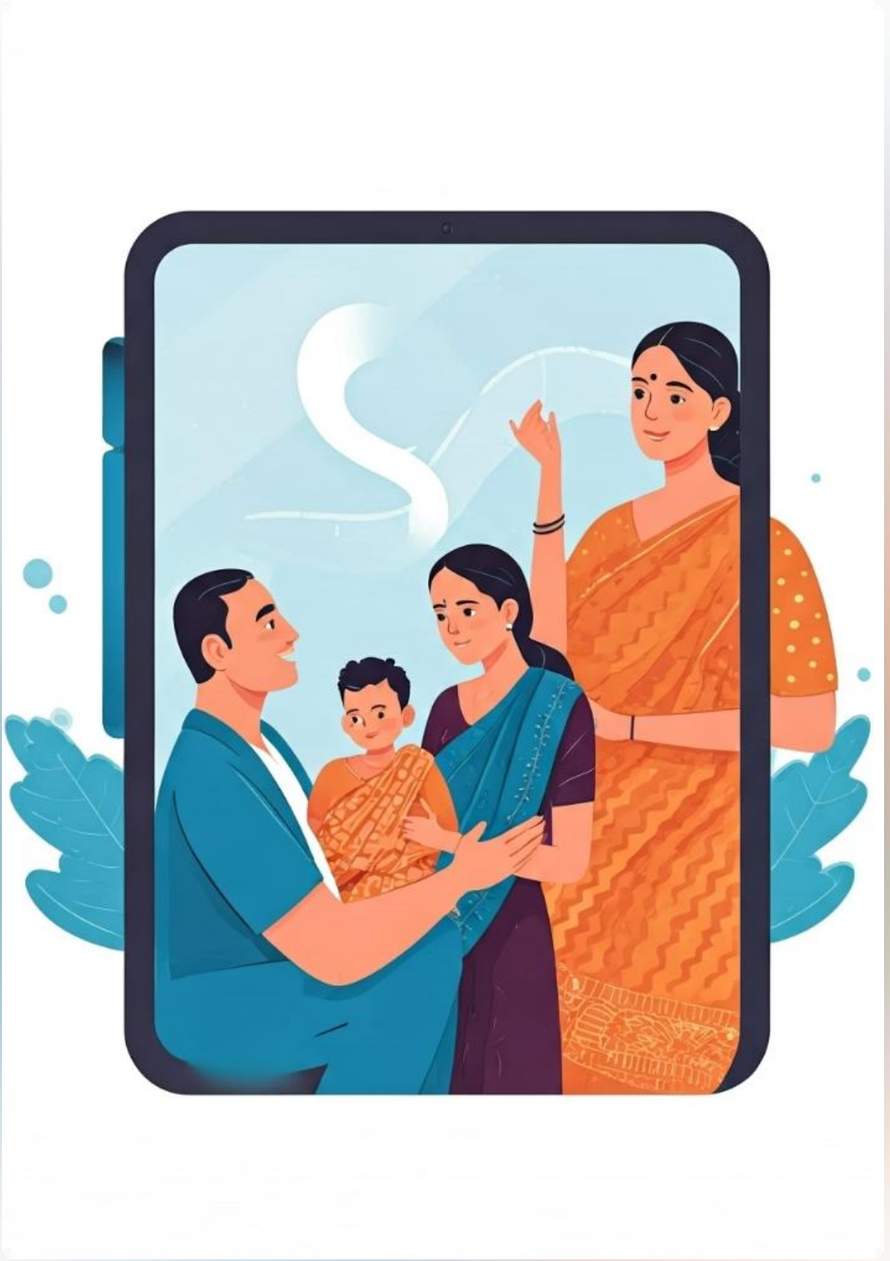
They maintain eligible couple registers and due lists, which ANMs cross-check and enter into ANMOL, improving accuracy and timely digital entries.

Digital Data Support

ASHAs provide field data to ANMs that feeds into the app. Future updates could integrate them into simplified mobile workflows, like scanning ABHA QR codes.

Bridging Digital Divide

In areas with limited digital literacy, ASHAs help translate instructions, promote ABHA ID creation, and assist families in engaging with mHealth tools.



Universal Immunisation Programme (UIP): Vaccine Schedule

At Birth	BCG, OPV-0, Hepatitis B-0
6 Weeks	DPT-1, OPV-1, Hepatitis B-1, Hib-1, IPV-1
10 Weeks	DPT-2, OPV-2, Hepatitis B-2, Hib-2, IPV-2
14 Weeks	DPT-3, OPV-3, Hepatitis B-3, Hib-3, IPV-3
9-12 Months	MR vaccine, JE (endemic areas)
16-24 Months	DPT booster, OPV booster, MR second dose, JE (endemic areas)
5-6 Years	DPT second booster
10 and 16 Years	Tetanus and adult diphtheria (Td) vaccine
Pregnant Women	Two doses of Td vaccine

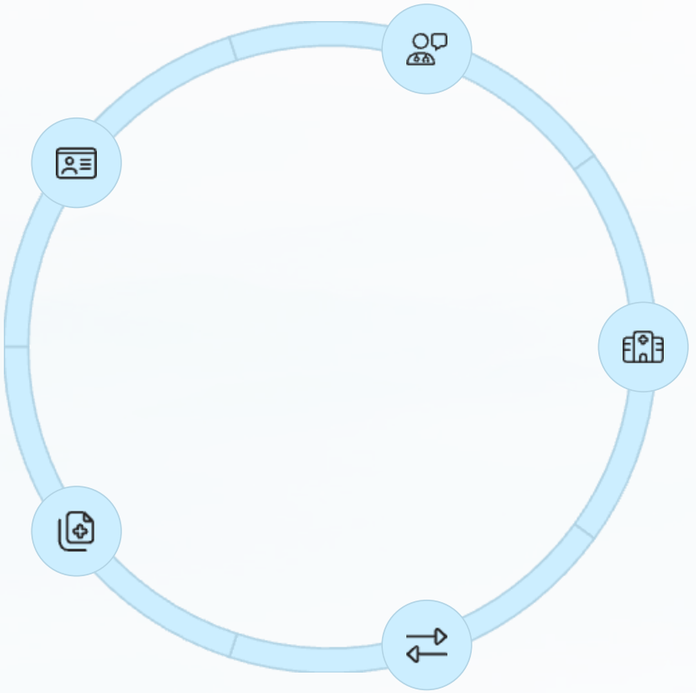
India's Digital Health Ecosystem: ABDM's Vision

ABHA

Ayushman Bharat Health Account - A unique health ID for individuals to securely store and share their digital medical records.

PHR

Personal Health Records - A system allowing individuals to securely manage and access their personal health records.



HPR

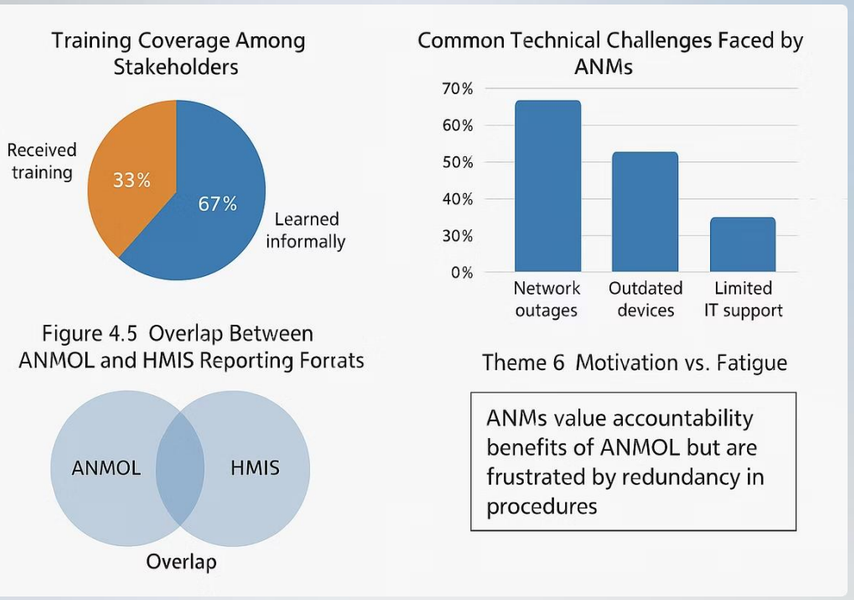
Healthcare Professionals Registry - A comprehensive national registry of registered healthcare professionals, ensuring transparency.

HFR

Healthcare Facilities Registry - A digital registry of healthcare facilities for improved planning and optimized resource allocation.

UHI

Unified Health Interface - An open network enabling interoperable digital health services, similar to the UPI in banking.



Key Findings: Usage, Duplication, and Challenges

High Usage, Persistent Duplication

85% of ANMs used ANMOL 2.0 daily, but 78% still reported duplicative entry into HMIS and paper formats, indicating a lack of seamless integration.

Offline Syncing Issues

60% faced offline syncing problems, and 25% cited app crashes, hindering real-time data updates and increasing manual redundancy.

ABHA ID Underutilisation

80% were aware of ABHA ID, but only 20% actively used it for linking records, highlighting a gap between awareness and practical implementation.

Training and Device Gaps

Training gaps and outdated devices were cited as major barriers to optimal use, with 67% receiving formal training and 40% using laggy tablets.

Policy and Practice Implications for ANMOL 2.0

Integrate with National Dashboards

Seamlessly connect ANMOL with HMIS and ABDM to eliminate data redundancy and improve real-time reporting.

Scale ABHA Integration

Implement in-app prompts, auto-fill features, and supervisor dashboards to encourage active ABHA ID linkage during registration.

Enhance Digital Literacy

Provide quarterly refresher training and region-specific tutorials to frontline health workers, improving their confidence and proficiency.

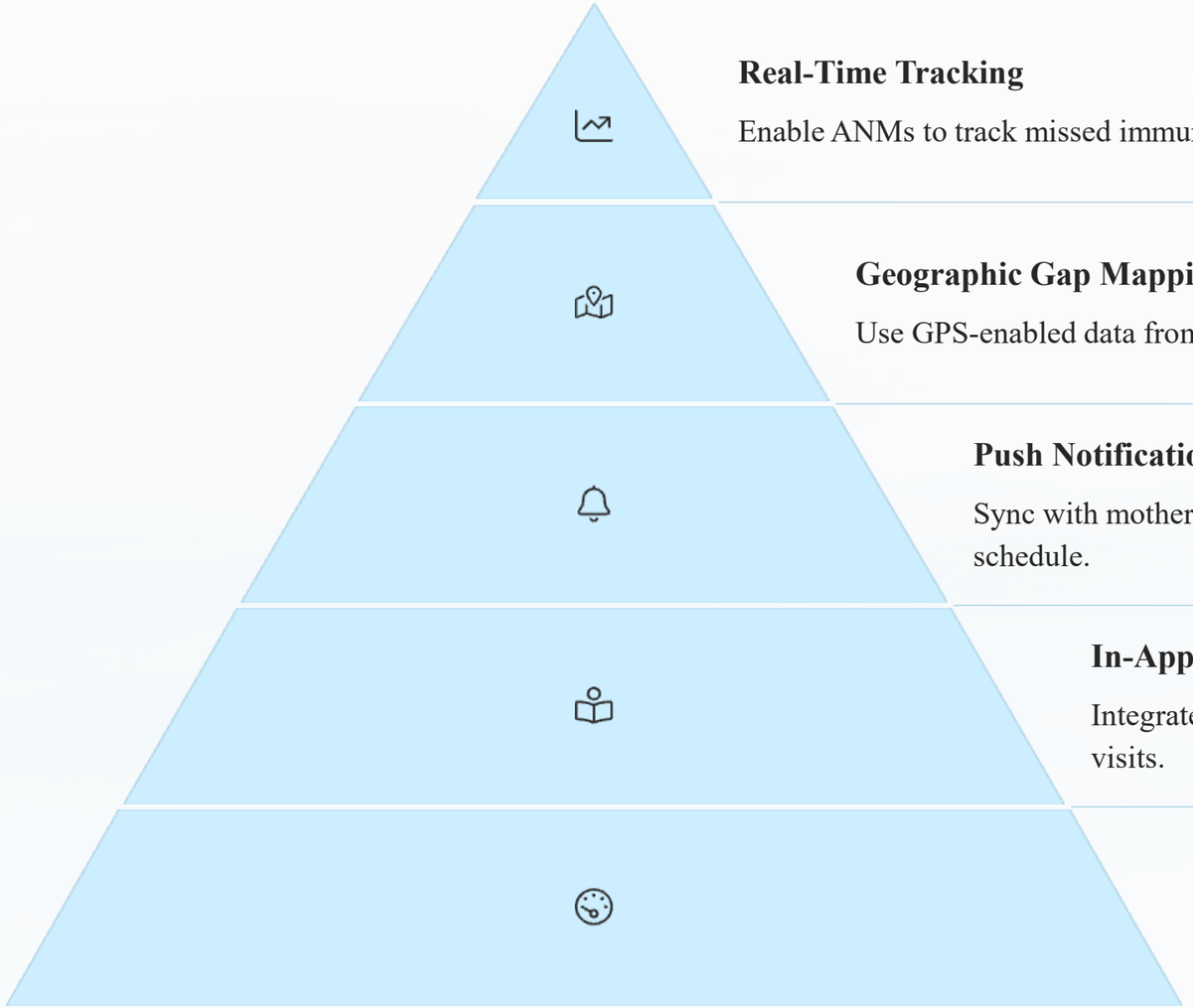
Upgrade Offline Functionality

Improve auto-sync modules and app optimisation for low-connectivity areas to ensure uninterrupted data entry and reduce syncing issues.

Incorporate User Feedback

Prioritise user-centric design by integrating feedback into app iterations, aligning with Digital India’s human-centred design philosophy.

Conclusion and Recommendations



Real-Time Tracking

Enable ANMs to track missed immunisations and auto-generate follow-up alerts using ANMOL’s beneficiary database.

Geographic Gap Mapping

Use GPS-enabled data from ANMOL to highlight low-coverage zones and help plan targeted outreach sessions.

Push Notifications

Sync with mothers’ mobile numbers to send automated vaccine reminders based on the immunization schedule.

In-App IEC Content

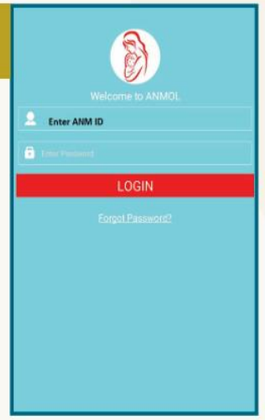
Integrate audio-visual immunization education to help ANMs counsel hesitant families during home visits.

Dropout Dashboards

Deploy a dashboard within ANMOL to allow health workers and MOICs to monitor dropout rates by vaccine.

ANMOL 2.0 has transformative potential for digitising immunization services and improving health intelligence. Its success hinges on resolving offline issues, achieving seamless integration, and empowering end-users through ongoing training and user-friendly design. Sustained investments in interoperability standards and local digital infrastructure are crucial for its long-term impact.

Step 1
Login with ANM ID and password.



Step 2
Click on "Menu" link.

Step 3
Click on "Change Password" link.

Step 4
A new window will pop up. Enter the current password, New Password & Confirm Password and then Submit.

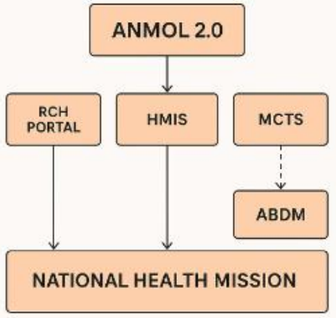
Do's and Don'ts

Do's

- Update data on daily basis.
- Work in good internet connectivity.
- Sync all pending records one by one and make sure zero pendency on daily basis.
- Maintain the complete entries on RCH register as well as in ANMOL application.
- Keep sufficient storage in the tab to run smoothly.

Don'ts

- Don't be inactive for a longer period of time on ANMOL MP application.
- Don't install too many applications in the tablet/ mobile.
- Don't update/ uninstall the application if any entry is pending (i.e. not synced).
- Don't update records with incorrect information like wrong bank details, Samagra ID, wrong name etc.
- Don't enter duplicate records in ANMOL MP, use search option before making an entry to avoid duplicacy of records.



Thank You