A Comparative Study of Full Immunization Coverage Across High- and Low-Performing UPHCs in District Patna Using HMIS/UWIN Data and Field Observation

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Background and Context

Despite efforts under India's Universal Immunization Programme (UIP), full immunization coverage in urban areas like Patna remains uneven, especially among marginalized populations. Challenges such as high population density, migration, slum settlements, and weak beneficiary tracking affect service delivery. Digital platforms like U-WIN and HMIS aim to improve monitoring, yet significant disparities persist—some UPHCs report over 90% coverage, while others remain below 35%.

This study compares three high-performing and three low-performing UPHCs in Patna using HMIS/UWIN data and field observations. It aims to identify key barriers and enablers in service delivery and provide actionable recommendations for improving equitable urban immunization.

Literature Review

- **World Health Organization (2024)** emphasizes the importance of equitable access and routine service delivery in urban zones, which remain under-prioritized in national programs.

- **Gupta et al. (2022)** identifies systemic barriers in rural immunization but also parallels similar issues in underserved urban areas.

- **Agarwal et al. (2005)** highlights how urban slums suffer from low awareness and poor frontline worker engagement—factors crucial in this study.

- **Sharma et al. (2007)** demonstrates socio-demographic determinants such as maternal education and access to ANC services as key influences on full immunization.

- **Nath et al. (2003)** discusses the complexity of immunization in urban slums due to migration, transient populations, and logistical constraints.

Rationale

- Despite years of UIP implementation, full immunization coverage (FIC) remains below targets in several urban pockets of Patna. Routine health management systems like HMIS and UWIN capture data but don’t always reflect ground realities. To address these disparities, a facility-based comparative study is essential to:
- Identify the service delivery gaps across UPHCs.
- Understand which operational or human resource variables contribute to low performance.
- Design localized solutions by learning from better-performing counterparts.

Problem Statement

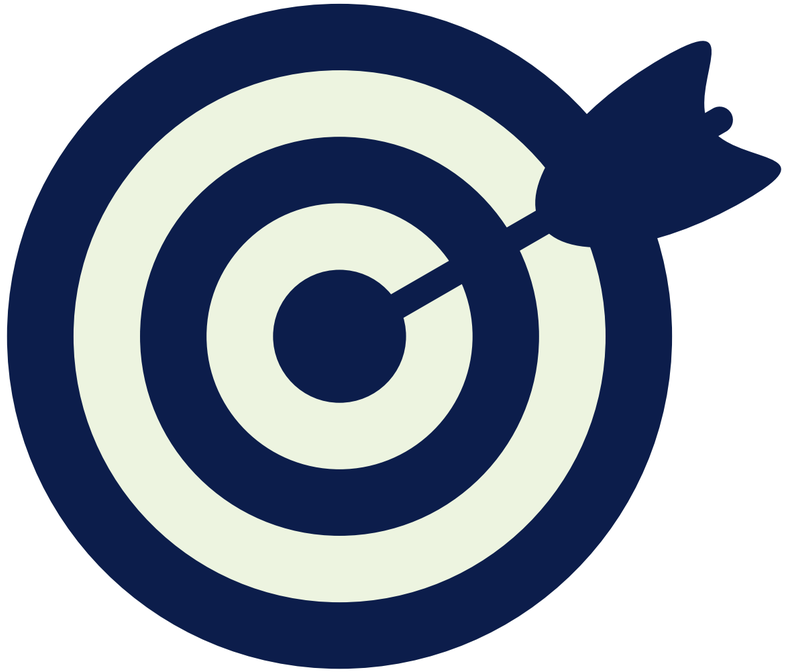
Significant variations in immunization coverage across UPHCs in Patna.

Limited understanding of operational and systemic causes behind this variation. Need to assess field-level factors influencing immunization performance.

Research Question

How do high-performing and low-performing UPHCs in urban District Patna differ in full immunization coverage, service delivery quality, and operational readiness, based on HMIS/UWIN data and facility-level observations?

Objectives



- To analyse the full immunization Coverage among UPHCs in district Patna City.
- To understand the reasons for low coverage of full immunization coverage?

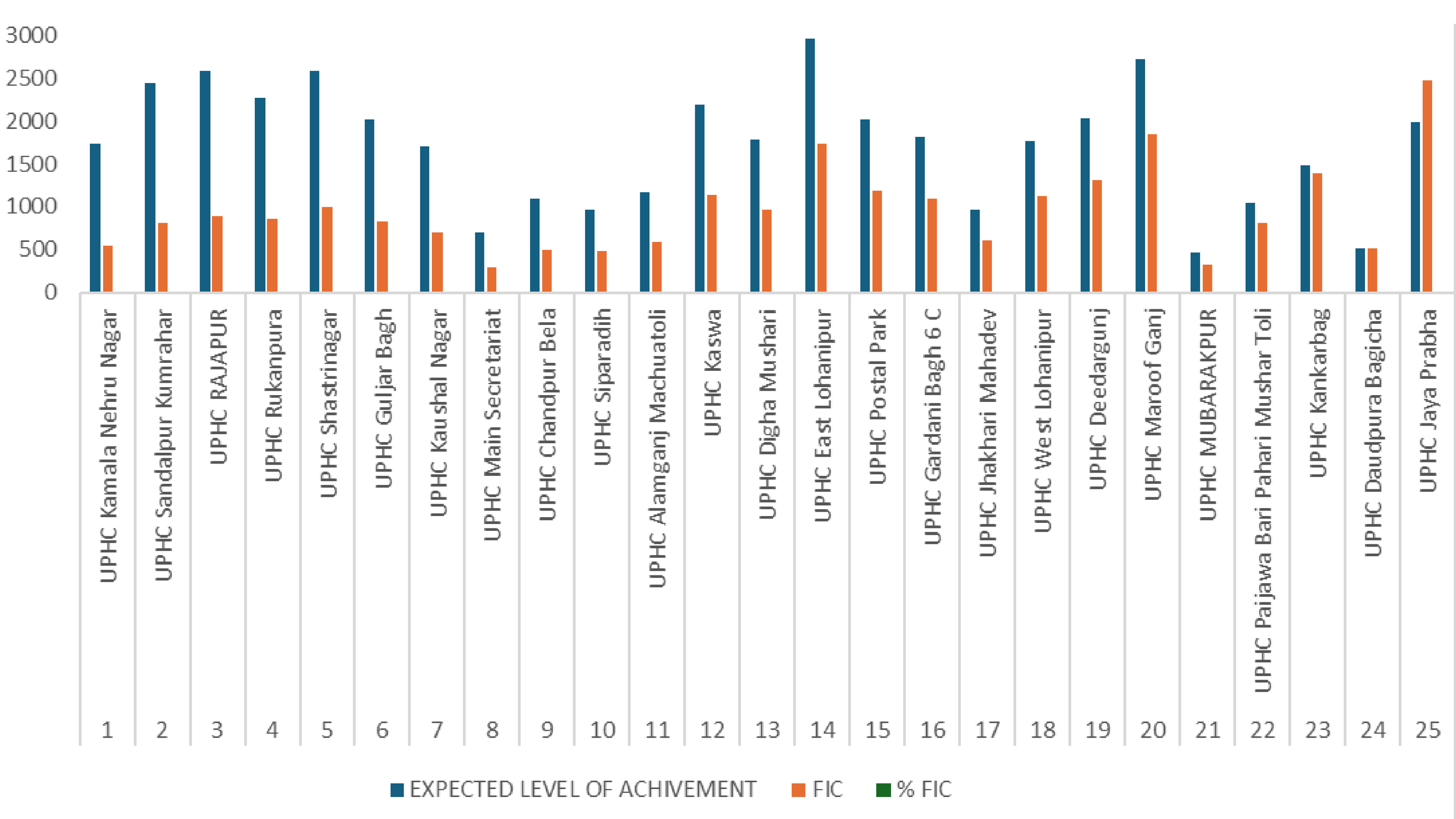
Methodology

Study Design	Mixed method design, using secondary data from HMIS/UWIN
Study Duration	March 2025 to June 2025 (3 months)
Data Collection period	• March 17– March 31, 2025 – Conducted literature review, and selected UPHCs • April 1 – May 15, 2025 – Extracted HMIS/UWIN data and conducted field visits at selected UPHCs • May 16 – June 10, 2025 – Cleaned data, performed analysis, and completed report writing and presentation
Sampling Technique	Census of all UPHCs in Patna city
Study Population	6 ANMs and Secondary data (HMIS)

Results

SN	NAME OF UPHC	EXPECTED LEVEL OF ACHIVEMENT	FIC	% FIC
1	UPHC Kamala Nehru Nagar	1736	538	31%
2	UPHC Sandalpur Kumrahar	2450	815	33%
3	UPHC RAJAPUR	2590	893	34%
4	UPHC Rukanpura	2275	855	38%
5	UPHC Shastrinagar	2579	1002	39%
6	UPHC Guljar Bagh	2022	818	40%
7	UPHC Kaushal Nagar	1701	701	41%
8	UPHC Main Secretariat	693	299	43%
9	UPHC Chandpur Bela	1086	496	46%
10	UPHC Siparadih	960	479	50%
11	UPHC Alamganj Machuatoli	1173	586	50%
12	UPHC Kaswa	2186	1134	52%
13	UPHC Digha Mushari	1783	971	54%

SN	NAME OF UPHC	EXPECTED LEVEL OF	FIC	% FIC
14	UPHC East Lohanipur	2968	1731	58%
15	UPHC Postal Park	2021	1192	59%
16	UPHC Gardani Bagh 6 C	1815	1094	60%
17	UPHC Jhakhari Mahadev	960	601	63%
18	UPHC West Lohanipur	1763	1130	64%
19	UPHC Deedargunj	2034	1319	65%
20	UPHC Maroof Ganj	2726	1841	68%
21	UPHC MUBARAKPUR	468	330	71%
22	UPHC Paijawa Bari Pahari Mushar Toli	1038	804	77%
23	UPHC Kankarbag	1492	1389	93%
24	UPHC Daudpura Bagicha	516	504	98%
25	UPHC Jaya Prabha	1990	2479	125%
	Grand Total	43025	24001	56%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UPHC Kamala Nehru Nagar
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UPHC Guljar Bagh
UPHC Kaushal Nagar
UPHC Main Secretariat
UPHC Chandpur Bela
UPHC Siparadih
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EXPECTED LEVEL OF ACHIVEMENT
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% FIC

Summary of ANM Interview Findings

TRAINING & KNOWLEDGE

Indicator	High Performing (n=6)	Low Performing (n=6)
Trained in last 12 months	100% (6/6)	66.7% (4/6)
Understands FIC	100%	83.3% (5/6)
Vaccine schedule known	Fully: 6/6	Fully: 3/6
Can explain dropout tracking	100%	66.70%

SESSION PLANNING & TRACKING

Observation	High Performing	Low Performing
Uses due list	100%	83.30%
Coordinates with ASHA/AWW	83.3% Both Active	50% (Only ASHA or None)
Updates regularly	Weekly/Daily	Monthly/Rarely

VACCINE HANDLING & LOGISTICS

Aspect	Observation
Vaccine Placement	All 12 ANMs: *In between ice packs*
Cold Chain Practice (placement only)	Uniform across all sites
Shortages Reported	More frequent in low-performing UPHCs

Summary of ANM Interview Findings

COMMUNICATION & INTERACTION

Indicator	High Performing	Low Performing
4 Key Messages Provided	All: 6/6	All: 2/6
Caregiver queries addressed well	Yes: 100%	Yes: 66.7%
IEC	Yes: 83.3%	Yes: 33.3%

ANC SERVICE INTEGRATION

ANC Services Provided	High Performing	Low Performing
Yes (any ANC)	100%	66.70%
Types (TT, weight, etc.)	Mostly TT & counseling	Less structured

AEFI AWARENESS & REPORTING

AEFI Awareness	High Performing	Low Performing
Aware of AEFI	100%	83.30%
Reporting System	Form-based: 4	Verbal only/None: 3

Summary of ANM Interview Findings

CHALLENGES FACED

Common Issues in High-Performing UPHCs	Common Issues in Low-Performing UPHCs
- Supply delays	- Lack of space
- Limited ANM count	- No support from ASHA/AWW
- Poor mobilization in new wards	- Irregular supply and absenteeism

Thematic Analysis – ANM Interviews

Theme	Key Insight
1. Training Coverage	All ANMs in high-performing UPHCs were trained in the last 12 months, while only 4 out of 6 ANMs in low-performing UPHCs had recent training.
2. Knowledge of FIC & Schedule	High-performing ANMs had complete knowledge of vaccine schedules and dropout tracking; in low-performing areas, 50% struggled with explaining all vaccine doses.
3. Due List Use	100% of high-performing ANMs used and updated due lists regularly; low-performing ANMs often updated monthly or rarely.
4. ASHA/AWW Coordination	Strong coordination in high-performing UPHCs (5/6), whereas low-performing UPHCs lacked support from AWW or ASHA in 50% cases.
5. Communication with Caregivers	All high-performing ANMs provided the 4 key messages clearly; only 2 of 6 in low-performing UPHCs did so.
6. Caregiver Query Handling	High-performing ANMs responded respectfully and confidently to caregiver concerns; low-performing ANMs were inconsistent or hesitant.
7. Use of IEC Materials	83.3% of high-performing ANMs used visual/job aids; only 33.3% did so in low-performing settings.
8. ANC Service Integration	ANC services like TT, counseling, and weight checks were integrated in all high-performing UPHCs, but only partially in low-performing ones.

REASONS

Area	Key Observations
Full Immunization Coverage (FIC)Full Immunization Coverage (FIC) Varied Widely Across UPHCsVaried Widely Across UPH	• The FIC ranged from as high as 125% (Jaya Prabha UPHC) to as low as 31% (Kamla Nehru Nagar UPHC), indicating inconsistency in outreach, registration, or over-reporting in some units. • Out of 25 UPHCs, only 8 met or exceeded 90% FIC, while over 10 UPHCs fell below 70%, requiring strategic interventions.
ANM Capacity and Knowledge Strongly Correlate with Coverage Levels	• In high-performing UPHCs (FIC > 90%), all ANMs were trained in the last 12 months, demonstrated complete knowledge of vaccine schedules and full immunization definitions. • In low-performing UPHCs (FIC < 40%), only 66% ANMs were trained, and many had partial or incorrect knowledge, particularly in dropout tracking.
ANM Capacity and Knowledge Strongly Correlate with Coverage Levels	• High-performing UPHCs showed strong ASHA/AWW coordination (83%) and regularly updated due lists. • In contrast, low-performing UPHCs had poor mobilization, irregular register updates, and some ANMs were working without ASHA support.

REASONS

Area	Key Obersvation
Gaps in Communication and Counseling Lower Community Trust	• ANMs in high-performing units consistently delivered the 4 key vaccination messages and used IEC materials, contributing to higher caregiver awareness and compliance. • In low-performing areas, only 2 of 6 ANMs gave complete key messages, and IEC/job aid use was very low (33%), leading to misinformation or vaccine hesitancy.
Gaps in Communication and Counseling Lower Community Trust	• Frequent vaccine stock-outs, limited AEFI reporting, and absence of integrated ANC services were more common in low-performing UPHCs. • These issues reduce caregiver confidence, disrupt continuity of care, and diminish immunization uptake.

Conclusion

- Wide disparities in Full Immunization Coverage (FIC) observed across UPHCs (e.g., 125% vs. 31%) reflect unequal service delivery and monitoring.
- High-performing UPHCs had better-trained ANMs, strong ASHA coordination, and consistent session planning practices.
- Low-performing UPHCs struggled with weak ANM knowledge, poor dropout tracking, and irregular beneficiary list updates.
- Communication gaps (e.g., missing 4 key messages, low use of IEC) limited caregiver awareness in underperforming areas.
- Systemic issues like supply delays, poor AEFI reporting, and weak ANC integration further impacted low coverage.

RECOMENDATION

1. **Regular ANM Training** – Strengthen knowledge on vaccines, AEFI(Adverse Event Following Immunization) and dropout tracking.
2. **Improve Community Mobilization** – Enhance coordination with ASHAs/AWWs in low-performing areas.
3. **Strengthen Session Planning** – Ensure updated due lists and proper beneficiary tracking.
4. **Standardize Communication** – Reinforce 4 key messages and provide IEC/job aids to ANMs.
5. **Resolve Logistics Issues** – Address vaccine supply delays and integrate basic ANC services.

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THANK YOU

For your attention