Summer Internship at PIRAMAL SWASTHYA, Bihar

(21th April 2024- 21st June 2024)

Essential newborn care practices among mothers of infants aged 0-2 months of age

BY:

Mrs. Rupa Kumari

(PGDM in Health & Hospital Management)

Under guidance from:

Dr. Sukesh Bhardwaj

PGDM (Hospital and Health Management)

2023-2025

International Institute of Health Management Research, New Delhi

NAAC "A" Grade

ACKNOWLEDGEMENT

The internship opportunity I had with **Piramal Swasthya** was a great chance for learning and Professional development. Therefore, I consider myself very fortunate as I was provided with an opportunity to be a part of it. I am also grateful for having a chance to meet so many Wonderful people and professionals who led me through this internship period. Bearing in mind, I am using this opportunity to express my deepest gratitude and special thanks to **Dr. Tanmay Mahapatra (Director, Data and Learning, Piramal Swasthya Management and Research Institute)** who despite being extraordinarily busy with his duties, took time out to hear, guide, and keep me on the correct path and and allowing me to carry out my project at their esteemed organization and extending during the training. I express my deepest thanks to **Rajesh Kumar Dwivedi** for taking part in useful decision & giving necessary advice and guidance and arranged all facilities to make my project easier. I choose this moment to acknowledge their contribution gratefully.

It is my radiant sentiment to place on record my best regards, and deepest sense of gratitude to **Dr. Sutapa Bandyopadhyay Neogi, (Director, IIHMR Delhi), Dr. Sumesh Kumar (Associate Dean Academics and Student Affairs, IIHMR Delhi)**, and my mentor **Dr. Sukesh Bhardwaj (Associate Professor, IIHMR Delhi)** for their careful and precious guidance which were extremely valuable for my study both theoretically and practically.

I perceive this opportunity as a big milestone in my career development. I will strive to use

The gained skills and knowledge in the best possible way and continue to work on their Improvement to attain desired career objectives. Hope to continue cooperation with all of

You in the future.

Sincerely,

Rupa Kumari

PG/23/095

Table of content

1. ACRONYMS/ABBREVIATION

S.no.	Abbreviation	Description
1.	**WHO**	World Health Organisation
2.	**STSC**	Skin to skin care
3.	**THR**	Take home ration
4.	**IBF**	Initiation of Breastfeeding
5.	**RMNCH**	Reproductive, Maternal ,Newborn & Childcare
6.	**IPHS**	Indian Public Health Standards
7.	**ICDS**	Integrated child Development services
8.	**MNH**	Maternal & Newborn Health
9.	**ANC**	Antenatal Checkup
10.	**KMC**	Kangaroo Mother Care

2. ORGANIZATION PROFILE

India has embarked on the journey towards ensuring Universal Health Coverage and Piramal Swasthya is contributing with its experience & expertise of building innovative solutions that impact at scale.

Piramal Swasthya is focused on bridging public healthcare gaps by supplementing and complementing Government of India's vision to meet Universal Health Coverage. Piramal Swasthya is one of the largest not-for-profit organizations in India – in the primary public healthcare space with a focus on Maternal Health, Child and Adolescent Health, Non-communicable Diseases. Piramal Swasthya has over a decade-long experience in operating several healthcare innovations at scale, which are addressing the primary healthcare needs of most underserved and marginalized populations across India. Piramal Swasthya is operational in 21 States in India through 35 innovative public healthcare delivery programs and has served more than 112 Million beneficiaries so far.

Piramal Swasthya employs 2500+ employees (including over 250 medical doctors) who work with Seva Bhav.

Core Values:

- **Respect**, upholding the dignity of each individual.
- **Integrity,** adhering to an ethical code of conduct in all actions.
- **Commitment,** fulfilling our duties and social responsibilities.
- **Excellence,** setting high performance standards and being accountable to them.

Approach:

- Gender Equality
- Knowledge, Management and Learning

3. OBSERVATIONAL FINDINGS

a. Description of the 2 months internship journey

During my two-month internship at Piramal Swasthya, a prominent public health organization, I embarked on a transformative journey that enriched my understanding of healthcare delivery and community outreach. Here's a detailed description of my experience:

Orientation and Training

Upon joining Piramal Swasthya, I underwent comprehensive orientation sessions that familiarized me with the organization's mission, values, and objectives. This orientation session was led by esteemed experts, Dr. Tanmay Mahapatra and Shuchi Sree Akhouri. They assigned us topics related to our areas of interest in the public domain. Each of us were also paired with a mentor and an overall analysis supervisor who would guide us throughout our entire journey at Piramal Swasthya. Their profound insights into the healthcare sector laid a solid foundation for comprehending Piramal's impactful work. We also got the chance to meet important team members like researchers, healthcare professionals, and administrative staff, which helped us understand their roles in the organization. Meetings with my supervisor and assigned mentor helped us set expectations, goals, and responsibilities for the internship, giving us a clear plan for our journey ahead.

Hands-On Project Participation

- I actively participated in a project named **Household survey** (2018-2024) aimed at improving healthcare access and outcomes in underserved communities.
- During one of our sessions, we were assigned the task of analyzing NFHS data for Bihar across all 38 districts. Our objective was to compare this data with information from NFHS 4 and NFHS 5 using the fact sheets provided and analyzing and examining demographic trends and health indicators.

FIELD RESEARCH

- My field visits for gathering maternal and newborn care details across three age groups (0-6),(6-12) and (12-23)months were a pivotal part of my internship.This involved **field visits to Parsawa and Madadpur** village nearby Patna,where I witnessed firsthand the challenges faced by local populations in accessing basic healthcare services.I observed Mothers encounter difficulties in accessing government-sponsored free services and programs designed for their benefit. Working alongside healthcare professionals, I contributed to data collection, and community surveys.

- My visit to the **Sub-Divisional Hospital** in Danapur provided insight into the challenges healthcare providers encounter, including limited resources and handling a large number of patients. This emphasized the critical need for effective resource management and innovative problem-solving approaches.

- We went for a visit to Health and Wellness Center in Bhusaula, Danapur, near Phulwari Sharif, is a model of effective healthcare delivery covers six villages and total population of 10206 and . Its well-maintained infrastructure, comprehensive range of services, and dedicated staff contribute significantly to the health and well-being of the local population. This visit underscored the importance of well-organized primary healthcare facilities in improving community health outcomes.

Learning Opportunities

Throughout the internship, I had the privilege of attending sessions led by experts in public health and epidemiology. These sessions enhanced my understanding of healthcare management, disease prevention

strategies, and the significance of holistic healthcare delivery. Our mentors also conducted sessions on **literature review**, where I learned effective techniques for searching academic databases and online resources using PubMed and Google Scholar. Additionally, from the **research methodology** sessions, I gained knowledge of various research designs, including qualitative, quantitative, and mixed-methods approaches, and learned how to choose the appropriate design based on specific research questions and objectives.

Skill Development

My internship at Piramal Swasthya provided a platform for enhancing both technical and soft skills. I honed my communication skills through interactions with community members and healthcare providers. I also developed proficiency in data analysis and reporting, which are crucial for evaluating the impact of public health interventions.Our mentors provided us with comprehensive training sessions on **Advanced Excel** and **Basic SAS**. These sessions were instrumental in enhancing our data analysis skills.

ADVANCE EXCEL: We learned how to effectively sort, filter, and organize large datasets. The training covered advanced formulas and functions, such as VLOOKUP, HLOOKUP, COUNTIF, SUBTOTAL and pivot tables, which are essential for complex data analysis.

BASIC SAS: Introduction to SAS programming for data manipulation, including importing, cleaning, and transforming datasets.

Personal Growth and Reflection

The internship at Piramal Swasthya was not only a professional experience but also a journey of personal growth. It challenged me to step out of my comfort zone, adapt to new environments, and develop a deeper empathy for the healthcare needs of marginalized communities. It reinforced my commitment to pursuing a career dedicated to improving healthcare access and equity.

Learning and Development: Piramal Swasthya offers a supportive learning environment. I likely participated in:

- **Workshops and trainings:** Gaining practical skills in areas like data analysis, project management, or communication to effectively contribute to public health projects.
- **Mentorship:** Receiving guidance and feedback from experienced public health professionals at Piramal Swasthya.

Conclusion

In conclusion, my internship journey at Piramal Swasthya was enriching and impactful. It provided me with invaluable insights, skills, and experiences that will shape my future endeavors in the field of public health. I am grateful for the opportunity to have contributed to meaningful initiatives and look forward to applying what I have learned to make a positive difference in healthcare delivery.

b. LEARNING FROM DIFFERENT SESSIONS

Data cleaning and management

This session was led by Mr. Kunal Roy and Mr. Alok Ranjan, conducted every Friday throughout the two-month internship period.Through various sessions, I have learned several crucial concepts and best practices that ensure the accuracy, reliability, and usability of data.

Good Data Management Practices

After developing a survey tool and questionnaire, ensure efficiency by conducting a pilot test with a small sample to identify and correct issues. SurveyCTO is a widely-used platform for data collection, ideal for surveys. Conducting a pilot test before full deployment is crucial to address any problems. Review and revise the questions for clarity and relevance, ensuring a logical flow. Incorporate skip logic, a feature that allows certain questions to be skipped based on previous responses, creating a more dynamic and respondent-friendly survey experience. Finalize the tool by making the interface user-friendly and testing all features thoroughly. Provide thorough training to data collectors, including practice sessions and detailed guides. Establish a strong data management plan with secure storage, regular backups, and reliable transfer methods. Monitor data collection in the field, offering helpdesk support and regular feedback. Implement data verification protocols and real-time validation to ensure data accuracy. After collecting the data, clean it, remove duplicates, and perform quality checks. Analyze the data according to a pre-developed plan and create insightful reports. Lastly, gather feedback to document lessons learned and improve future surveys.

Data Collection Using Microsoft Excel

Microsoft Excel is a powerful tool for data collection and analysis, offering various functionalities to enhance data management.

CONDITIONAL FORMATTING

Conditional formatting in Excel helps highlight specific data points based on certain criteria. This can be incredibly useful in a survey context in several ways:

- **Identifying Errors**: Automatically highlight outliers or invalid responses, making it easy to spot and correct errors quickly.
- **Visualizing Trends**: Use color scales or data bars to visualize response trends or patterns at a glance.
- **Highlighting Duplicates**: Identify and address duplicate entries, ensuring data integrity.

Pivot Tables

Pivot tables are great for summarizing and analyzing data.

- **Summarize Large Datasets**: Quickly condense large amounts of survey data into an understandable format, showing averages, sums, counts, and other aggregates.
- **Data Segmentation**: Break down responses by different categories such as demographics, time periods, or any other variable, providing deeper insights.
- **Identifying Trends and Patterns**: Easily see trends and patterns in the survey data, helping to draw meaningful conclusions.

Filtering Data

Filters in Excel help you view specific subsets of data. To add filters, select your dataset, go to the Data tab, and click Filter. You can then use the drop-down arrows in column headers to filter values based on your criteria.

Visualizing Data with Excel

Excel allows you to create various types of charts for data visualization, including:

Pie Charts: Pie charts are effective for visualizing data that represents parts of a whole.

 Comparing Parts to the Whole: They provide a clear visual representation of how individual segments compare to the overall dataset, helping to quickly convey the significance of each category.

 Simplifying Complex Data: For categorical data with a limited number of categories, pie charts simplify complex data into an easily understandable visual format.

- **Bar Graphs**: Bar graphs are versatile tools for comparing different categories or groups within a dataset.

  Comparing Quantitative Data: Bar graphs allow for easy comparison of quantities across different categories. For example, comparing the number of respondents in different age groups or the frequency of different responses.
  Identifying Trends: They help identify trends over time or across different groups. For example, a bar graph can show changes in survey responses over multiple time periods.

Conditional Formatting

Conditional formatting helps highlight cells based on specific conditions, such as:

- **Greater Than/Less Than**: Highlight cells with values greater or less than a specified number.
- **Finding Duplicates**: Automatically highlight duplicate values in your dataset.

Data Validation in Excel

Data validation ensures data integrity by restricting the type of data entered in a cell. To set it up, select the cells you want to validate, go to the Data tab, and click Data Validation. Define your validation criteria, such as whole numbers, decimals, or dates.Our mentors provided us with a dataset and I practically run the syyntax .Our mentors supplied us with a dataset, and I actively executed the syntax provided.

Creating Drop-Down Lists

You can create drop-down lists to restrict input to predefined options. Select the cell(s), go to Data Validation, choose List, and enter the allowed values.

Subtotal Function

The SUBTOTAL function performs calculations on a filtered list, such as sum, average, count, max, and min. Unlike the SUM function, SUBTOTAL only includes visible cells, making it useful for filtered data.

The SUBTOTAL function in Excel offers different arguments that affect how it calculates sums within a dataset. Argument 9 calculates the sum of visible cells only, excluding rows hidden by filters. On the other

hand, argument 109 includes both visible cells and manually hidden cells in its calculation, still excluding filtered-out rows. This distinction is crucial because it allows users to tailor calculations based on whether they need to include manually hidden data alongside visible cells, while always excluding filtered rows from the sum. Understanding these nuances helps in accurately analyzing and manipulating data depending on specific filtering and visibility requirements within Excel.

VLOOKUP and HLOOKUP

- **VLOOKUP**: Searches for a value in the first column of a range and returns a value in the same row from a specified column.
- **HLOOKUP**: Searches for a value in the first row of a range and returns a value in the same column from a specified row.

IF, COUNTIF, and SUMIF Functions

- **IF**: Performs a logical test and returns one value if true and another if false.
- **COUNTIF**: Counts the number of cells that meet a specific condition.
- **SUMIF**: Adds the values in a range that meet a specified condition.

By mastering these techniques and tools, you can effectively manage and analyze data, ensuring high quality and facilitating insightful analysis.

CONCLUSION

Our mentor consistently guides us through practical exercises, encouraging us to share our screens as we work with a dataset containing information from all 38 districts of Bihar. This dataset includes details on total deliveries, stillbirths, and live births. To protect privacy, unique ID codes replace full column headings in the final sheet. If we need to understand the meaning of these codes, we refer to a provided codebook. After each session on data cleaning and management, we receive tasks to apply what we've learned. This hands-on approach allows us to deepen our understanding and proficiency effectively.

SAS

This session was led by Ashish Kashyap and Manoj Kumari Singh, conducted every monday throughout the two-month internship period.

In our initial session, I learned the basics of using SAS to analyze data, management, reporting, and graphics. Our mentor guided us through downloading and installing SAS OnDemand online, demonstrating how to log in and navigate to the SAS environment. He provided an overview of essential tabs within SAS: the "Editor" tab (where coding is executed), the "Log" tab (showing errors after code execution), and the "Results" tab (displaying outcomes of executed code).

We also explored the differences between online and offline SAS functionality. Online SAS operates within a web-based environment, where data and outputs are accessed and managed remotely. In contrast, offline SAS installations run directly on a local machine, providing more autonomy over data storage and access.

Subsequent session were focused on practical skills such as creating SAS libraries, where datasets are stored. Temporary libraries like "Work" are only available during a SAS session and are lost when the session ends. Permanent libraries, however, retain datasets even after SAS is closed. Our mentor emphasized coding conventions, such as limiting library names to eight characters without numbers and ending each code line with a semicolon for execution.

Key techniques covered included:

- Creating libraries using the libname statement.
- Importing data from sources like Excel using proc import.
- Exploring dataset details with proc contents.
- Maintaining the original order of data using proc contents varnum.
- Analyzing variable frequencies using proc freq.
- Removing duplicate observations based on unique identifiers with proc sort nodup and proc sort nodupkey.
- Calculating statistical measures like mean, median, and mode using proc means.

Additionally, I learned about the distinction between proc step and data step in SAS programming, understanding how each contributes differently to data manipulation and analysis workflows. In SAS programming, the DATA step handles data manipulation tasks like creating variables and cleaning data, while the PROC step performs statistical analysis and generates reports. These sessions equipped us with foundational SAS skills, empowering us to handle data effectively, perform insightful analyses, and navigate SAS environments confidently. The hands-on approach and practical examples provided a clear understanding of each concept, facilitating a deeper grasp of SAS capabilities for data-driven decision-making.

Our mentors provided us with a actual dataset comprising 2250 observations, accompanied by a codebook. They also gave us tools designed for all three age groups. Under Ashish sir's guidance, I performed necessary recoding for all sociodemographic indicators (Income , religion ,caste, mothers education, migration) present in the dataset and applying methods taught during our sessions. Additionally, they assigned us a task to define 14 indicators that cover the entire MNCH program including nutrition, Family planning, newborn care and maternal health. This involved familiarizing ourselves with each indicator so we could easily associate them with specific tools. Working collaboratively as a team, we conducted recoding for all 14 indicators. During sessions, mentors encouraged us to share our screens, allowing them to review our work, provide corrections, and offer guidance to enhance our understanding.

Literature Review

Under the expert guidance of Md. Irshad, we learned invaluable techniques for conducting literature reviews using tools like Google Scholar and PubMed. He began by demonstrating how to refine searches to find articles specifically relevant to our topics of interest. Md. Irshad emphasized the importance of filtering results by recency, typically within the past 10-15 years, and using the "Free Full-Text" filter to access complete articles. Additionally, he showed us how to further narrow down results by article type and publication date range, ensuring our research focused on the most pertinent sources.

Utilizing MeSH Terms and Boolean Operators

Md. Irshad introduced us to MeSH terms (Medical Subject Headings), a structured vocabulary used by PubMed to categorize and search articles systematically. He explained how using MeSH terms can streamline the search process and enhance the precision of our results. Furthermore, he taught us about Boolean Operators—AND, OR, and NOT—that help refine search queries to retrieve more accurate and relevant articles.

Citation Management with EndNote

For managing citations, Md. Irshad introduced us to EndNote, a powerful reference manager. EndNote simplifies the process of inserting citations into documents and organizing references effectively. This tool is essential for maintaining accuracy and consistency in academic writing.

Exploring Forward and Backward Referencing

Md. Irshad also covered forward and backward referencing techniques. Forward referencing involves identifying articles that cite a particular publication using tools like Google Scholar. This helps gauge the impact and relevance of a research article within the scholarly community. On the other hand, backward referencing entails exploring all references cited within a specific article, providing a deeper understanding of the topic's background and foundational literature.

These skills equip us to conduct thorough literature reviews, ensuring our research is well-informed and grounded in current and relevant scholarly work.

Research methodology

This session was led by Dr Tanmay Mahapatra, conducted every Wednesday throughout the two-month internship period which was very insightful as we explored the foundational aspects of research methodology. Dr. Mahapatra began by discussing various research methodologies, including qualitative, quantitative, and mixed-methods approaches, emphasizing the importance of selecting the appropriate methodology based on the research question and objectives.

He introduced us to new terms and concepts related to research methodology and explained the basics of proportions and ratios. He highlighted that in a proportion, the numerator is part of the denominator, whereas in a ratio, the numerator is not part of the denominator. He also covered different types of ratios and proportions such as Odds Ratio, Incidence Proportion/Risk, Prevalence Proportion, Incidence Rate, and Prevalence Rate, explaining how to calculate these through various problem scenarios. A key difference he pointed out is that Incidence Proportion is calculated using the Population at Risk, while Prevalence Proportion is calculated using the Total Population.

We learned about the key components of research design, including different types such as Cross-Sectional Study, Case-Control Study, Cohort Study, and Ecological Study. He explained that a Cross-Sectional Study is conducted in the present and assesses both exposure and outcome simultaneously. A Case-Control Study, which is retrospective, starts from the outcome and looks back to find if the exposure is associated with the outcome. A Cohort Study can be either retrospective or prospective, starting with a group of individuals with similar characteristics or following them over 10-15 years to study the outcome and its association with a particular exposure. An Ecological Study involves studying groups or populations rather than individuals.

Dr. Mahapatra emphasized the importance of choosing the appropriate study design for research. He also covered various terms such as Validity (External and Internal), Ecological Fallacy (applying ecological study findings to individuals), and Temporal Ambiguity (uncertainty about which variable occurred first when finding associations between two variables). He discussed Models of Causality, which explain how different causes lead to a particular outcome.

He enlightened us about three kinds of periods associated with disease: Induction Time (interval between the cause of disease and its initiation), Latency Period (interval between disease initiation and diagnosis), and Incubation Period (specific to infectious diseases, the interval between the cause of disease and the appearance of symptoms).

Dr. Mahapatra’s interactive teaching style, which included asking frequent questions, made the sessions engaging and stimulating. He ensured that all participants felt included and frequently checked in with mentors about our progress. He also reserved 10-15 minutes before and after sessions to clarify any doubts, further enhancing our understanding of the topics.

Findings from the Session with Piramal Public Health Faculty

During an in-person session with the esteemed faculty of Piramal, Dr. Devashish singh experts in public health, several critical insights were shared regarding the realities and challenges in public health, especially

within marginalized communities. The session highlighted various strategies, tools, and programs aimed at improving healthcare access and outcomes.

Key Insights

1. **Ground Realities and Challenges in Public Health**:
    - Experts discussed the social issues affecting healthcare access, particularly for women who often lack decision-making authority in their families.
    - Challenges in implementing healthcare programs in marginalized communities were examined.
2. **Implementation of Healthcare Programs**:
    - Strategies to effectively implement healthcare programs that benefit marginalized communities were shared.
    - Emphasis was placed on understanding and addressing community-specific barriers.
3. **Literature and Resources**:
    - Recommended readings and resources for entering the field of public health were provided to deepen understanding and improve practice.
4. **MCP Card**:
    - The Maternal and Child Protection (MCP) card issued by the Government of India was discussed. This card is essential for pregnant women intending to deliver in government facilities.
    - It includes comprehensive information for mothers and healthcare professionals, covering antenatal care, pregnancy care, danger signs, post-natal care, parenting tips, and the baby's vaccination records.
5. **IPHS Standards**:
    - The Indian Public Health Standards (IPHS) were reviewed. These standards set norms for facilities and hospitals under the National Rural Health Mission to improve the quality of healthcare delivery.
6. **MNS Toolkit**:
    - The Maternal, Newborn, and Child Health (MNS) Toolkit was introduced. This set of resources aids healthcare providers, managers, and policymakers in enhancing the quality of services for mothers, newborns, and children, aiming to improve health outcomes and ensure well-being.
7. **ICDS Program**:
    - The Integrated Child Development Services (ICDS) program, launched in 1975, was detailed. This comprehensive initiative targets the health, nutrition, and development of children under six and pregnant and lactating women.
    - ICDS offers supplementary nutrition, immunization, health check-ups, referral services, pre-school education, and health and nutrition education through a network of Anganwadi centers.
    - The program collaborates with other government initiatives to provide a holistic approach to child and maternal health, aiming to reduce infant mortality, combat malnutrition, and support early childhood development and maternal well-being.

Conclusion

Throughout the session, Ms. Shuchi Sree Akhouri and Mr. Nayakanti Srinivasa Reddy were there to help and answer any questions about the internship. Their presence made sure everyone had enough help and support, creating a good environment for learning. This setup made it easy for everyone to fully understand the material, with mentors and support staff always ready to assist and make the learning sessions productive.

c . Field and Facility Visit

REPORT WRITING (FACILITY VISIT) SUB DIVISIONAL HOSPITAL DANAPUR

Date of Visit: May14, 2024

Population Served: Approximately 450,000 .

Location: Danapur, Patna, Bihar

OPD (Out patient department): covers 15000-16000 patients per month

IPD(In patient department): covers 800-900 patients per month

Total number of deliveries : 200-300 per month

Immunization coverage: 700-800 per month

Introduction

This report outlines the observations and findings from our visit to the Sub-Divisional Hospital in Danapur on May 14, 2024. The visit aimed to assess the hospital's facilities, patient care services, staffing, and overall efficiency. Our tour provided a comprehensive understanding of the hospital's operations and future plans.

Arrival and Initial Observations

Upon arrival at the Sub-Divisional Hospital in Danapur along with Prashant Singh Sir who is a Senior Program Leader at Piramal Foundation, we were greeted by a full of lively scene of healthcare activities. ASHA workers were diligently attending to their patients, underscoring their vital role in the healthcare system.

Meeting with Seema Mam

we were warmly welcomed by Seema Mam, the manager of Danapur Hospital. She graciously invited us into her cabin and provided a detailed overview of the hospital's infrastructure, management, and the challenges they face.

Hospital Infrastructure and Management

Seema Mam elaborated on the hospital's infrastructure and management, highlighting the adaptive measures taken during the COVID-19 pandemic. During this period, nursing wards were repurposed as COVID wards due to the lack of dedicated facilities. This resilience showcased the hospital's commitment to patient care even under challenging circumstances.

Ongoing Construction and Future Plans

Exciting developments are underway with the construction of a new subdivisional hospital adjacent to the old one. This new facility promises state-of-the-art amenities, including a ramp for ambulance access, which will significantly enhance patient care and accessibility.

Patient Care and Safety

Data on Leave Against Medical Advice (LAMA) cases involving 16 pregnant women were presented, with ongoing analysis to understand their reasons for leaving. The hospital maintains a detailed registrar of women attendants and organizes counseling sessions to support and educate patients for better health outcomes.

Cold Chain Facility Construction

During the construction of the cold chain facility, a meticulous process was followed, requiring ownership permission and official statements, highlighting the hospital's commitment to maintaining high standards.

OBSERVATIONS AND FINDINGS.

- **GROUND FLOOR**

Registration counter : The registration counter is well-designed, with designated areas for pregnant women, preventing overcrowding during emergencies.

Pharmacy : The pharmacy visit confirmed the availability of essential medications for various ailments. A detailed inventory of medications could not be ascertained during this visit.

ANC Room: Regular monitoring of blood pressure, weight, and overall health.CBC, Hb levels, blood grouping, Rh factor, HIV, and Hepatitis tests.are available in this hospital services. Identifying and monitoring high-risk pregnancies and maintaining separate register for high risk pregnancies .180 IFA (iron folic acid) and calcium tablets are given to the pregnant ladies in antenatal ward. Nutritional advice and distribution of diet booklets and MCP cards on the first visit of pregnancy. Administering necessary vaccines to protect both the mother and the baby. Color-coded bed arrangement for prioritizing care(red,yellow,green). Immediate attention to cases with severe complications (red-coded). Follow-up and Monitoring of Scheduled visits to track pregnancy progress.

Family Planning Corner: The family planning counseling room offers a “basket of choice” for contraceptive methods, including condoms, Antara, Mala M, and implants for women aged 15-49. Counseling extends to postnatal care, helping mothers with recovery and addressing gender issues if needed.

MCH WING INCLUDES:

Triage Room (Emergency Preparedness) & **Mini delivery room** for emergencies and necessary medications and equipment.

Pre-natal ward ; This ward is equipped with three beds, each assigned based on the severity of the patient’s condition using a color-coded triage system**. 2 Yellow Beds(**designated for expectant mothers with serious but not immediately life-threatening conditions) **& 1 Red Bed** (reserved for patients with severe conditions that are potentially life-threatening . These patients receive the highest priority for care and resources

Nursing Station ;

Labour Room:

The labour room, equipped with three beds, handles immediate cases marked with red wristbands. The APGAR score system, (It is a test given to newborns soon after birth. This test checks a baby's heart rate, muscle tone, and other signs to see if extra medical care or emergency care is needed), preparation for deliveries, and postpartum hemorrhage prevention were explained in detail.

Oxytocin is the primary drug used for preventing postpartum hemorrhage (PPH), a leading cause of maternal mortality. The timely administration of oxytocin helps manage and reduce the risk of excessive bleeding after childbirth.

Partograph for Monitoring

The partograph is an essential tool used in the labour room to monitor both maternal and fetal well-being during the active phase of labor. It assists in making decisions when abnormalities are detected. The tool helps track cervical dilation and the progress of labor, ensuring timely interventions when necessary.

Cord Clamping and Newborn Care

Delayed cord clamping (1-3 minutes) is practiced for healthy babies. Immediate clamping is done for those with low survival chances. Post-birth, mothers are trained in skin-to-skin contact and kept under close observation.

Sterilization and Medication Storage

Sterile instruments are kept on a table with autoclave signal tape. Instruments like scissors are disinfected in Cidex solution and sterilized in normal saline before use. Medications are stored in a designated freezer, with a list of injections posted on its front door for easy reference.

Episiotomy Procedure

An episiotomy, an incision made between the vaginal opening and the anus during childbirth, is performed when needed to facilitate delivery and prevent severe tearing.

Specialized Trays for Procedures : The labour room is equipped with seven types of trays, each designated for specific purposes:

High-Risk Pregnancies: Pregnant women requiring blood transfusions are managed under Comprehensive Emergency Obstetric Care (CEmOC) and Level 3 (L3) care protocols. These cases are often transferred to a medical hospital for specialized care.

Case sheets include GPLA details:

G (Gravida): Number of pregnancies **P (Preterm):** Number of preterm births

L (Living Child): Number of living children **A (Abortion):** Abortion history

Discharge Protocol

The labour room registrar maintains detailed records. The discharge sheet has 88 columns, with columns 1-33 filled before delivery. If a patient is referred to another hospital, columns 34-88 remain blank.They have a refrigerator in the other corner to keep all the needed medication, a side note of all the medication is pasted in the front door of refrigerator to get a clear overview .

KMC ROOM is separate cabin with 2 bed ,It is for low birth weight born babies who has poor sucking abilities.

Postnatal Exercise and Recovery Room

Physiotherapy and guided exercises are available to help mothers regain their physical strength and fitness post-delivery with the help of physio balls. These exercises are crucial for preventing complications such as deep vein thrombosis and for promoting overall well-being.

FIRST FLOOR

Immunization modal center & Cold Chain Management

Immunization room is one of the best services of this hospital, it has great ambience for kids with the poster of cartoons . They maintain their register on daily basis The cold chain facility has multiple storage units for different types of vaccines, maintaining temperatures between +2°C and +8°C. Neha, the head of cold chain management, explained the use of eVIN technology for efficient vaccine coverage monitoring.

Additional Observations

- **Counseling Sessions:** The hospital conducts regular counseling sessions for patients, focusing on both physical and mental health, which significantly improves patient outcomes.
- **Community Outreach:** The hospital engages in community outreach programs to educate the public on various health issues and preventive care measures.
- **Technology Integration:** The integration of digital health records has streamlined patient management, reducing wait times and enhancing the accuracy of medical records.

Conclusion

Our visit to the Sub-Divisional Hospital in Danapur was both enlightening and inspiring. The hospital's dedication to providing quality healthcare, even in the face of challenges, was evident in their adaptive strategies, meticulous patient care protocols, and ongoing efforts to enhance facilities and services.

The Sub-Divisional Hospital in Danapur exemplifies resilience, innovation, and dedication in its mission to provide accessible and high-quality healthcare to its community. The planned infrastructure improvements and ongoing commitment to patient care promise an even brighter future for healthcare delivery in the region.

FIELD VISIT REPORT ON HOUSEHOLD SURVEY

Date: 29/04/2024
Locality Name(1): Parsawa **Block Name**: Sikandra **District Name** : Jamui
Locality Name(2) Madatpur **Block Name:** Pandarak **District Name** : Patna

On April 29th, 2024, our team conducted a household survey in Parsawa and Madatpur village, located in Bihar. The objective was to gather socio-economic data, understand living conditions, and assess community needs. This survey is part of a broader research project aimed at informing policy recommendations and development initiatives.

The survey team included Prashant singh and Anil kumar sir along with my team member Dhriti Bhagat & Sweksha Gupta .We used a stratified random sampling method to ensure a representative sample. Data collection tools comprised structured questionnaires, interviews, observational checklists, and GPS devices for mapping.

Listing and mapping: The following procedure was followed for listing:

A methodical approach was utilised to map and list the households, ensuring a well-structured selection process. Starting on the right side, we selected the 30th house number as our initial residence for the survey. Between selections, we decided that four households would be left out. Beginning with the first household, we counted four more to the right of the main door before selecting the fifth house to survey. This process was strictly adhered; after surveying each selected household, we bypassed the next four and selected the fifth for survey.

Detailed Report on Household Survey: Interview with Mother and Child

Introduction

During our visit to Parsawa and Madatpur village, Bihar, we conducted a detailed interview with a mother and her child. The child fell within the targeted age ranges of 0-5 months, 6-11 months, and 12-23 months. The interview instrument used was structured into four sections, each designed to gather comprehensive information about maternal and child health practices.

Interview 1: Child (0-5 months 29 days)

 IFA Tablet Provision: The ASHA provided iron-folic acid (IFA) tablets during the third trimester after the mother requested them, following the recommendation of a private hospital's gynecologist.

 ANC Visits: The mother completed three antenatal care (ANC) visits; the first two were at a private hospital, and the third was conducted by the community ASHA.
 Delivery and Ambulance Service: The baby was delivered at a government hospital. However, due to inadequate ambulance service, the family waited nearly an hour and eventually transported the mother by rickshaw.

 Postpartum IFA Tablets: After delivery, the mother needed IFA tablets, but the ASHA could not provide them, so she had to purchase them from a pharmacy.

 Vitamin K Administration: The baby did not receive vitamin K immediately after birth despite being delivered in a government facility.

 JSY Scheme Payment: The mother did not receive the promised money under the Janani Suraksha Yojana (JSY) scheme for either of her children. She applied but received only 2000 INR in total.

 Baby's Weight Monitoring: The baby's weight was not checked during any of the appointments.

 MCP Card: The mother did not receive the Mother and Child Protection (MCP) card after the child's birth; only the OPD card served as the baby's record.

 Breastfeeding Issues: The mother consulted a doctor because the baby had difficulty breastfeeding. Following the doctor’s suggestion, the baby was occasionally bottle-fed.

 Godbharai Ceremony: The Anganwadi center did not perform the Godbharai ceremony for the pregnant mother, and she was unaware that such a ceremony, which provides fruits, medications, and counseling, was supposed to be conducted.

Interview 2: Child(12-23 months 29 Days)

 Limited Response Due to Family Dynamics: The mother was unable to respond appropriately to questions as she was surrounded by two of her father-in-laws and adhered to the tradition of being quiet in the presence of the head of the family.

 High-Risk Pregnancy: At 21 years old and expecting her fourth child, the mother was unfit for pregnancy due to the lack of breaks between her pregnancies, resulting in extreme weakness and deficiencies in essential vitamins and minerals.

 Poor Sanitary Conditions: The family's practice of excreting in a neighboring field due to the lack of sanitary facilities significantly impacted the mother's hygiene and overall welfare, which was rapidly declining.

 Ration Disputes: The family did not receive rations under the "take home ration" plan due to disagreements with Anganwadi workers, although they were aware of current policies and programs for child development.

 Lack of Documentation: The mother's lack of knowledge and responsibility was evident as she did not possess any birth certificates or other documentation for any of her children.
 Immunization and MCP Card: Due to her lack of knowledge and disagreements with the Anganwadi worker, the infant did not receive any immunizations listed on the MCP card, which was also not provided to her.
 No ANC Services in Previous Pregnancy: During her previous pregnancy, the mother did not receive any antenatal care from ASHA.

 Nutrient-Deficient Diet: The mother identified only two or three foods in their diet, which were largely deficient in nutrients, indicating that the children were not fed adequately and were vitamin and nutrient deficient.

 Survey Discontinuation: The survey had to be discontinued because the mother was not honestly answering questions, relying instead on her father-in-law for answers, despite being informed that the session would be recorded and kept confidential.

Interview 3

 Awareness of Development Schemes: The family was well-informed about the schemes for women and child development.

 Birth Weight: After delivery in a private hospital, the infant's weight was recorded at 2.75 kg.

 Regular Weight Monitoring: Despite no visits from the ASHA or ANM, the family understood the importance of monitoring the baby's weight for assessing growth and development. They arranged regular check-ups, and the infant weighed approximately 7 kg at the time of the survey.

 Feeding Practices: Since 10 days old, the infant has been exclusively bottle-fed with cow's milk due to an inability to suckle.

 Support During Pregnancy: The mother had two miscarriages before this child, but the family was very supportive and took extra care of her during this pregnancy.

 Feeding Challenges: The infant, around eight months old, was only given cow's milk. Although advised to introduce semi-solid foods and fruits, the family reported that the baby could not digest them, and after a few unsuccessful attempts, they did not pursue it further.

 IFA Syrup: The family had to purchase IFA syrup from the pharmacy as the ASHA did not provide any for the baby.

Interview 4

 Condition During Interview: The mother, who had arrived the day before the survey with her 10-day-old baby, was not fully alert during the interview.
 Family Dynamics: The respondent's elders favored her younger sister-in-law, who had a boy, over her because she only had daughters. During the interview, she sought permission from her sister-in-law before answering questions.

 Insensitive Treatment Post-C-Section: Despite undergoing a painful C-section, the family did not offer comfort and made her sit on the floor for the interview. The interviewers provided her with a chair and adjusted positions to ensure her comfort during the lengthy interview.

 Sex Determination Test: When questioned about antenatal care at a private facility, suspicions arose regarding a substantial payment made. Upon requesting checkup reports, it was revealed she had undergone a sex determination test.

 Ration Issues: They were denied rations under the "take home ration" plan by Anganwadi workers, despite being aware of current policies for child development.

 Domestic Violence Incident: The respondent's husband eavesdropped and became enraged upon learning she disclosed the sex determination test. He burst into the room and violently slapped her in front of the interviewers, with family members remaining silent, implicitly supporting his behavior.

 Intervention and Discontinuation: The mother-in-law eventually intervened, asking her son to leave and allowing the interview to continue. However, realizing the respondent was in pain and fearful, the interview was discontinued. It became evident she was regularly subjected to domestic violence due to family beliefs about her inability to deliver a baby boy, exacerbated by her husband's reported mental instability.

Interview 5

 Hospital Delivery: The baby was delivered at a nearby government hospital.

 Initial Shyness: Initially, the mother was shy, and her mother-in-law answered questions. Upon reassurance of privacy, the mother participated actively in the interview.

 Regular ANC Visits: Due to the ASHA being a close relative, all antenatal care (ANC) visits were conducted punctually with meticulous attention.

 Timely Ration Distribution: The mother received her ration regularly under the "Take Home Ration" program.

 IFA Tablet Use: Despite being provided with iron-folic acid (IFA) tablets by the ASHA, the mother chose not to take them due to mild side effects like headaches and nausea.

 Premature Birth, Good Health: Despite being born prematurely, the baby was in excellent health due to attentive care from her family.

 Regular Growth Monitoring: The baby's height and weight were monitored regularly.

 MCP Card and Vaccinations: The MCP card documented all vaccinations the baby received, administered promptly.

 Breastfeeding and Solid Food Introduction: While continuing to breastfeed, it was recommended that the mother gradually introduce more semi-solid or solid foods to the baby's diet.

Interview 6

 Documentation: The mother only possessed a birth certificate issued by the hospital where the baby was delivered; she did not have an MCP card.

 Hospital Delivery: The baby was delivered at a nearby government hospital.

 Vitamin K Administration: The newborn did not receive a vitamin K dose after birth.

 JSY Initiative: The mother received six thousand rupees under the JSY initiative since it was her first child.

 IFA Supplementation: The mother received IFA tablets, and the infant was given IFA syrups by the local ASHA.

 Nutritious Diet: The infant was fed semi-solid food, fruits, and dry fruits because the mother prioritized a nutritious diet.

 MCP Card for Immunizations: To ensure timely vaccinations and awareness among family members, we advised the mother to initiate the process of obtaining an MCP card.

Interview 7

 MCP Card Awareness: Despite possessing an MCP card and being well-educated, the respondent was unaware of the vaccination schedules and thus unable to provide the necessary nourishment to her child as she had never reviewed the card.

 ANC Attendance: She knew the schedule of her next ANC appointment and was attending them on time.

 Healthy Diet: When asked about her diet in the past 24 hours, she reported consuming healthy foods such as green vegetables, nuts, and milk, indicating she was being fed adequately. Surprisingly, this was the only household where the mother received a healthy and balanced diet.

 Hospital Delivery: The baby was born at a nearby government hospital.

 Vitamin K Administration: The newborn did not receive a vitamin K injection after birth.

 Transportation Issue: The respondent did not receive an ambulance and had to use her own vehicle to reach the nearby facility.

Interview 8

 Influence of Mother-in-Law: Initially, the respondent declined the interview because her mother-in-law, who also served as the ASHA for Madadpur block, was not at home. This highlighted the significant influence the mother-in-law wielded over family decisions.

 Interview Interruptions: Upon our return when the mother-in-law was present, she repeatedly interrupted the interview and answered questions herself, preventing the respondent from responding coherently.

 Vaccination and MCP Card: The child received vaccinations on schedule, and the mother possessed an MCP card.

 Contradiction in Ration Distribution: Despite earlier claims by the ASHA or mother-in-law that they had not received rations under the "take home ration" scheme, interviews with neighbors revealed they had indeed received rations.

 Healthy Diet Confirmation: According to the mother-in-law's responses, both the mother and child were receiving a healthy diet, including regular consumption of fruits, milk, and raisins.

 JSY Funds: The respondent did not receive any funds under the JSY system meant for the second child, as confirmed by the mother-in-law.

Interview 9

 Confidence in Respondent: The respondent confidently answered the interviewer's questions.

 Financial Independence: The respondent was able to speak freely because she was financially supporting her family.

 JSY Installments: As a first-time mother, she received two installments of 2000 rupees each under the JSY plan, with the third installment pending. She was knowledgeable about various government programs and schemes.

 Infant's Diet: The infant was not receiving adequate food. According to the mother, the child was only given milk from a bottle and not semi-solid or solid food separately.

 Nutrition Advice: The interviewer advised the mother to introduce semi-solid food to ensure proper nutrition and healthy growth.
 Dental Health Concerns: With a background in dentistry, the interviewer examined the baby's teeth, which showed signs of decay due to prolonged bottle use. They discussed early childhood caries and the mother expressed willingness to address the issue.

 Immunization Records: The respondent maintained accurate records of scheduled visits and was meticulous about the baby's immunizations.

 ASHA's Role: The ASHA from the block accurately completed the vaccination section of the MCP card, ensuring all immunizations were administered on time.

 ANC Visits: The respondent completed all four ANC visits scheduled by the local ASHA in a timely manner.

 Monitoring Growth: Unfortunately, the baby's weight and height were not documented during any of the appointments, essential for tracking the infant's developmental progress relative to their age.

Report on the Visit to the Health and Wellness Centre in Danapur District, Bihar

Introduction

The visit to the Health and Wellness Centre (HWC) in Danapur District, Bihar, aimed to assess the facility's services, infrastructure, and operational efficiency. This centre caters to a population of 10,206 and provides a range of health services, including health promotion, early identification, treatment, follow-up care through app referrals, and referrals to the Community Health Centre (CHC) Pulwari sharif.

Facility Overview

The Health and Wellness Centre in Danapur is well-maintained and fully functional. During the visit, the Chief Health Officer (CHO) reported that the patient flow ranges between 20-30 patients daily, with the last

month's Out-Patient Department (OPD) attendance recorded at 633. The HWC operates from 10 AM to 5 PM. A dedicated corner for Non-Communicable Disease (NCD) screening is also present.

Key Features of the Facility

1. Teleconsultation Services:
    - Last month, the HWC provided 250 teleconsultations.
    - Follow-up for NCD patients in the last month was 33.
2. Sanitation and Hygiene:
    - The centre has colour-coded dustbins for waste segregation.
    - Informational charts and boards are available for beneficiaries to learn about the programs and services offered.
3. Drug Availability:
    - All 14 essential drugs mandated by the Indian Public Health Standards (IPHS) are available, along with several other well-maintained medications.
4. Staff and Operations:
    - The CHO holds a BSc in Nursing and hails from Bihar, ensuring no language barrier with the community.
    - Patient cases primarily include NCDs, fever, cough, cold, and heatwave-related illnesses.
    - Names and contact numbers of Auxiliary Nurse Midwives (ANMs) are displayed on the front wall.

Interaction with ASHA Worker

An in-person meeting with the Accredited Social Health Activist (ASHA) of the area highlighted her extensive role and challenges. The ASHA, with 19 years of experience, monitors two wards and shared insights into her work and the community's health barriers.

Responsibilities of ASHA

1. Community Health Awareness:
    - Promotes health practices among women during pregnancy.
    - Ensures women attend ANC check-ups.
    - Educates on nutrition, sanitation, and hygienic practices.
2. Counseling and Mobilization:
    - Counsels on birth preparedness, safe delivery, breastfeeding, immunization, and contraception.
    - Mobilizes the community to access health services at Anganwadi centers, sub-centres, and primary health centres.
3. Event Organization:
    - Organizes Godhbharayi events for maternal nutrition awareness.
    - Conducts Saas Bahu Sammelans to advise on family planning.
    - Coordinates Village Health, Sanitation, and Nutrition Day (VHSND) for immunization and health education.
4. Monitoring and Reporting:
    - Keeps records of children's immunizations and monitors malnourished children.
    - Facilitates referrals to Nutrition Rehabilitation Centers (NRCs) for malnourished children.

Challenges Faced by ASHA

- Financial hardship due to incentive-based earnings (e.g., INR 100 for ANC check-up and INR 600 for the entire delivery process).
- Technical issues with the app used for reporting, which has been non-functional for two months.

Conclusion

The Health and Wellness Centre in Danapur is a vital healthcare provider for the local population, offering a range of essential services and maintaining a high standard of care. The dedicated CHO and ASHA play crucial roles in the centre's operations, despite facing several challenges. Continuous support and improvements in technology and financial incentives are necessary to sustain and enhance the quality of services provided.

Appendices

A. Monthly OPD Statistics

- Total OPD Attendance: 633
- Teleconsultations: 250
- NCD Follow-ups: 33

B. Operational Hours

- 10 AM to 5 PM

C. Staff Details

- Chief Health Officer: BSc Nursing, native of Bihar
- ANM Contact Information: Displayed on the front wall

D. Health and Wellness Programs

- NCD Screening
- Godhbharayi Event
- Saas Bahu Sammelan
- VHSND Immunization Drives

This report encapsulates the current state and operations of the Health and Wellness Centre in Danapur, highlighting both its achievements and areas needing attention.

d. **Experience from the projects/activities**

In one of the projects I participated in, our organization PIRAMAL SWASTHYA conducted a household survey (2018-2024), which involves distributing a series of questions to a sample of households within a population. This method allows interviewers significant flexibility in the information they request from respondents.This survey can focus on a wide range of topics related to the lives and well-being of people living in households. some of the areas a household survey targeted on : IMMUNIZATION, MATERNAL, NEWBORN, NUTRITION

I was assigned to revise the presentation on **Newborn care** and adding the 2024 household survey data . Here are some specific insights I gained from my experience:

- **Data Analysis**

Key Findings from the Household Survey on Newborn Care Practices:

- **Breastfeeding:** More women are initiating breastfeeding soon after birth, but this is mainly happening in private facilities and at home deliveries. Public facilities are seeing a decrease in timely breastfeeding initiation.
- **Skin-to-Skin Care:** There's been a positive trend in skin-to-skin contact between mothers and newborns across all delivery locations, with public facilities showing the most improvement.
- **Weighing Newborns:** Nearly all babies are weighed at birth now, regardless of delivery location.
- **Dry Cord Care:** While hospitals have improved dry cord care practices, there's a need for better education and reinforcement for mothers delivering at home.
- **Pre-lacteal Feeding:** Public facilities have been successful in reducing the practice of giving newborns anything other than breastmilk in the first week. However, pre-lacteal feeding remains common among private facility deliveries.
- **Postnatal Home Visits:** ASHAs are the primary providers of home visits after childbirth, but the overall coverage hasn't changed much in recent years.
- **Follow-Up Visits:** The number of mothers receiving follow-up postnatal care visits has declined across the board, possibly due to a lack of incentives for mothers who deliver outside of public facilities.

- **Visualization:** We created bar charts to compare healthcare access across different facilites and line graph to show the distribution of percentage in essential newborn care practices.
- **Infographics (**a collection of imagery, data visualizations like pie charts and bar graphs, and minimal text that gives an easy-to-understand overview of a topic**):** Designed infographics to highlight key findings, such as Women who deliver at Public facilities practice TIBF, For Public facility delivered newborns, continuation of dry cord care at home increased,etc .
- **Consistent Alignment and Formatting:** Align text and visuals consistently (e.g., left-aligned or centered) .Maintain a clean and professional appearance.

This approach ensured that the presentation was not only informative but also engaging and easy to understand.

4. DESK REVIEW

a. OVERVIEW /BACKGROUND

Ending all preventable newborn deaths and reducing neonatal mortality to as low as 12 per 1000 live births by 2030 is the target of the United Nations' third Sustainable Development Goal (United nations) [1] .Essential newborn care (ENC) is a comprehensive strategy designed to improve the health of newborns through interventions before conception, during pregnancy, during delivery, and the immediate postnatal period. It is a single most cost-effective intervention to reduce neonatal mortality and morbidity both in developed and developing countries.[2]

WHO has formulated a set of guidelines about the Essential Newborn care Practices (ENCP) which are evidence-based and cost-effective measures to improve neonatal health outcomes .This guideline is to be used by all stakeholders who engaged with the neonate including the health care providers, mother, community, and government. [2].

Essential newborn care such as thermal protection, early and exclusive breast feeding, care of cord and skin, immunization has a role in the prevention of neonatal mortality. The routine we followed immediately after birth is cleaning and draping the baby in the clothes provided by relatives and handling them for weighing, injection vitamin K and footprints to NICU on the first floor. Until the mother is shifted from labor room or operation theatre (OT), the baby is managed by relatives in the corridor. Breast feeding and rooming in was done after shifting mother, which was mostly delayed during busy days.[3]

The Essential Newborn Care (ENC) practices include a package of interventions such as clean cord care (cutting the umbilical cord with a sterilized instrument and tying it with a sterilized thread), delayed bathing and initiating breast feeding within the first 1 hour after birth .These low cost, high impact interventions are critical for survival and have been demonstrated to save newborn lives in various settings. Adherence to optimum ENC practices may reduce the risk of newborn morbidity and mortality .However, it is essential that the interventions are integrated into an all-inclusive newborn care package including skilled delivery care, care seeking, extra care for sick and small babies and resuscitation[1].

India has made considerable progress in reducing newborn mortality, thereby reducing its share of the global newborn mortality burden from one-third of newborn deaths in 1990 to below one-fifth of total newborn deaths today. Nearly 46 per cent of all maternal deaths and 40 per cent of neonatal deaths happen during labour or the first 24 hours after birth. Some of the major causes of newborn deaths among babies less than 29 days old are—prematurity and low birth weight (48 per cent), birth asphyxia and birth trauma (13 per cent), neonatal pneumonia (12 per cent) and non-communicable diseases (7 per cent). Many such deaths are largely preventable through access to skilled birth attendants and emergency health services during and after delivery. [4]

The WHO endorses postnatal care within 24 hours of birth, irrespective of where the baby is born. Mothers and newborns should receive at least three additional postnatal care visits by a health provider, preferably on day 3 (48–72 hours after birth), between day 7 and day 14, and again 6 weeks after birth. Postnatal care for the baby is a key opportunity to check for danger signs, such as lacking of feeding, fast breathing (a breathing rate of more than 60 per minute), severe chest in-drawing, lethargy, fever, low body temperature, or jaundice.[5]

Often living in hard-to-reach areas, most women still deliver in their homes. So even though India has shown significant progress in the reduction of child mortality, the focus now needs to be on reaching the most marginalized, with particular attention on the girl child [4].

State programme managers assessed the level of implementation of various interventions targeted to improve newborn care at the community level; mothers were usually dependant on traditional birth attendants (TBAs) who conducted home deliveries and subsequently advised them on newborn care. Therefore, we estimated the knowledge, attitude and practices among mothers regarding newborn care and determined the factors associated with unsafe neonatal care practices by mothers. We also estimated key indicators of the HBPNC programme for training, knowledge, timeliness, quality and documentation of ASHAs' home visits.[6]

In developing countries, the risk of neonatal death can be easily prevented and avoided by implementing essential newborn care with simple, low cost, and a short period time; however, the problem is still persisting due to lack of adequate maternal neonatal care practices.[2]

REFRENCES

1.Eluri S, Baliga BS, Rao SS, Vinayagamoorthy V, Kamath N. Can Flip-Chart Assisted Maternal Education Improve Essential New Born Care Knowledge and Skills? A Randomized Controlled Trial. Maternal and Child Health Journal. 2022 Apr 6;

2. Ayele AD, Tenaw LA, Kassa BG, Mihretie GN, Belay HG, Teffera AG, et al. Knowledge and practice of essential newborn care and associated factors among women in Ethiopia: systematic review and meta-analysis. Reproductive Health. 2022 Aug 4;19(1).

3. Jain M, Payal Meshram, Bang A, Chauhan V, Datta V, Ramasubbareddy Dhanireddy. Implementation of a quality improvement initiative for standardising essential newborn care in a teaching public hospital in rural central India. BMJ open quality. 2024 Apr 1;13(Suppl 1):e001869–9.

4. Newborn and child health [Internet]. www.unicef.org. Available from: https://www.unicef.org/india/what-we-do/newborn-and-child-health

5. Pathak P, Singh J, Agarwal M, Kant S. Postnatal newborn care practices and knowledge of newborn danger signs among mothers in rural area of Lucknow, Uttar Pradesh: A cross-sectional study. Journal of Family Medicine and Primary Care. 2021;10(1):300.

6. Sinha LN, Kaur P, Gupta R, Dalpath S, Goyal V, Murhekar M. Newborn care practices and home-based postnatal newborn care programme – Mewat, Haryana, India, 2013. Western Pacific Surveillance and Response. 2014 Aug 11;5(3):22–9.

OBJECTIVE: To evaluate and understand mothers' knowledge, attitudes, and practices concerning essential care for newborns aged 0-2 months, aiming to identify gaps and provide recommendations for enhancing newborn health outcomes.

SEARCHING STRATEGY AND DATA SOURCE

An intensive literature search was performed from PubMed, Google Scholar from April 26th, 2024. All studies that reported ENC women's knowledge and practice of ENC from 2017 to, 2024, were included in the review. Initially, studies were searched by examining the full titles ("Essential and Newborn Care practice and associated factors among women) and then by using the following terms and phrases ("Essential" AND "newborn care" AND "Practices among women") with the Boolean operator "AND" to ensure all terms were present in the articles.

SELECTION PROCESS:

From the initial search results, 8-10 articles will be selected for in-depth review. These articles will be further assessed based on the following criteria:

- Focus on the Indian healthcare system.
- Relevance to essential care practices for mothers of infants aged 0-2 months.
- Inclusion of primary research data or high-quality reviews.
- Publication in peer-reviewed journals within the specified timeframe (2019-2024).

5. FINDING FROM LITERATURE

1. **Adoption of Newborn Care Practices:** While some essential newborn care practices like early breastfeeding initiation were widely adopted, practices such as kangaroo care and proper hand washing were less common due to gaps in awareness and influence from stakeholders.
2. **Role of ASHAs:** Accredited Social Health Activists (ASHAs) played a crucial role in educating mothers during home visits, but issues such as inadequate supervision and inconsistent use of training tools were noted.
3. **Impact of Home Visits:** Regular ASHA home visits were associated with better outcomes, including early identification of newborn issues and reduced morbidity. However, full adherence to recommended postnatal visits was lacking.
4. **Training and Supervision Issues:** ASHAs, particularly those transitioning from Traditional Birth Attendants (TBAs), faced challenges in documentation and medical instrument usage. Training gaps among Auxiliary Nurse Midwives (ANMs) hindered effective supervision of ASHAs.
5. **Community Engagement:** Innovative training strategies were recommended to enhance ASHA skills and involve community members, like elder family members and TBAs, in promoting safe newborn care practices.
6. **Immediate Actions and Recommendations:** Recommendations included retraining ASHAs, integrating TBAs into the ASHA system for better supervision, and improving ambulance services for newborn emergencies.
7. **Limitations:** Studies had limitations such as excluding mothers outside subcenter areas and relying on recall for ASHA visits, which could introduce inaccuracies. However, the findings were deemed representative and applicable to similar districts.

Analysis:

- **Gap Addressed:** The research significantly improved adoption rates of essential newborn care practices like breastfeeding initiation and hygiene, showcasing measurable improvements in health outcomes such as reduced hypothermia and antibiotic use in NICUs.
- **Major Challenges:** Challenges included inconsistent ASHA supervision and training gaps among healthcare providers, affecting the quality and consistency of newborn care practices across different settings.
- **Effectiveness:** The findings underscore the effectiveness of targeted interventions like flip-chart-assisted maternal education and community-based Kangaroo Mother Care (KMC), which were generally acceptable and feasible in diverse community settings. These interventions led to improved knowledge and practices among mothers, demonstrating their potential for scalable impact in resource-limited settings.

In conclusion, while there have been notable improvements in newborn care practices and maternal education, ongoing challenges in training, supervision, and community engagement remain critical for sustaining and scaling these positive outcomes. Addressing these challenges effectively could further enhance the impact of maternal and newborn healthcare interventions in similar contexts globally.

From the reports and findings provided, several key problems related to essential newborn care services and knowledge among maternal mothers have been addressed:

1. **Improved Adoption of Essential Newborn Care Practices:** Reports indicate an increase in the adoption of critical newborn care practices such as early breastfeeding initiation, proper hand hygiene, and recognition of newborn danger signs. This improvement is crucial as it directly impacts newborn health outcomes.
2. **Enhanced Knowledge Through Maternal Education:** Interventions like flip-chart-assisted maternal education have significantly improved maternal knowledge about essential newborn care. This includes understanding hygiene practices, recognizing danger signs, and implementing appropriate care measures.
3. **Increased Healthcare Utilization:** There has been an improvement in healthcare-seeking behavior among mothers during newborn illnesses. More mothers are consulting Accredited Social Health

Activists (ASHAs) and healthcare professionals, which facilitates early detection and management of newborn health issues.

4. **Community Involvement and Support:** Strategies to involve community members, including elder family members and Traditional Birth Attendants (TBAs), have been effective in promoting and sustaining essential newborn care practices. This community engagement helps in reinforcing maternal education and improving practice adherence.
5. **Reduction in Neonatal Morbidity and Mortality:** The implementation of these interventions has contributed to measurable reductions in neonatal morbidity and mortality rates. Practices like Kangaroo Mother Care (KMC) have been particularly effective in improving outcomes for preterm and low birth weight infants.
6. **Addressing Training and Supervision Gaps:** Efforts to retrain ASHAs and integrate TBAs into formal healthcare systems have addressed some of the training and supervision gaps observed. This has enhanced the consistency and quality of care provided during home visits and at healthcare facilities.

Overall Impact: The cumulative effect of these interventions is a more informed and empowered maternal population capable of providing better care for newborns. By targeting knowledge gaps, improving healthcare infrastructure, and fostering community support, these initiatives contribute to improving the overall health and well-being of newborns in resource-limited settings.

While challenges such as consistent supervision, ongoing training needs, and broader community engagement remain, the reports demonstrate significant progress in tackling critical issues related to essential newborn care services and knowledge among maternal mothers. Continued focus on these areas is essential for sustaining and expanding these positive outcomes to benefit more mothers and newborns globally.

6. **Evidence table**

❖ The literature reviews of research papers 1 through 3 are included in the table below.

Sr.No.	Title	First Author	Year of publicati	Link	Coun try/r	Study design/ type of study	Study or target Population	Sample Size	Aim/Objectives of the Study	Recommendations	Limitations mentioned
1	Implementation of a quality improvement initiative for standardising essential newborn care in a teaching public hospital in rural central India	Manish Jain	2024 Apr 16	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC11023480/	India		rural tertiary medical college and hospital in central India which caters approximately 5000–6000 deliveries and 500 neonatal intensive care unit (NICU) admissions annually.		The aim was to improve essential neonatal care by using multidisciplinary peer team-led QI projects.	department of paediatrics planned QI projects to improve essential newborn services such as early initiation of breast feeding, thermoregulation, implementation of evidence-based practices and rational antibiotic usage.	The hospital provides round-the-clock emergency obstetrics and newborn care services, with **inadequate essential newborn care**
2	Using a mobile nurse mentoring and training program to address a health workforce capacity crisis in Bihar, India: Impact on essential intrapartum and newborn care practices	Safia Jiwani	2020 Dec	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7759016/	India , Bihar	quasi-experimental study design.				Given the large number of providers, especially ANMs, expected to offer such services without adequate training and skills, and the challenges associated with organising off-site skill training, the solution CARE India identified was on-the-job, on-site mentoring and training, using highly qualified nurses as mobile nurse mentors. AMANAT intervention on nurse-mentees' competency to provide essential intrapartum and newborn care services in the state during 2015-2017.	In the cultural context of Bihar, the few available male doctors would not enter the labour room; female doctors were even fewer. This situation had created a serious health workforce capacity crisis in Bihar in the face of a massive and rapid rise in institutional deliveries in public facilities.
3	Newborn care practices and home-based postnatal newborn care programme	Latika Nath Sinha, Prabhdeep Kaur,Manoj Murhekar	2014 Sep 23	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4310710/	India	cross-sectional survey was conducted using cluster sampling	mothers who had delivered a child during the previous seven months. and who resided in the same cluster health subcentre (health unit catering to a population of 5000 with an auxiliary nurse midwife [ANM] in charge) during delivery and during the data-collection period.	320 mothers, 61 ASHAs and observed 19 home visits		training ANMs, training TBAs as ASHAs, innovative communication strategies for ASHAs and improved referral system. There is a need to consider strategies to better engage the TBAs to increase the adoption of these practices. A grievance unit was established to address delays in referral transport.	Cord care and hand washing were the two practices that were not adopted despite awareness.One of our other limitations was a problem in recall by mothers of ASHA visits even though the reference period was seven months

❖ The literature reviews of research papers 4 through 6 are included in the table below.

Sr.No.	Title	First Author	Year of publicati	Link	Coun try/r	Study design/ type of study	Study or target Population	Sample Size	Aim/Objectives of the Study	Recommendations	Limitations mentioned
4	Knowledge and Practice of New-Borne Care and Child Health Care by the Rural Mothers	Dr. Ashok Kumar Dhanwal1	16.11.2021	https://easpublishers.com/media/articles/SJAMS_311_1704-1703_FT_OOGyvVC.pdf	India	Descriptive approach.(A Structured Interview Schedule)	Rural mothers in age group (18 - 45 year).	500	The objectives of the study which centred on the comparison between knowledge and practice of rural mothers regarding new-borne care and child health care		
5	Improvement in Essential New Born Care Knowledge and Skills with the help of Flip Chart of Maternal Education	Swathi Eluri,1 B. Shantharam Baliga,	2022 Apr 6	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9374616/	India	A Randomized Controlled Trial		A single blind parallel randomized controlled trial was carried out with 120 primigravidae	To evaluate the understanding of Essential Newborn Care (ENC) upon admission for childbirth and examine the impact of educational interventions, such as using a flip chart, shortly after delivery to enhance knowledge and proficiency in ENC.	Collection of data regarding the expectations of first-time mothers regarding ENC education is not done in this study.Future research should explore the effects of educating mothers with previous childbirth experiences, mothers with multiple pregnancies, and those whose neonates needed intensive care during the early neonatal period.	In urban settings, interventions were implemented. However, for broader applicability, investigations involving childbirth in rural areas of India may be necessary. Typically, Essential Newborn Care (ENC) education is administered by healthcare personnel such as ward nurses and lactation counselors. These individuals could undergo training to deliver educatio aided by flip charts as part of the intervention. We didn't gather data regarding the expectations of first-time mothers regarding ENC education.
6	Empowering Communities: Kangaroo Mother Care for Low Birth Weight Infants	Reeta Rassily, K. K. Ganguly, M. Roy	2017 Jan	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5460573/	India	Salter weighing scale(Focussed Group Discussion)	Population of one primary health centre (PHC) area was covered in Odisha, whereas in tribal area of Maharashtra, two PHCs, and in Gujarat, urban population within two municipality areas and some peri-urban areas were covered.		In our country, there's scarce evidence concerning Kangaroo Mother Care (KMC) initiated at home. Thus, this study aimed to investigate the acceptance of KMC across various community settings.		The research did not incorporate a control group for statistical inference, which could be perceived as a limitation. Additionally, small sample size was another constraint. Nevertheless, the study's strength lies in it utilization of existing health infrastructure and personnel for Information, Education, and Communication (IEC). It was conducted across various population groups in rural, urban, and rural tribal regions, encompassing diverse cultures and climatic conditions.

❖ The literature reviews of research papers 7 through 10 are included in the table below.

Sr.No.	Title	First Author	Year of publicati	Link	Country/r	Study design/ type of study	Study or target Population	Sample Size	Aim/Objectives of the Study	Recommendations	Limitations mentioned
7	Understanding Caregiver Perceptions and Practices Regarding Infant Illness Warning Signs	Pooja	Feb-23	https://journals.lww.com/ijmpc/fulltext/2023/02000/Perception_of_care_givers_regarding_danger_signs.19.aspx	India	Qualitative Research (convenient sampling technique)	Mothers and other primary caregivers who had provided care for sick infants in the past six months and expressed willingness to take part in the study were enrolled as		to explore the perception of care givers regarding danger signs of illness and practices followed in young infants	There remains a substantial number of mothers with limited awareness of neonatal warning signs. Therefore, interventions aimed at enhancing maternal knowledge and extending both antenatal and postnatal care follow-up should be intensified.	Significant barriers to accessing treatment for neonatal danger signs have been observed, including cultural and religious beliefs.
8	Assessment of Maternal and Newborn Care Quality in Public Health Facilities across Bihar, India	Japneet Kaur,	2019 Jul			cross-sectional study		190 primary health centres (PHCs) and 36 district hospitals			The findings of this study are based on data collected from a single visit to these facilities; the availability of different equipment and supplies might vary over time. With respect to household data, women providing information on quality of care were not representative of those delivering at facilities and the sampling was not proportional to the number of deliveries
9	Knowledge and Practice of Essential Newborn Care and Associated Factors Among Women in Ethiopia	Alemu Degu Ayele, Bekalu Getnet Kassa, Gedefaye Nibret Mihretie, Habtamu Gebrehana Beby, Adanech Getie Teffera, Eden Workneh Aychew, Enyew Dagnew Yehuala, and Tigist Ssid Yimer	2022	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9351089/#CR1	Ethiopia	Observational (cross-sectional) studies	Women who had newborns and resided in Ethiopia.			Enhancing essential newborn care can be achieved by offering community-based awareness programs, counselling, and promoting antenatal and postnatal care follow-ups . Educating all pregnant and postnatal women about essential newborn care and recognizing	
10	Postnatal Newborn Care Practices and Knowledge of Newborn Danger Signs Among Mothers in Rural Lucknow, Uttar Pradesh: A Cross-Sectional Study	Pankaj K Pathak	2021 Jan	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8132767/	INDIA(LUCKNOW, UP)	Observational (cross-sectional) studies	study focused on mothers who delivered at the Sarojini Nagar PHC during an eight-month period.	200 mothers were interviewed for the study.	1. To assess the knowledge of newborn danger sign among mothers in rural area of Lucknow, Uttar Pradesh	Enhance Health Education and Awareness Programs on key areas includes Exclusive breastfeeding Frequency of breastfeeding Proper wrapping of the baby Cord care ,Eye care These should focus on key aspects of newborn care and the elimination of harmful practices. Additionally, increasing the use and awareness of ambulance services (102/108) is crucial.	

Link to access my Evidence Table –

https://docs.google.com/spreadsheets/d/1BPxln2dVDHmxny2RhX5JaTrYwz922cIr/edit?gid=2004450850#gid=2004450850

5. SECONDARY DATA ANALYSIS

A. Introduction of RMNCHN in the Context of Bihar

Under the National Health Mission (NHM), improving maternal and child health and enhancing survival rates are pivotal to achieving national health goals. These efforts align with Sustainable Development Goal (SDG) 3, which targets reducing maternal, neonatal, and child mortality. In recent years, innovative approaches have been integrated into national strategies to provide evidence-based interventions to diverse demographic groups. The Ministry of Health & Family Welfare launched the Reproductive, Maternal, Newborn, Child, Adolescent Health and Nutrition (RMNCAH+N) framework during the Government of India's "Call to Action (CAT) Summit" in February 2013, aiming to address critical health challenges effectively.

The RMNCHN Strategy

The RMNCHN strategy is a comprehensive framework designed to meet the extensive health needs of women, children, and adolescents. In Bihar, a state marked by profound health challenges, the RMNCHN strategy is crucial for improving health outcomes across various demographic segments. This strategic approach addresses the multifaceted health issues prevalent in Bihar, such as high maternal and infant mortality rates, widespread malnutrition, and inadequate access to quality healthcare services.

Key Challenges in Bihar

Bihar, with a population exceeding 120 million, is one of India's most populous and economically disadvantaged states. Historically, Bihar has faced significant health challenges, with key indicators often lagging behind national averages. The state's health system has struggled with:

- High maternal and infant mortality rates
- Chronic malnutrition
- Limited access to healthcare facilities
- Severe shortages of trained healthcare professionals

RMNCHN Strategy Implementation in Bihar

Maternal and Newborn Health

- **Institutional Deliveries**: Promoting safe childbirth practices through programs like the Janani Shishu Suraksha Karyakram (JSSK), which provides free maternal and child health services.
- **Quality of Care**: Enhancing care quality in public health facilities and strengthening referral systems to reduce maternal and neonatal mortality.
- **Skilled Birth Attendance**: Ensuring access to skilled birth attendants and emergency obstetric care.

Nutrition Programs

- **Combating Malnutrition**: Initiatives like the Bal Kuposhan Mukt Bihar campaign tackle child malnutrition through community-based activities, early initiation of breastfeeding, and appropriate complementary feeding practices.
- **Supplementation Programs**: Iron and Folic Acid (IFA) supplementation programs target anemia reduction among pregnant women and adolescents.
- **Integrated Child Development Services (ICDS)**: Provides supplementary nutrition, growth monitoring, and health education to improve the nutritional status of children and mothers.

Adolescent Health Programs

- **School-Based Interventions**: Programs for nutrition education, menstrual hygiene management, and promoting delayed age at marriage.

- **Adolescent Reproductive and Sexual Health (ARSH)**: Provides comprehensive reproductive health education and services to reduce early pregnancies and improve reproductive health outcomes.

Community-Based Interventions

- **Engaging ASHAs**: Involving Accredited Social Health Activists (ASHAs) in outreach and awareness programs to extend healthcare services to rural and underserved populations.

NFHS 5 Bihar Fact Sheet Highlights

Reproductive Health

- **Total Fertility Rate**: Declined to 3.0 children per woman from 3.4 but remains higher than the national average.
- **Adolescent Fertility**: Stands at 77 births per 1,000 women aged 15-19, reflecting early childbearing practices that pose health risks.

Maternal Health

- **Antenatal Care**: 52.9% of mothers had an antenatal check-up in the first trimester, and 25.2% had at least four antenatal visits.
- **Institutional Births**: Increased to 76.2%, with 56.9% occurring in public health facilities.

Newborn Health

- **Neonatal Mortality**: Stands at 34.5 per 1,000 live births.
- **Postnatal Care**: 57.3% of mothers received postnatal care from health personnel within two days of delivery.

Child Health

- **Nutritional Challenges**: 42.9% of children under five are stunted, and 22.9% are wasted.
- **Vaccination Coverage**: Improved to 71.0% for children aged 12-23 months fully vaccinated.

Adolescent Health

- **Early Marriage and Childbearing**: 40.8% of women aged 20-24 years were married before 18, and 11.0% of women aged 15-19 years were already mothers or pregnant.

Nutritional Status

- **Anemia and Underweight**: Among children under five, 69.4% are anemic, and 41.0% are underweight.

Conclusion

The RMNCHN strategy in Bihar represents a comprehensive and targeted approach to improving health outcomes for women, children, and adolescents. Through focused interventions, strategic partnerships, and community engagement, Bihar is making strides towards better health and well-being for its population.

B. Methodology

i. Describing the process of preparing the indicator matrix, selection of questions from tool/codebook in detail.

1. Initial Survey Participation

- When we joined the organization, the survey was already in progress. We were integrated into the ongoing data collection process, allowing us to immediately engage in practical work. Through this participation, we gained hands-on experience with the data collection methods and learned about the various tools and techniques used for different age groups.

2. Survey Design and Execution

- The survey was designed as a comprehensive mini household survey, targeting 13 diverse districts of Bihar. Our team was divided into smaller groups, each accompanied by experienced program leaders and data collectors.
- We conducted visits to various districts to carry out the survey.
- These field visits provided us with invaluable insights into the data collection process, helping us understand the practical implementation of the questionnaire tool.

3. Data Analysis and Codebook Preparation

- After completing data collection, the data analyst began the meticulous analysis phase.
- **Creating the Codebook**: The analyst developed a detailed codebook, including:
  - All variables
  - Specific questions
  - Assigned values
  - Corresponding labels
- The codebook was categorized into three distinct age groups: 0-5, 6-11, and 12-23 months.Questions were based on RMNCHN (Reproductive, Maternal, Newborn, and Child Health and Nutrition) data.

4. Distribution and Review of the Codebook

- Once the codebook was prepared, it was distributed to all team members. And we were assigned the task of reviewing the codebook to identify and select questions relevant to socio-demographic aspects.

5. Creation of Socio-Demographic Indicators

- We compiled an Excel sheet focusing on questions related to the socio-demographic characteristics of respondents. A total of 14 specific indicators were identified and created.
- The Excel sheet included:
  - Tool questions
  - Question labels
  - Respective variables
  - Corresponding values
- For instance, the variable "mother's age" was categorized into:
  - ≤ 24 years
  - 25-34 years
  - ≥ 35 years
- These categories were coded as 0, 1, and 2, respectively, to facilitate easy data analysis in SAS software.

6. Coding and Frequency Analysis in SAS Software

- We coded all the indicators within the SAS software environment.Our predefined coding system allowed us to efficiently obtain the frequency of each variable.
- Example: The variable "mother's age" was coded as:
  - Ages ≤ 24 were coded as 0
  - Ages 25-34 were coded as 1
  - Ages ≥ 35 were coded as 2
- This approach enabled us to easily calculate and analyze the frequency distribution of each variable within our sample.

7. Review and Refinement

- After the initial coding and frequency analysis, we reviewed the results for accuracy and consistency. Any discrepancies or errors identified during this review were promptly addressed and corrected.
- This step ensured the reliability and validity of our data analysis process.

By meticulously following these steps, we ensured a comprehensive and methodical approach to data collection, analysis, and interpretation. This enabled us to derive accurate and meaningful insights from the survey data, ultimately contributing to a deeper understanding of the socio-demographic aspects of our respondents.

Describing the process of preparing the indicator matrix, selection of questions from tool/codebook in detail.

The study employed a meticulous and systematic methodology to ensure accurate data collection and analysis. Here's a detailed, step-by-step breakdown of the process:

1. Selection of Essential Questions and Indicators

- **Focus Areas**:
  - **Newborn Health and Maternal Health**: Key questions and indicators were sourced from the 0-5 month codebook.
  - **Newborn Nutrition**: Vital indicators were drawn from the 6-11 month codebook.
  - **Family Planning**: Significant questions were selected from the 12-23 month codebook.
- **Relevance**:
  - Indicators were chosen based on their importance and relevance to the study's objectives, ensuring a comprehensive overview of RMNCHN (Reproductive, Maternal, Newborn, and Child Health and Nutrition).

2. Coding of Indicators in SAS Software

- **Data Importation**:
  - All three codebooks (0-5, 6-11, and 12-23 months) were imported into SAS software for thorough analysis.
- **Defining Criteria**:
  - For each indicator, specific criteria for the numerator and denominator were established.
  - Example: To determine the percentage of recently delivered women currently using any contraceptive method, values indicating usage were created (coded as 0 for 'No' and 1 for 'Yes').

3. Frequency Analysis Using SAS

- **Procedure**:
  - The "proc surveyfreq" procedure in SAS was utilized to obtain frequency tables for each indicator.
  - This procedure calculated and displayed the frequency distribution of variables according to the defined criteria.
- **Results**:
  - The frequency table provided detailed counts and percentages for each indicator category (e.g., women using contraceptives vs. those not using them).

4. Calculation of Indicator Frequencies

- **Frequency Calculation**:
  - For each indicator, the frequency was calculated as follows:
    - **Numerator**: The count of responses meeting the criteria for the indicator (e.g., number of women using contraceptives).
    - **Denominator**: The total number of responses considered for the indicator (e.g., total number of recently delivered women).

5. Compilation of Results

- **Data Analysis**:
  - Frequency tables generated for each indicator were compiled and analyzed to understand the distribution and prevalence of different health and family planning practices among the study population.

6. Documentation and Reporting

- **Comprehensive Reporting**:
  - The results were compiled into a detailed report, highlighting key findings and trends observed in the data.
  - This report provided valuable insights and facilitated further research and policy-making.

By meticulously following these steps, we ensured a thorough and accurate analysis of newborn health, maternal health, and family planning indicators, yielding valuable insights for further research and policy-making. This systematic approach allowed us to derive meaningful conclusions and contribute to a deeper understanding of RMNCHN topics, ultimately guiding more informed decisions and strategies.

ii. Indicator definitions:

S.no.	INDICATORS	DEFINATIONS
1	**THR**	% of pregnant women who received Take Home Rations (THR) during their last pregnancy.
2	**Institutional Delivery**	% of deliveries that took place in healthcare institutions.
3	**STSC (Skin to Skin Care)**	% of children aged 0-5 months who received immediate skin-to-skin care after birth.
4	**Weighing at Birth**	% of children aged 0-5 months who were weighed at birth.
5	**TIBF (Timely Initiation of Breastfeeding)**	% of children aged 0-5 months who received breastfeeding within 1 hour of birth.
6	**Exclusive Breastfeeding**	% of children aged 0-5 months who were exclusively breastfed in the last 24 hours.
7	**Current Breastfeeding**	% of children aged 6-11 months who are currently receiving breastfeeding.
8	**Complementary Feeding**	% of children aged 6-11 months who have started receiving complementary feeding.
9	**Any Contraceptive Method**	% of recently delivered women who are currently using any contraceptive method.
10	**Modern Contraceptive Method**	% of recently delivered women who are currently using modern contraceptive methods.
11	**Traditional Contraceptive Method**	% of recently delivered women who are currently using traditional contraceptive methods.

C. Results and Findings

The SAS code analysis of the Reproductive, Maternal, Newborn, and Child Health (RMNCH) program provided comprehensive insights into the health and nutritional status of women and children across the surveyed districts in Bihar. Key results and findings are as follows:

I. Organize the indicators in different tables (Findings od Socio Demographic Indicators)

i. variable	value	label	N	n	%	LCL	UCL	Freq Missing
Gender	0	boys	2250	1194	53.07	51.00	55.13	
	1	girls		1056	46.93	44.87	49.00	
mother age	0	<=24	2250	1426	63.38	61.39	65.37	
	1	25-34		770	34.22	32.26	36.18	
	2	>=35		54	2.40	1.77	3.03	
religion	0	Hindu	2250	1930	85.78	84.33	87.22	
	1	Others		320	14.22	12.78	15.67	
caste	0	Marginalized	2250	685	30.44	28.54	32.35	
	1	Non-marginalized		1565	69.56	67.65	71.46	
family type	0	nuclear	2250	883	39.24	37.23	41.26	
	1	joint		1367	60.76	58.74	62.77	
MEDU(Mothers educatio n)	0	Illiterate	2250	782	34.76	32.79	36.72	
	1	up to 8th		510	22.67	20.94	24.40	
	2	More than 8th		958	42.58	40.53	44.62	
FEDU (Fathers educatio n)	0	illiterate	2089	704	33.70	31.67	35.73	
	1	up to 8th		487	23.31	21.50	25.13	**161**
	2	more than 8th		898	42.99	40.86	45.11	
MOCU (Mothers Occupati on)	0	Unemployed	2250	2140	95.11	94.22	96.00	
	1	Agricultural		23	1.02	0.61	1.44	
	2	Non- agricultural		38	1.69	1.16	2.22	
	3	Business		22	0.98	0.57	1.38	
	4	salaried		27	1.20	0.75	1.65	
Husband Occupation	0	Unemployed	2230	79	3.54	2.77	4.31	
	1	Agricultural		189	8.48	7.32	9.63	
	2	Non- agricultural		1063	47.67	45.59	49.74	**20**
	3	business		308	13.81	12.38	15.24	
	4	salaried		591	26.50	24.67	28.34	
Husband Migration	0	non-Migrant	2250	1966	87.38	86.00	88.75	
	1	migrant		284	12.62	11.25	14.00	
SHG membership	1	yes	2250	124	5.51	4.57	6.45	
	0	no		2126	94.49	93.55	95.43	
living child	1	1 child	2250	724	32.18	30.25	34.11	
	2	2 children		647	28.76	26.88	30.63	
	3	3 children		461	20.49	18.82	22.16	
	4	more than 3 children		418	18.58	16.97	20.19	
Place delivery	0	public	2250	1457	64.76	62.78	66.73	
	1	private		484	21.51	19.81	23.21	

	2	home/transit		309	13.73	12.31	15.16	
House type	1	kuccha	2250	398	17.69	16.11	19.27	
	2	semi-pukka		1270	56.44	54.39	58.49	
	3	pukka		582	25.87	24.06	27.68	

Findings of RMNCH Indicators

variable name	value	label	N	n	%	LCL	UCL	FREQ MISSING	SAS CODE

mcp_card	1	yes	2250	1851	82.2667	80.6873	83.8461		data HHS.data;
									set HHS.data;
									/*% of pregnant women received MCP cards*/
									if q204=1 then mcp_card=1;
									else mcp_card=0;
									run;

	0	no		399	17.7333	16.1539	19.3127		

Anc(Antenatal checkup)	1	yes	2250	2221	98.7111	99.2447	99.1775		data HHS.data;
									set HHS.data;
									/*% of pregnant women received any antenatal checkup during your last pregnancy*/
									if q208x=1 then anyanc=1;
									else anyanc=0;
									run;

	0	no		29	1.2889	0.8225	1.7553		

anc3(Antenatal checkup)	1	3 or more times	2221	1519	68.3926	66.4575	70.3277		data HHS.data;
									set HHS.data;
									/*% of pregnant women received 3 or more antenatal checkup during your last pregnancy*/
									if q209>=3 then anc3=1;
									else if q208x=1 and q209<3 then anc3=0;
									run;

	0	less than 3 times	2221	**n**	31.6074	29.6723	33.5425	**29**	

anc4(Antenatal checkup)	1	4 or more times	2221	893.6	43.4039	41.341	45.4667	**29**	data HHS.data;
									set HHS.data;
									/*% of pregnant women received 4 or more antenatal checkup during your last pregnancy*/
									if q209>=4 then anc4=1;
									else if q208x=1 and q209<4 then anc4=0;
									run;

	0	less than 4 times	2221	790.2	56.5961	54.5333	58.659		

IFA_rec(Iron folic acid)	1	yes	2250	686.8	90.4444	89.2288	91.6601		data HHS.data;
									set HHS.data;
									/*% of pregnant women received IFA tablet during your last pregnancy*/
									if q213=1 or q214b=1 then IFA_rec=1;
									else IFA_rec=0;
									run;

	0	no	2250	583.4	9.5556	8.3399	10.7712		

IFA90rec(Iron folic acid)	1	90 or more tablets	2221	480	26.6096	24.7704	28.4489		data HHS.data;
									set HHS.data;
									/*% of pregnant women received 90 or more IFA tablet during your last pregnancy*/
									IFA90=sum(q214a,q214c_a);
									if q214=999 and q214c=999 then IFA90rec=.;
									else if IFA90>=90 then IFA90rec=1;
									else IFA90rec=0;
									run;

	0	less than 90 tablets	2221	**n**	73.3904	71.5511	75.2296	**29**	

Number of IFA consumed	1	consume 90 or more	2015	376.6	16.8238	15.1891	18.4585		data HHS.data;
									set HHS.data;
									/*number of IFA tablets consumed*/
									if q217=99 then number_IFAcon=.;*don't know;
									else if q217a>=90 then number_IFAcon=1;*more than 90 tablets;
									else number_IFAcon=0;
									run;

	0	do not consume 90 or more	2015	27	83.1762	81.5415	84.8109	**235**	

THR(Take home ration)	1	YES	2250	16	40.3556	38.3268	42.3843		data HHS.data;
									set HHS.data;
									/*% of pregnant women received THR during your last pregnancy*/
									if q223=1 then thr_rec=1; *received;
									else thr_rec=0; *not received;
									run;

	0	NO	2250	66.4	59.6444	57.6157	61.6732		

Instituitional_delivery	1	institutional delivery	2250		86.2667	84.8434	87.69		data HHS.data;
									set HHS.data;
									/*place of delivery*/
									if Q301 in (1,2,3,4,5,6,7,8) then instititutional_delivery=1;*Institutional;
									else instititutional_delivery=0;*home;
									run;

	0	home delivery	2250	-37	13.7333	12.31	15.1566		

STSC(Skin to skin care)	1	yes	1979	**n**	65.437	63.34	67.5342		data HHS.data;
									set HHS.data;
									/*% of child aged 0-5 month received immediate Skin to skin care after birth*/
									if Q318=99 or Q346=99 then STSC=.;
									else if Q318=. and Q346=. then STSC=.;
									else if Q318=2 or Q346=1 then STSC=1;
									else STSC=0;
									run;

	0	no	1979	-1404	-243.8	34.563	32.466	36.66	**271**

Baby Weight	1	yes	2171	-347.2	82.9572	81.3742	84.5401		data HHS.data;
									set HHS.data;
									/*% of child aged 0-5 month weighted at birth*/
									if q334=1 or Q359=1 then BABY_Weight=1;
									if q334=2 or q359=2 then BABY_Weight=0;
									run;

	0	no	2171	-4506	17.0428	15.4599	18.6258	**79**	

tibf(Timely initiation of breast feeding)	1	within 1 hour	2250	-554	66.2667	64.3116	68.2217		data HHS.data;
									set HHS.data;
									/*% of child aged 0-5 month received Timely Initiation of Breast Feeding (TIBF) within 1 hrs.*/
									tibf=sum (q330h,(q330day*24),q356h,(q356day*24));
									if tibf<=1 then tibf_cat=1;
									else tibf_cat=0;
									run;

	0	after 1 hour	2250	**n**	33.7333	31.7783	35.6884		

EBF(Exclusive Breastfeeding)	1	received EBF	2250	-657.4	50.4889	48.4214	52.5563		data HHS.data;
									set HHS.data;
									/*% of child aged 0-5 month received exclusive breastfeeding (last 24 hours)*/
									if Q415a=2 and Q415b=2 and Q415c=2 and Q415d=2 and Q415e=2 and Q415f=2 and Q415g=2 and Q415h=2 and Q415i=2 and Q415j=2 then EBF=1;
									else EBF=0;
									run;

	0	not received EBF	2250	-760.8	49.5111	47.4437	51.5786		

breastfeeding	1	yes	2250	-864.2	93.5111	92.4925	94.5297		data HHS.data;
									set HHS.data;
									/*% of child aged 6-11 month Currentely receving breast feeding*/
									if Q205=1 then breastfeeding=1;
									else breastfeeding=0;
									run;

	0	no	2250	-967.6	6.4889	5.4703	7.5075		

complimentaryfeeding	1	yes	2250	-1071	65.4222	63.4555	67.389		data HHS.data;
									set HHS.data;
									/*% of children aged 6–11 months who Initiated complementary feeding*/
									if Q209=1 then complimentaryfeeding=1;*yes;
									else complimentaryfeeding=0;*no;
									run;
									proc surveyfreq data=HHS.data;
									tables complimentaryfeeding/cl alpha=0.05nostd;
									run;
									data HHS.data;
									set HHS.data;
									if Cal_childMR<9 then agegroup=1;
									else agegroup=2;
									run;
									proc surveyfreq data=HHS.data;
									tables agegroup/cl alpha=0.05nostd; ;
									run;

	0	no	2250	778	34.5778	32.611	36.5445		

contraceptive_method	1	yes	1977	452	22.8629	21.0102	24.7157	**273**	data HHS.data;
									set HHS.data;
									/*% of recently delivered women currently using any contraceptive method*/
									if Q401=1 then contraceptive_method=1;*yes;
									else if Q401=2 then contraceptive_method=0;*no;
									else contraceptive_method=.;*Currently Pregnant;
									run;

	0	no	1977	1525	77.1371	75.2843	78.9898		

use_of_modern contraceptive method	1	yes	1977	438	22.1548	20.3226	23.987	**273**	data HHS.data;
									set HHS.data;
									/*% of recently delivered women currently using modern contraceptive method*/
									if Q402A=1 OR Q402B=1 OR Q402C=1 OR Q402D=1 OR Q402E=1 OR Q402F=1 OR Q402G=1 or Q402E1=1 or Q402I=1 OR Q402J=1 OR Q402J_1=1 OR Q402K=1 then use_of_modern=1; *yes;
									else if Q401 in (1,2) THEN use_of_modern=0; *no;
									run;

	0	no	1977	1539	77.8452	76.013	79.6774		

use_of_Traditional contraceptive method	1	yes	1977	15	0.7587	0.3759	1.1416	**273**	data HHS.data;
									set HHS.data;
									/*% of recently delivered women currently using traditional contraceptive method*/
									if Q402L=1 or Q402M=1 or Q402N=1 then use_of_tm=1; *yes;
									else if Q401 in (1,2)then use_of_tm=0; *no;
									run;

	0	no	1977	1962	99.2413	99.8584	99.6241		

II. Findings Based on Descriptive Analysis

We did descriptive analysis in the sas software. Descriptive analysis is a fundamental step in the exploration and understanding of data. It involves summarizing and organizing data so that patterns and key characteristics can be clearly seen.

This helps to condense large amounts of data into simple summaries. This can be in the form of tables, charts, or statistical measures (like mean, median, and mode) that give a quick overview of the dataset. It provides initial insights and trends that can guide further, more detailed analysis. For example, if a high percentage of mothers are found to be illiterate, further investigation can be directed towards the impact of maternal education on child health outcomes. Descriptive statistics highlight areas where health behaviors are strong and where they need improvement. Descriptive data on key health indicators provide evidence for developing policies and programs. For example, if the data show that a significant number of children are not exclusively breastfed, programs can be designed to promote and support breastfeeding.

Explanation of the Contents of the Frequency Table

The frequency table provided in the document contains detailed statistical summaries of various demographic and health-related indicators from the survey data. Here are the components and what they represent:

1. **Variable Name:**This is the specific characteristic or attribute being measured, such as gender, mother's age, religion, etc.

2. **Categories:** Each variable can have multiple categories, which represent different possible values or groups within that variable. For example, the "Mother's Age" variable has categories like "≤24 years", "25-34 years", and "≥35 years".

3. **N:** This is the total number of respondents or observations included in the analysis for that particular variable. This number can differ slightly between variables due to missing data.

4. **n:** This is the number of respondents in each category of the variable. It tells us how many individuals fall into each specific group.

5. **% :** This represents the percentage of respondents in each category. It is calculated as (n/N) * 100, providing a proportionate representation of the data.

6. **LCL (Lower Confidence Limit):** This is the lower boundary of the confidence interval for the percentage. It provides an estimate of the lower range in which the true percentage is expected to fall, with a certain level of confidence (typically 95%).

7. **UCL (Upper Confidence Limit):** This is the upper boundary of the confidence interval for the percentage. It gives an estimate of the upper range in which the true percentage is expected to fall, with the same confidence level.

8. Freq Missing: This indicates the number of respondents with missing data for that particular variable. This is important for understanding the completeness and reliability of the data.

Purpose of Each Component

- **Variable Name and Categorie**s: These identify what is being measured and the different groups within each measure, allowing for a detailed understanding of the dataset's composition.

- **N and n:** These provide the raw counts of respondents, crucial for understanding the sample size and the distribution of responses across different categories.

- **%:** This offers a proportionate view of the data, making it easier to compare between different categories and understand their relative importance.

- **LCL and UCL:** These give a range within which the true value of the percentage is likely to fall, providing a measure of precision and reliability for the estimates.

- **Freq Missing:** This highlights any gaps in the data, indicating areas where data collection might need improvement or where additional caution is needed in interpreting results.

Importance of the Frequency Table

The frequency table is essential in descriptive analysis because it:

- Summarizes Data: It condenses large volumes of data into an easily understandable format.

- Identifies Patterns: Helps in spotting trends and patterns within the dataset.

- Guides Decision-Making: Informs policymakers and stakeholders about the current state of various indicators.

- Supports Further Analysis: Provides a foundation for more complex analyses, such as inferential statistics or predictive modeling.

D. Overall Conclusion

Our summer internship provided a thorough secondary analysis experience using SAS software to examine maternal, newborn, family planning, nutrition, and socio-demographic indicators. This process equipped us with valuable skills in data coding, analysis, and interpretation, emphasizing the significance of secondary data in public health research.

Key insights from our analysis include:

Maternal and Child Health: We observed improvements in institutional deliveries and antenatal care coverage, reflecting positive trends in maternal health services.
Family Planning: Data revealed varying usage rates of contraceptive methods, highlighting areas for targeted family planning interventions.
Nutrition: Despite improvements, child malnutrition remains a significant challenge, indicating the need for focused nutritional programs.
Adolescent Health: Insights pointed to ongoing issues in adolescent health, necessitating dedicated health initiatives for this demographic.
The process demonstrated the efficiency of secondary data analysis in identifying health trends and disparities, facilitating evidence-based policy-making and resource allocation. This experience not only enhanced our analytical skills but also underscored the critical role of data in advancing public health objectives.

Certificate of Approval

The Summer Internship Project of titled **"Introduction about RMNCAH+N in context of Bihar"** at **"Piramal Foundation"** is hereby approved as a certified study in management carried out and presented in a manner satisfactorily to warrant its acceptance as a prerequisite for the award of **Post Graduate Diploma in Health and Hospital Management** for which it has been submitted.
It is understood that by this approval the undersigned do not necessarily endorse or approve any
statement made, opinion expressed, or conclusion drawn therein but approve the report only for
the purpose it is submitted.

Dr Sukesh Bhardwaj

[Professor and Dean Research, IIHMR Delhi]
IIHMR, Delhi

FEEDBACK FORM

(IIHMR MENTOR)

Name of the Student: Rupa kumari

Summer Internship Institution: Piramal Swasthya

Area of Summer Internship: Public health with special focus on RMNCH+A

Attendance: Perfect adherence to internship norms

Objectives met: learnt literature review, Evidence table generation, Reference management, tool development, Epidemiological concepts, digital data management & Quality control, Basic Quantitative analysis and Thematic

Deliverables: desk review on "Essential newborn care practices among mothers & infant aged 0-2 months of age"

Strengths: during this period she is dedicated to work, Regular in Attendance.

Suggestions for Improvement: work on her Analytical thinking and get more pratice on Tools

Signature of the Officer-in-Charge (Internship)

Date: 23/12/24

Place: New delhi

0

The certificate is awarded to

Name: **RUPA KUMARI**

In recognition of having successfully completed her internship in the department of RMLE and has successfully completed her Project on

Title: "Introduction about RMNCAH+N in context of Bihar"

Date: 21st June 2024

Organization: **Piramal Swasthya Management and Research Institute**

She comes across as a committed, sincere & diligent person who has a strong drive & zeal for learning

We wish him/her all the best for future endeavours.

Organization Supervisor & Department Head

Dr Tanmay Mahapatra
Director, Data & Learning
Piramal Swasthya Management and Research Institute

Ms. Amita Shukla
Senior Program Manager - HR

Piramal Swasthya Management and Research Institute
Head Office: 3rd Floor, No. 6-3-1112, Oyster Complex,
Greenlands Road, Somajiguda, Begumpet, Hyderabad – 500 016
piramalswasthya.org

FEEDBACK FORM

Name of the Student: Rupa Kumari

Summer Internship Institution: Piramal Swasthya Management and Research Institute

Area of Summer Internship: Public Health with a special focus on RMNCH+N

Attendance: Perfect adherence to internship norms.

Objectives met: Learnt Literature Review, Evidence Table Generation, Reference Management, Tool Development, Epidemiological concepts, Digital Data Management & Quality control, Determining the Themes and Sub-themes, Developing Code Dictionary, Data Collection, Data Management, Basic Quantitative Analysis and Thematic Extraction of Information from Qualitative Data.

Deliverables: -

- Desk review on "Essential newborn care practices among mothers of infant aged 0-2 months of age," made an evidence table, documented the findings, recommendations, and limitations of this study in the report.
- Participated in Data collection in a mini household survey and analysed using SAS software on some key RMNCAH+N indicators in the context of Bihar.
- Field visits in Sub-District hospital in Danapur, Patna and Health and Wellness Center, Bhausala, Danapur. Also interacted with CHO and ASHA workers in HWC.
- Documented the entire process and findings, including insights from the field visits in a detailed report.
- Basic introduction about SAS, data cleaning and management and research methodology concepts.
- Assisted and contributed in making of presentation on "Mini Household Survey"

Strengths: During this period, she displayed diligence, sincerity, cognitive excellence, protocol adherence, eye for detail, analytical skills with great learning abilities. Based on her efforts, it appears that, given the level of aptitude she has, given chance, she can become an important asset of the public health research and implementation fraternity.

Suggestions for Improvement:

Scientific writing, programmatic knowledge, advance analytics.

Signature of the Officer-In-Charge (Internship) 

Date: 12.12.24

Place: Patna

Rupa Kumari ST report

ORIGINALITY REPORT

15%	13%	8%	7%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	reproductive-health-journal.biomedcentral.com Internet Source	1%
2	internshala.com Internet Source	1%
3	journals.plos.org Internet Source	1%
4	Submitted to IIHMR Delhi Student Paper	1%
5	www.coursehero.com Internet Source	1%
6	bmjopenquality.bmj.com Internet Source	1%
7	www.unicef.org Internet Source	1%
8	journals.lww.com Internet Source	1%
9	pdfs.semanticscholar.org Internet Source	1%