



Optimizing Newborn Vaccination Retention: Trends and Strategies at a Maternity & Child Hospital

An Analysis at Cloudnine Hospital – HRBR Unit, Bangalore

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Introduction

- Vaccination from the 6th week to the 6th month is essential for infant protection.
- Includes diphtheria, tetanus, pertussis, polio, hepatitis B, and rotavirus, among others.
- High retention rates are crucial for building lasting immunity and preventing outbreaks.

Research Questions

1. What are the trends in vaccination retention rates for newborns in their first six months of life?
2. What factors influence vaccination retention in the hospital?
3. What strategic interventions can be implemented to improve vaccination retention rates?



Research Objectives

Aim: To analyze trends in vaccination retention rates and identify factors influencing non-retention among newborns.

Objectives:

- Track Monthly Vaccination Retention Rates.
- To identify Factors Influencing Retention Rates
- Provide Recommendations to Improve Vaccination Retention.

DMAIC Approach:

Define

- **Problem Statement:** Low vaccination retention rates at Cloudnine Hospital HRBR Unit.

Measure

- **Data Collection:** quantitative data (retention rates) and qualitative data (follow-up call responses).

Analyze

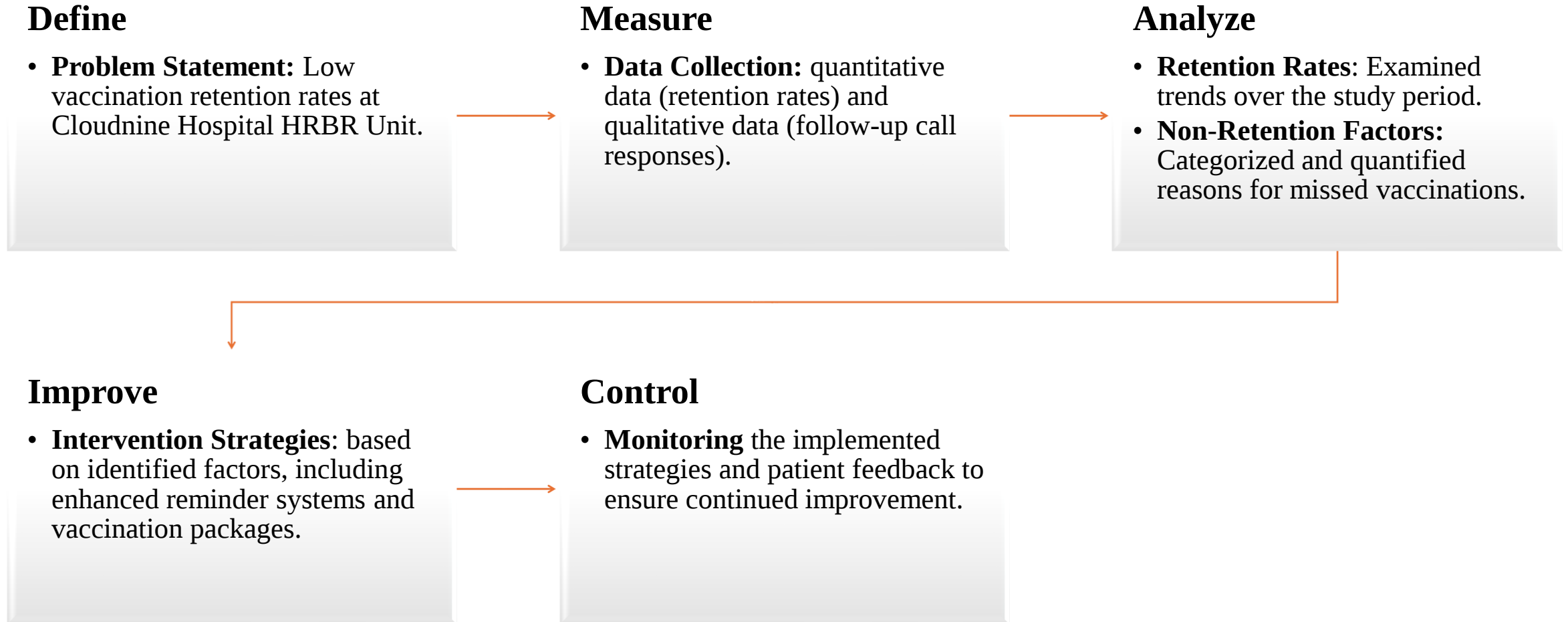
- **Retention Rates:** Examined trends over the study period.
- **Non-Retention Factors:** Categorized and quantified reasons for missed vaccinations.

Improve

- **Intervention Strategies:** based on identified factors, including enhanced reminder systems and vaccination packages.

Control

- **Monitoring** the implemented strategies and patient feedback to ensure continued improvement.



Methodology

Study Design: Observational

Data Collection:

SECONDARY	PRIMARY
Data Source: HMIS • Newborn reports from December 2022 to March 2024. • Pharmacy sales data for vaccines June 2023 to May 2024. Sample Size: 7093 Inclusion : Newborns delivered at the hospital between December 2022 and March 2024. Exclusion: Incomplete records or missing data	Data Source: Telephonic Interview • Patient follow-up calls for those who missed scheduled vaccinations in the month of April 2024. Sample Size: 284 Inclusion: Newborns who were due in April for the standard vaccination schedule. Exclusion: Nonresponsive receivers during telephonic interview

Calculations:

- Calculated vaccinations due from June 2023 to May 2024.
 - ✓ 6th week : DOB + 42 days
 - ✓ 10th week: DOB + 70 days
 - ✓ 14th week: DOB + 98 days
 - ✓ 6th month: DOB + 183 days
- Calculated retention rates for 6th week, 10th week, 14th week, and 6th month vaccination.
 - ✓ Vaccination Retention Rate = $(\text{Number of Vaccinations Administered} / \text{Number of Newborns due for vaccination}) \times 100$

Results



Monthly Vaccination Retention Rates

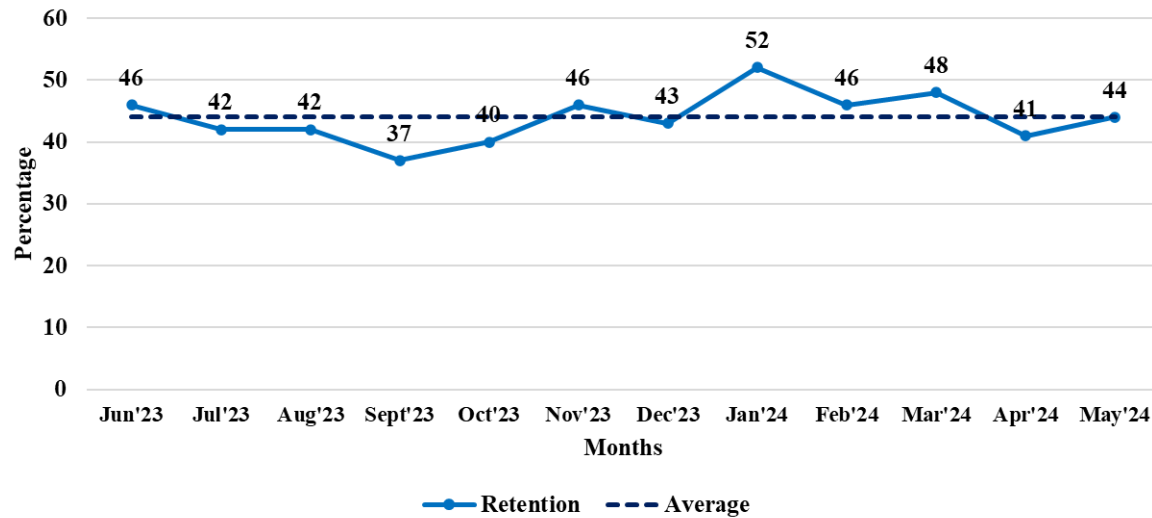
Months	Vaccination Interval	6th Week	10th Week	14th Week	6th Month	Overall
June'23	Scheduled	145	115	146	148	554
	Vaccinated	67	46	51	65	208
	Percentage	46%	40%	35%	44%	38%
July'23	Scheduled	117	152	123	126	518
	Vaccinated	49	74	53	46	222
	Percentage	42%	49%	43%	37%	43%
August'23	Scheduled	137	123	146	151	557
	Vaccinated	57	40	51	62	210
	Percentage	42%	33%	35%	41%	38%
September'23	Scheduled	143	128	118	139	528
	Vaccinated	53	51	35	51	190
	Percentage	37%	40%	30%	37%	36%
October'23	Scheduled	178	151	127	117	573
	Vaccinated	72	48	45	47	212
	Percentage	40%	32%	35%	40%	37%
November'23	Scheduled	162	172	158	141	633
	Vaccinated	74	53	51	43	221
	Percentage	46%	31%	32%	30%	35%

Months	Vaccination Interval	6th Week	10th Week	14th Week	6th Month	Overall
December'23	Scheduled	178	167	166	117	628
	Vaccinated	77	73	53	46	249
	Percentage	43%	44%	32%	39%	40%
January'24	Scheduled	141	183	180	146	650
	Vaccinated	73	83	83	53	292
	Percentage	52%	45%	46%	36%	45%
February'24	Scheduled	136	128	167	149	580
	Vaccinated	63	56	70	53	242
	Percentage	46%	44%	42%	36%	42%
March'24	Scheduled	155	144	139	176	614
	Vaccinated	74	62	58	63	257
	Percentage	48%	43%	42%	36%	42%
April'24	Scheduled	147	151	136	165	599
	Vaccinated	61	55	48	59	223
	Percentage	41%	36%	35%	36%	37%
May'24	Scheduled	159	163	160	177	659
	Vaccinated	70	63	57	73	263
	Percentage	44%	39%	36%	41%	40%

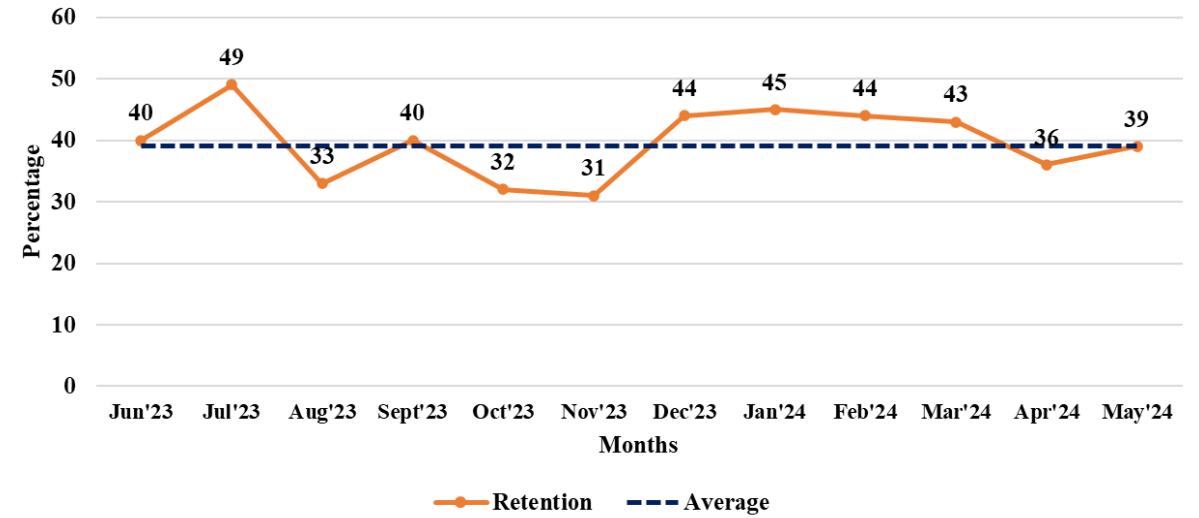
Analysis of Trends

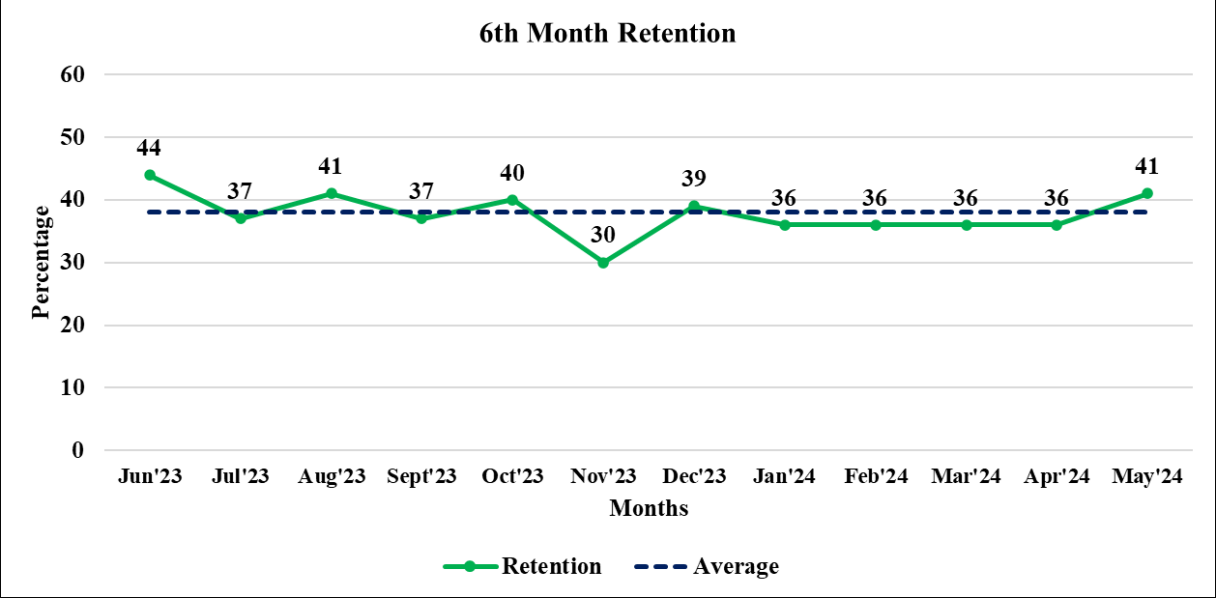
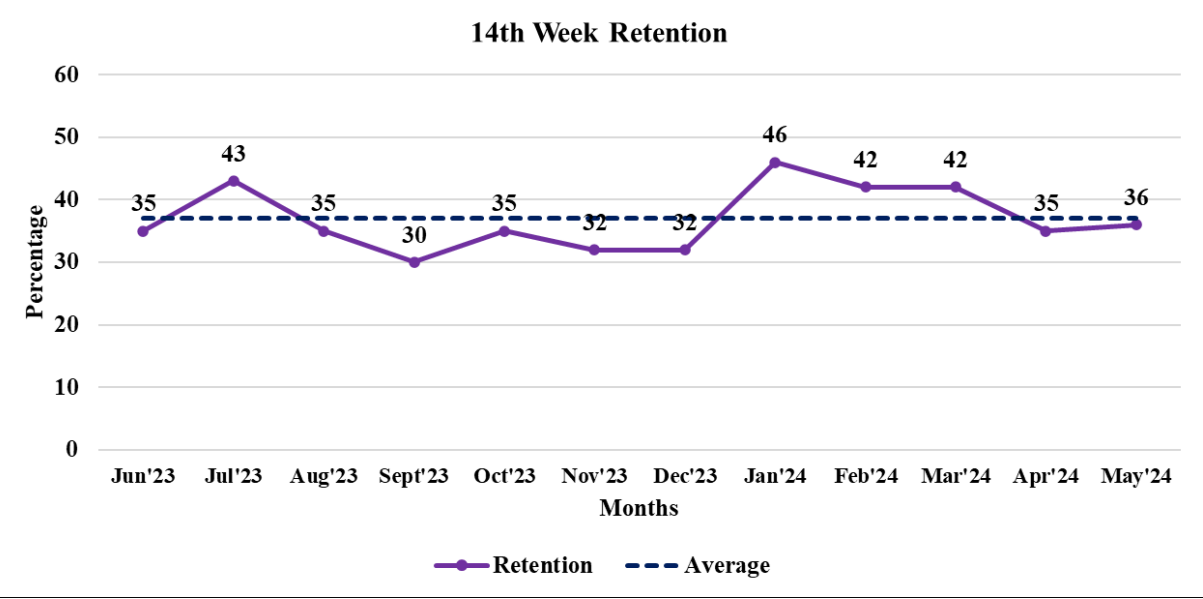


6th Week Retention

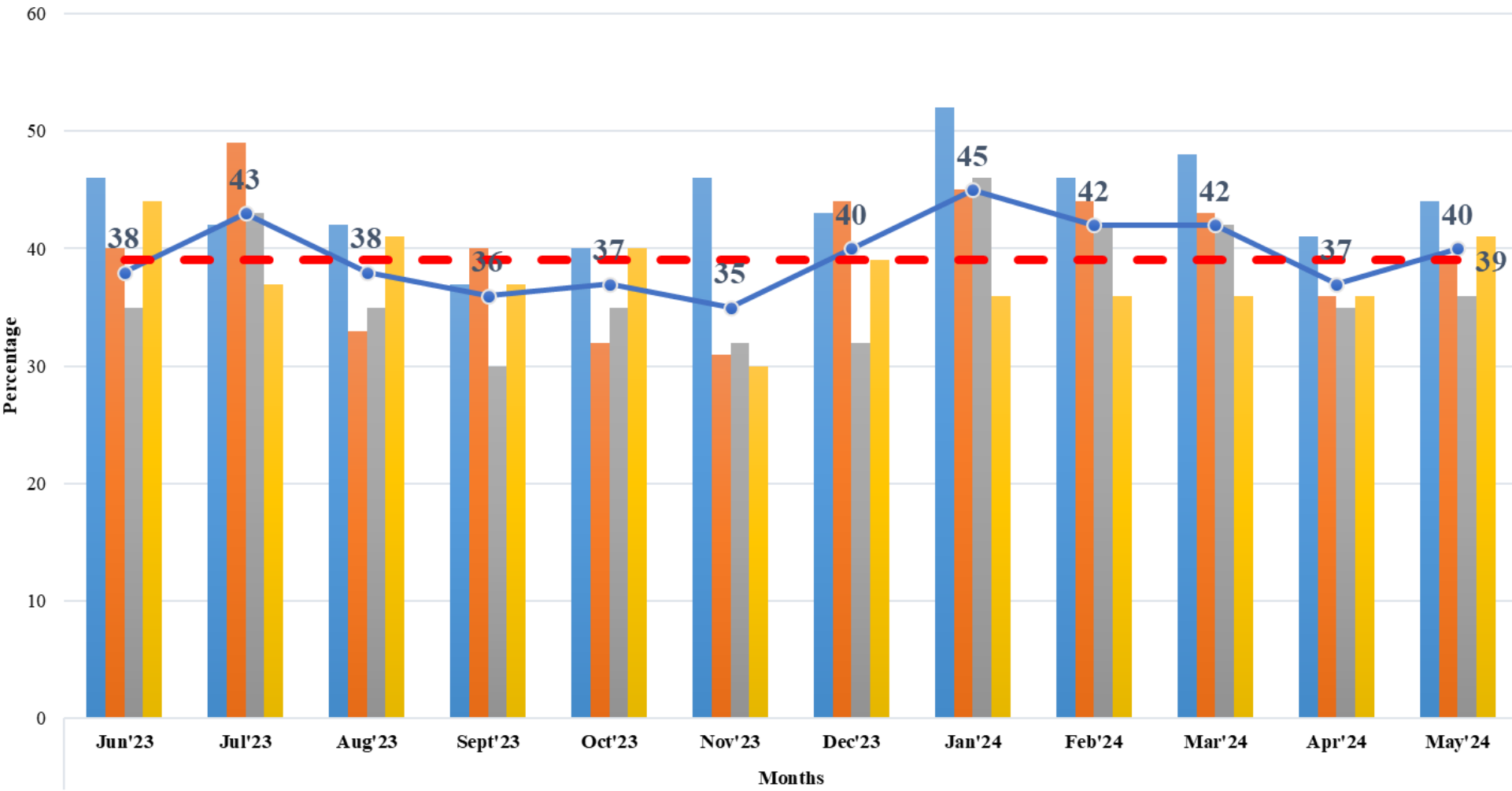


10th Week Retention





Overall Retention



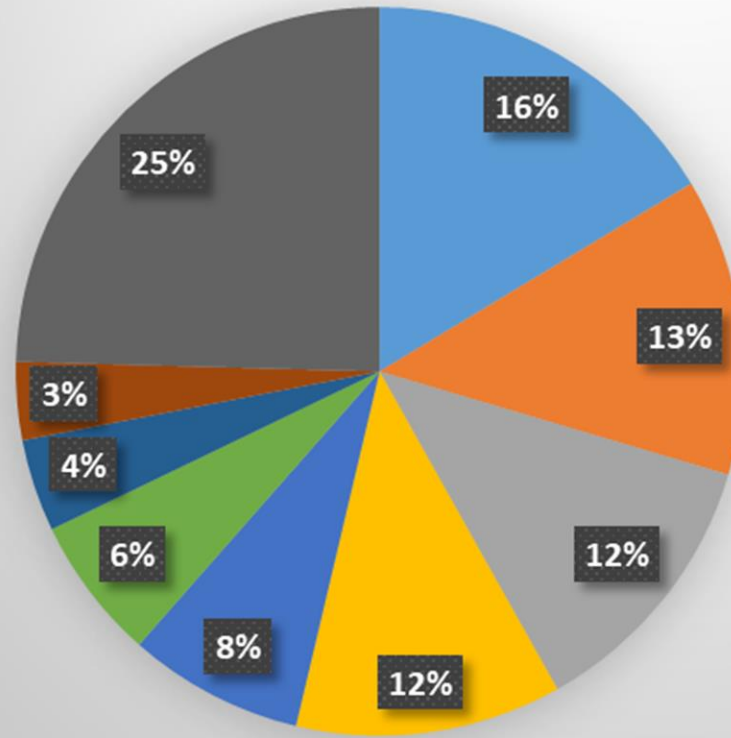
6th Week 10th Week 14th Week 6th Month Overall Target

Factors for Non-Retention:

Sample: 376 (non-vaccinated at hospital for the month of April)

Total Calls Made	376
Reason for No Show	Number of Responders
Native	62
Appointment issues	50
Distance	46
Cost	44
Not aware of home vaccinations	29
Missed Schedule	24
Will get vaccinated at Cloudnine	15
Other issues	13
Non-responsive	92

FACTORS



- Native
- Appointment issues
- Distance
- Cost
- Not aware of home vaccinations
- Missed Schedule
- Will get vaccinated at Cloudnine
- Other issues
- Non-responsive

Discussion

Factors contributing to low retention rates:

- **Hospital Practices:** Gaps in appointment scheduling, reminder systems, and staff engagement.
- **Maternal Travel:** Mothers traveling back from their native to different cities post-delivery affects hospital's newborn vaccination retention.
- **Cost Considerations:** Higher vaccination costs at the hospital lead to seeking more affordable options elsewhere, reducing retention.

Recommendations

- **Vaccination Packages:** Introducing comprehensive vaccination packages that bundle multiple vaccinations together, offering them at a discounted rate.
- **Implementing Reminder Systems:** Establishing automated reminder systems via text messages, emails, or phone calls.
- **Enhanced Accessibility:** Ensuring vaccines are readily available and accessible during all clinic hours, including weekends and holidays, to accommodate working parents and those with busy schedules.
- **Promoting Home Vaccination Services:** Makes it easier for parents to ensure their children receive timely vaccinations without the need to visit the hospital.



Conclusion

- Improving vaccination retention rates at Cloudfine Hospital HRBR Unit enhances hospital revenue and health outcomes.
- Key factors such as appointment scheduling, reminder systems, and cost management were identified and targeted interventions were proposed.
- Continuous monitoring and refinement of these strategies are essential for sustained improvement.

THANK YOU

