

HOW INDIA'S MEDICAL COLLEGES ARE **Catalysing Change** *for Maternal, Infant, and Young Child Nutrition*

QUALITY IMPROVEMENT CASE STUDIES FROM UTTAR PRADESH AND BIHAR



BACKGROUND

In India, medical colleges are strategically placed in the health care delivery system, making them an excellent platform to apply the latest scientific evidence to improve the quality of care. With the right support, these colleges and their attached hospitals can play a critical role in strengthening maternal, infant, and young child nutrition (MIYCN).

To leverage this platform, Alive & Thrive (A&T) forged strategic partnerships with nine government medical colleges in Bihar and Uttar Pradesh.¹ The overall goal of this alliance was to build the capacity of future generations of medical practitioners in evidence-based MIYCN practices by: 1) strengthening the undergraduate medical curriculum; and 2) improving the quality of MIYCN service delivery at critical contact points in the attached hospitals and district health facilities.

Under the leadership of the college deans/principals, A&T formed committees to guide the development of curriculum and step-by-step service delivery protocols based on global and national MIYCN guidelines. The committees were comprised of the college principals/deans, senior national experts, faculty members from the departments of Paediatrics, Obstetrics and Gynaecology (OBGY), Community Medicine (CFM), and Preventive and Social Medicine (PSM), partner medical colleges, and senior government officials from the Directorate of Medical Education (DGME) and State National Health Mission under the Health Department.

To address the gaps in MIYCN service delivery, A&T engaged a team of quality improvement (QI) experts specializing in POCQI. They provided capacity building and ongoing mentorship to the medical colleges' departments mentioned above.

Medical students now have the opportunity to learn about benchmarks for MIYCN in their courses and practically see how these standards can be met through the integrated service delivery taking place in the hospitals.

The case studies that follow demonstrate the application of the POCQI approach and show some of the specific steps that the nutrition and medical community can take to improve key indicators for MIYCN.

¹ **Uttar Pradesh Colleges:** Motilal Nehru Medical College, Allahabad; Government Medical College, Kannauj; Baba Raghav Das Medical College, Gorakhpur; Ganesh Shankar Vidyarthi Memorial (GSVM) Medical College, Kanpur

Bihar Colleges: Patna Medical College and Hospital, Patna; Darbhanga Medical College & Hospital, Darbhanga; Sri Krishna Medical College and Hospital, Muzaffarpur; Anugrah Narayan Magadh Medical College and Hospital, Gaya; All India Institute of Medical Sciences (AIIMS), Patna

POINT OF CARE QUALITY IMPROVEMENT

Point of Care Quality Improvement (POCQI) is a systematic methodology to identify and solve problems with the aim of improving practices. It was developed by the World Health Organization (WHO), USAID Applying Science to Strengthen and Improve Systems (ASSIST) Project, and All India Institute of Medical Sciences (AIIMS). It uses a 4-step process to address gaps between the current practices and desired standards.

4-Step POCQI Framework

- 1 Identify a problem, form a team, and define the aim
 - 2 Analyse and measure the quality of care
 - 3 Develop and test changes
 - 4 Sustain improvements
- ← PDSA cycle was applied here

PLAN-DO-STUDY-ACT

Plan-Do-Study-Act (PDSA) is a cycle used to test the effectiveness of a change. It is used for action-oriented learning and was applied during Step 3 of POCQI to check the effectiveness of changes and integrate the changes into existing systems.



Early Initiation of Breastfeeding in Non-Complicated C-Section Deliveries



ANUGRAH NARAYAN MAGADH MEDICAL COLLEGE AND HOSPITAL, GAYA

BIHAR STATE



TEJASWI NANDAN | ANMMCH

Mother breastfeeding her child immediately after C-section delivery at ANMMCH, Gaya in July 2019. Before A&T's quality improvement initiative, EIBF was rarely practiced for non-complicated C-section deliveries; delays to initiate breastfeeding were as long as 2.5 hours. After the first month of implementing POCQI, breastfeeding was initiated in under 30 minutes for nearly 75% of deliveries.



ABOUT THE HOSPITAL

Anugrah Narayan Magadh Medical College and Hospital (ANMMCH) is a leading medical institute in Gaya with an attached tertiary care hospital under the Bihar government. The hospital caters to more than 2,000 antenatal women every month and conducts an average of 900 deliveries per month—half of which are C-section deliveries.

BASELINE MIYCN INDICATORS AND PRACTICES

Early initiation of breastfeeding (EIBF) within 1 hour of birth is a globally recommended practice known to reduce infection-specific neonatal mortality. EIBF was identified as one of the weakest MIYCN indicators according to the available hospital data at ANMMCH in 2019. In normal vaginal deliveries, it was only 50-60%, and it was rarely practiced in C-section deliveries. Delays of 1.5-2.5 hours were observed from the time of delivery to the point that the newborn was handed over to the mother for breastfeeding in the postnatal/post-operative ward. Doctors and nursing staff lacked skills and confidence to initiate EIBF in C-section deliveries.

QUALITY IMPROVEMENT INITIATIVE

From April-May 2019, A&T engaged MIYCN technical experts and QI experts to train a team of 36 doctors, 74 nurses, and two counsellors from ANMMCH on updated MIYCN service delivery protocols and POCQI. After the training, a QI team was formed, and the QI experts provided ongoing support as ANMMCH applied the 4-Step POCQI Framework to improve MIYCN services.



IDENTIFY A PROBLEM, FORM A TEAM, AND DEFINE THE AIM

The Problem

After receiving training on POCQI, the departments reviewed the hospital's current scenario to identify key problems pertaining to care around birth and early essential newborn care—including delays in EIBF, non-provision of Kangaroo Mother Care, and inadequate counselling on optimal breastfeeding practices. The revised MIYCN-focused service delivery protocols, supported by A&T, had a major emphasis on improving EIBF practice in all deliveries, including non-complicated C-section deliveries.

The Team

The Department of Obstetrics and Gynaecology formed a QI team of faculty, senior residents, and nursing staff.

The Aim

The team chose to address delayed initiation of breastfeeding in non-complicated C-sections as the key area of improvement because they believed it would be relatively easy to improve, require no additional costs, and would lead to significant benefits for newborn health and survival.

AIM STATEMENT

To improve early initiation of breastfeeding within one hour of birth from 5% to 60% in non-complicated C-section deliveries over the course of three months.

TIMEFRAME:
April-June
2019

THE TEAM

COACH



Dr Jyoti Bala
Head of Department,
Department of OBGY

TEAM LEADER



Dr Lata Sukla Dwivedi
Professor,
Department of OBGY

TEAM MEMBERS



Dr Tejaswi Nandan
Senior Resident,
Department of OBGY



Dr Rafat Ara
Senior Resident,
Department of OBGY



Sr Cerofina Benjamin
Sister-in-Charge, C-OT,
Department of OBGY



Sr Rekha Kumari
Sister-in-Charge, Labour
Room, Department of
OBGY



Ms Sony Kumari
Counsellor
(Appointed by UNICEF)

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ANALYSE AND MEASURE THE QUALITY OF CARE

The Analysis

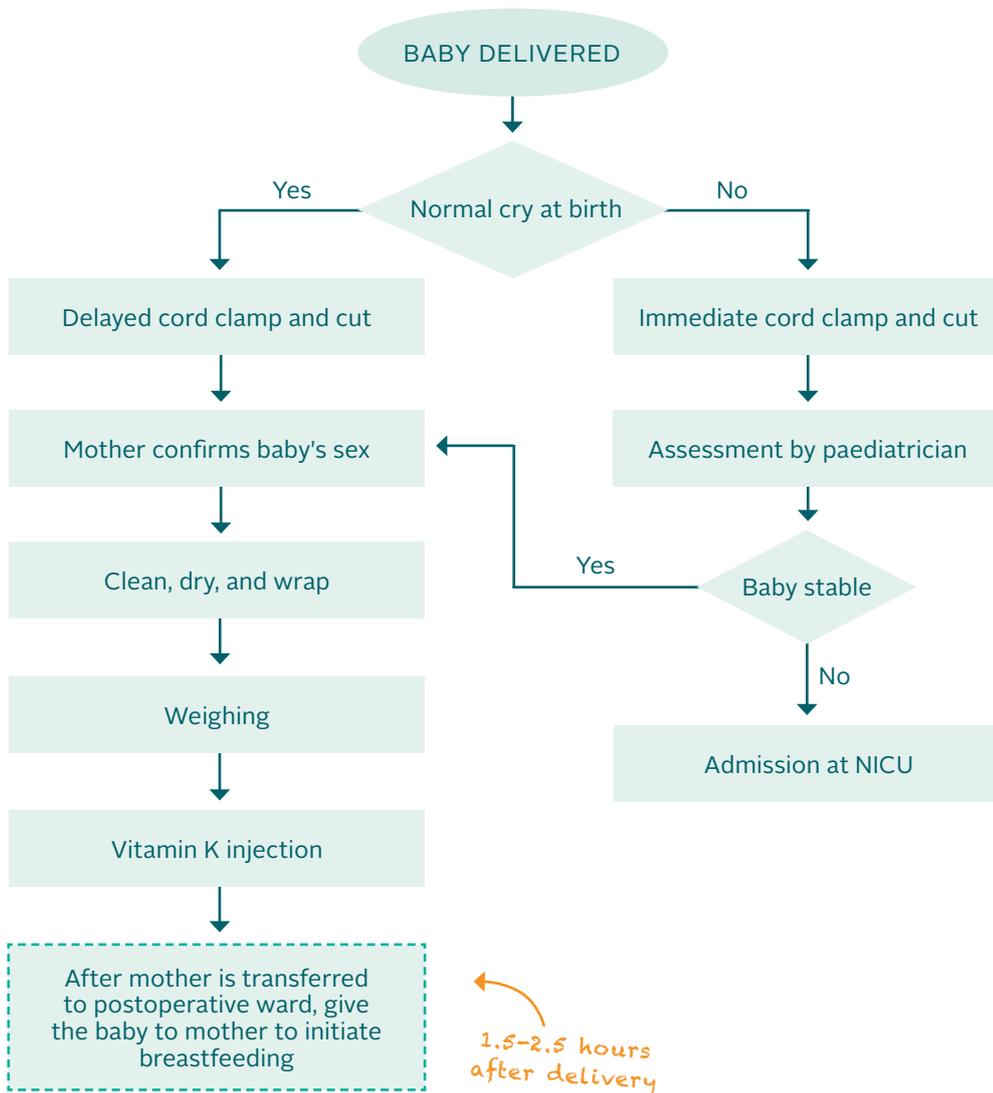
The QI team (with the help of the college QI Coach from A&T) analysed non-complicated C-section deliveries in the operation theatre (OT) using a process mapping tool to chart the steps from the time of delivery to the point that the newborn was handed over to the mother for breastfeeding (Figure 1).

The Quality Gap

A delay of 1.5-2.5 hours was observed from the time of delivery to the point that the newborn was handed over to the mother for breastfeeding in the post-natal/post-operative ward. Immediately after birth, the newborn was assessed/examined by a paediatrician and shown to the mother and family members. While the mother was recovering, the newborn was under observation in a radiant warmer and interventions like weighing and administration of Vitamin K1 injection were completed. The newborn was handed over to the mother for breastfeeding only after they were moved to the postoperative ward.

The team also observed that there was no process for recording EIBF in non-complicated C-section deliveries. They decided to develop a time series chart to measure improvements.

FIGURE 1. The process before quality improvement



3

DEVELOP AND TEST CHANGES

The Intervention

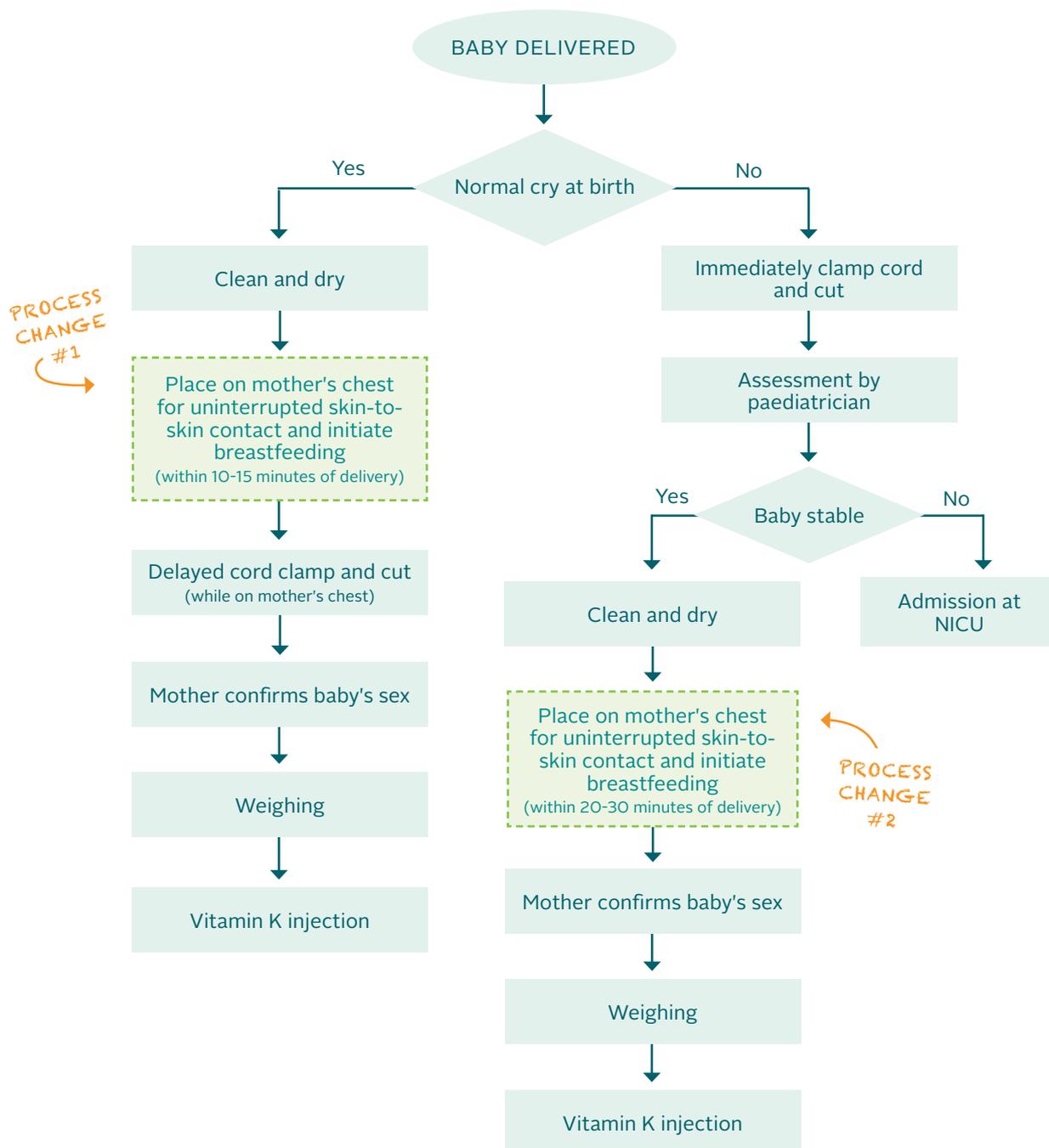
Within this step, the QI team applied the Plan-Do-Study-Act (PDSA) cycle to develop and test the changes in EIBF for non-complicated C-Section deliveries.



Planning the Changes

First, the QI team hypothesized what potential changes might improve the process. They created a new process map with the changes that would ensure EIBF could occur within one hour of delivery in the OT (Figure 2).

FIGURE 2. The new process after quality improvement



After agreeing on the new process map, specific responsibilities were assigned to the attending doctor and staff in the OT:

- The staff nurse provided the pregnant woman and her family counselling on EIBF before delivery, and one family member was allowed inside the OT as a birth companion.
- The anaesthetist evaluated the mother post-delivery and gave permission to the staff nurse to initiate skin-to-skin contact and EIBF after cutting the cord (while the obstetrician continued the suturing procedure).
- A staff nurse from each shift was assigned to record the data on EIBF in the OT/labour room register, indicating the time post-delivery.
- Staff nurses from the OT and labour room held regular process review meetings, led by the sister-in-charge.

WHAT WORKED WELL?

- The ward attendant checked to ensure breastfeeding had been initiated before the mother was shifted to the postnatal/postoperative ward.
- Doctors routinely reminded nurses to ensure EIBF, especially during rush hours as there was a tendency to overlook it when multiple deliveries were taking place at once.
- The team observed that mothers were happy to be able to breastfeed their babies before leaving the OT.
- Quality improvement training along with demonstration videos of EIBF being practised in a C-section delivery helped to build the confidence of the doctors and staff in the OBGY department.

WHAT WERE THE GAPS?

- The OBGY department's data management system was found to be insufficient. It did not capture critical information related to EIBF.



Doing the Test

In April 2019, the changes were tested in one unit of the hospital. In three out of four non-complicated C-section deliveries, breastfeeding was initiated within one hour of delivery.



Studying the Change Process

To study the process, the team met twice a week and examined what was working well and what areas needed improvement. They found that there were some positive actions by the ward attendant and the doctors that were reinforcing the process, and they found one major gap. (See their conclusions in the sidebar.)



Acting on the Study Findings

To address the data gap, the QI team added columns in the OT and labour room registers to record data related to EIBF. The data was collected weekly at first, then it was later converted to a monthly process.

After a month of testing the changes in a single unit of the hospital, the initiation time for breastfeeding went from 1.5-2.5 hours to less than 30 minutes. Based on these positive results, changes were introduced to another unit. EIBF and zero separation of newborns from mothers were made compulsory norms for non-complicated C-section deliveries.

The Results

Within the first month, nearly 75% of non-complicated C-section newborns were breastfed within one hour, before leaving the OT across both the units in the department (Figure 3). In the subsequent month, EIBF increased to 80%. However, there was a dip in June to 57% due to lack of confidence, but with renewed attention and guidance the team was able to bring it back to almost 75% within a month. It has sustained that level or better through December 2019.

FIGURE 3. Percentage of EIBF in non-complicated C-section deliveries in 2019



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SUSTAIN IMPROVEMENTS

The Way Forward

Encouraged by the positive results, the department of OBGY institutionalized the processes to ensure EIBF in non-complicated C-section deliveries would be sustained. The department adopted a zero separation of mother and newborn policy and set up a standardized measurement system for EIBF in C-section, with guidance from the head of the department.

Now, EIBF is being implemented across all units. The team of doctors and nurses in the department have been trained on the POCQI approach and have received hands-on skilling to support EIBF in non-complicated C-sections. An interdepartmental coordination committee has been formed with representation from the departments of OBGY, Paediatrics, and Community and Family Medicine to sustain the efforts through regular monitoring and review of progress. Proactive leadership from the head of the department, active involvement of the entire team of doctors and nurses, and interdepartmental coordination acted as key drivers of sustainable change.

CONCLUSION

This quality improvement case study demonstrates that EIBF is feasible in non-complicated C-section deliveries. Facility leadership, initial coaching and support, and teamwork were the keys that led to the improvements. No additional financial resources were needed.



"The training and support by Alive & Thrive on MIYCN and QI have enabled the team to ensure early initiation of breastfeeding even in C-section delivery. My team feels proud being a pioneer practicing this in our medical college hospital. Our efforts are giving results, which are being appreciated and replicated in other hospitals."

—Dr. Jyoti Bala, Head of Department, Obstetrics and Gynecology



Early Initiation of Breastfeeding in Non-Complicated C-Section Deliveries

ALL INDIA INSTITUTE OF MEDICAL SCIENCES PATNA

BIHAR STATE



MONIKA ANANT | AIIMS PATNA

Mother breastfeeding her child immediately after C-section delivery at AIIMS Patna in August 2019. Before A&T's quality improvement initiative, EIBF was rarely practiced for non-complicated C-section deliveries; delays to initiate breastfeeding were as long as 2-3 hours. After two months of implementing POCQI, breastfeeding was initiated within 30 minutes in 89% of C-sections.



ABOUT THE HOSPITAL

All India Institute of Medical Sciences (AIIMS) Patna is an autonomous medical institution under the Ministry of Health and Family Welfare (MoHFW), Government of India. It is a leading medical institute committed to developing the medical workforce with the highest standards of medical education and research and providing quality health care at an affordable cost. AIIMS Patna is a tertiary care hospital catering to more than 400 antenatal women every month. It conducts an average of 120 deliveries per month, one-third of which are C-section deliveries.

BASELINE MIYCN INDICATORS AND PRACTICES

Early initiation of breastfeeding (EIBF) within 1 hour of birth is a globally recommended practice known to reduce infection-specific neonatal mortality. In AIIMS Patna, the practice of EIBF in C-section births was sub-optimal. It took 2-3 hours from the time of delivery to the point where the newborn has handed over to the mother for breastfeeding in the post-operative ward.

QUALITY IMPROVEMENT INITIATIVE

In July 2019, A&T engaged MIYCN technical experts and QI experts to train 54 faculty members from the Obstetrics & Gynecology (OBGY), Pediatrics, and Community and Family Medicine (CFM) departments of AIIMS Patna on the QI approach. After the training, the OBGY Department, formed a QI team to improve MIYCN services. This case study demonstrates the 4-Step POCQI Framework in action.



IDENTIFY A PROBLEM, FORM A TEAM, AND DEFINE THE AIM

The Problem

AIIMS Patna's revised MIYCN-focused service delivery protocols developed with support from A&T, emphasized improving EIBF practices in all deliveries. After receiving the training on POCQI, the hospital team identified critical problem areas in their facility pertaining to delivery and early essential newborn care—including delayed initiation of breastfeeding in both vaginal and C-section deliveries and non-provision of Kangaroo Mother Care.

The Team

The Department of OBGY formed a QI team of faculty, senior residents, and nursing staff to address the problem.

The Aim

The team chose to address delayed initiation of breastfeeding in non-complicated C-sections as the key area of improvement because this was one of the weakest MIYCN indicators.

AIM STATEMENT

To improve early initiation of breastfeeding within one hour of birth in the non-complicated C-section deliveries from 0% to 50% at AIIMS Patna in two months.

TIMEFRAME:
August-
September
2019

THE TEAM

COACHES



Dr Pragya Kumar
Additional Professor,
Department of CFM



Dr Shamshad Ahmad
Assistant Professor,
Department of CFM

TEAM LEADER



Dr Hemali Heidi Sinha
Head of Department,
Department of OBGY

TEAM MEMBERS



Dr Monika Anant
Additional Professor,
Department of OBGY



Dr Anuja Pritam
Senior Resident,
Department of OBGY



Ms Kamini
Nurse,
Department of OBGY

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ANALYSE AND MEASURE THE QUALITY OF CARE

The Analysis

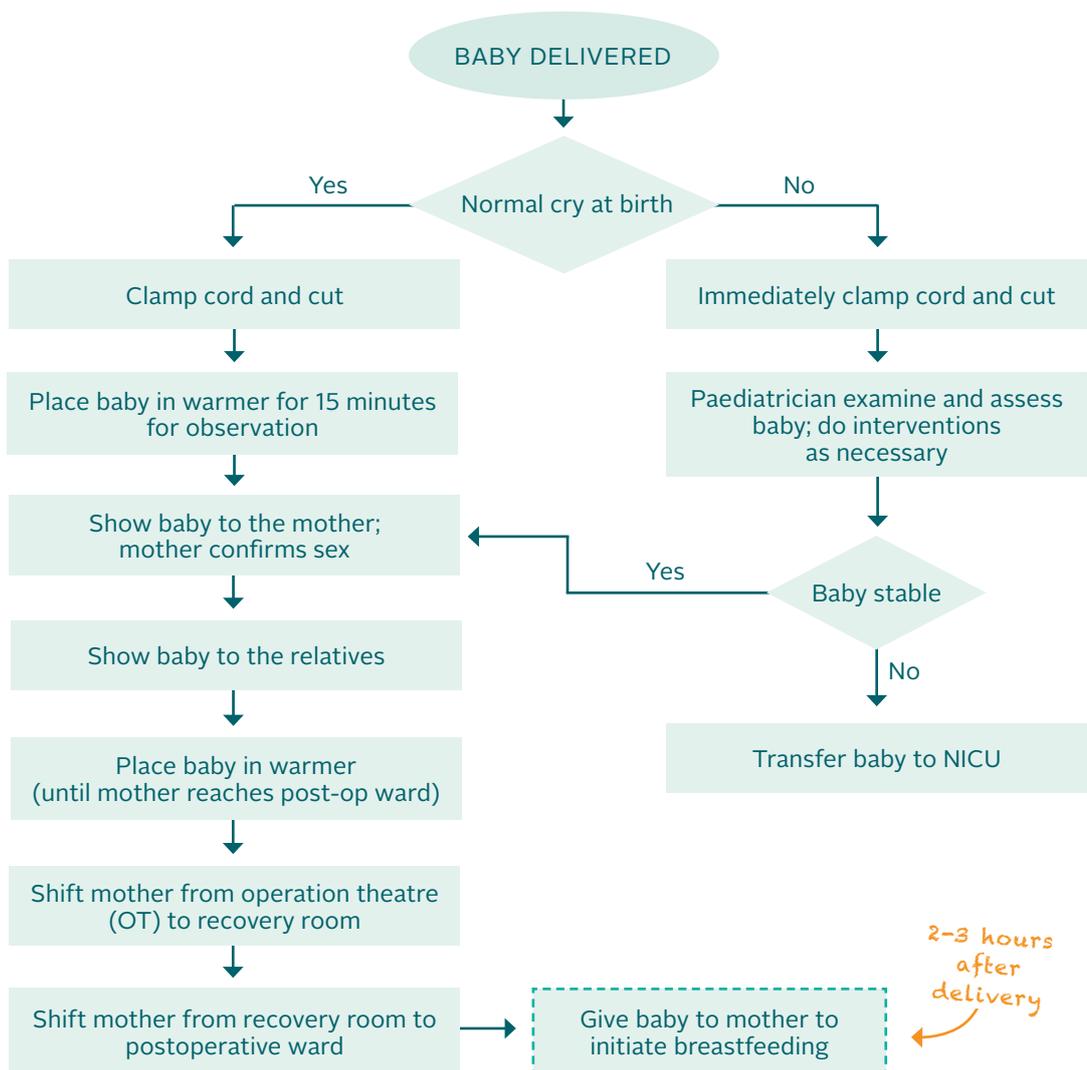
The QI team (with the help of the college QI Coach from A&T) analysed the current situation using a process mapping tool to chart the steps from the time of delivery to the point that the newborn was handed over to the mother for breastfeeding (Figure 1).

The Quality Gap

A delay of 2-3 hours was observed from the time of delivery to the point that the newborn was handed over to the mother for breastfeeding in the post-natal/post-operative ward. If the newborn had a normal cry at birth, the cord would be clamped and cut, and the newborn would be examined by the pediatrician. The baby would be placed in a radiant warmer for observation for 15 minutes, shown to the mother and other family members, followed by identification of his/her sex by the mother. The newborn would remain under observation in the radiant warmer while the mother was shifted to the post-operative ward. The baby would be given to the mother to begin breastfeeding only after she was transferred to the post-operative ward, 2-3 hours after birth.

The team also observed that there was no practice of recording and regular measurement of EIBF in non-complicated C-section deliveries. EIBF in C-sections was taken as 0% because no data were available. The team decided to develop a time series chart to measure the improvements.

FIGURE 1. The process before quality improvement



3

DEVELOP AND TEST CHANGES

The Intervention

Within this step, the QI team applied the Plan-Do-Study-Act (PDSA) cycle in one unit of the OBGY department to develop and test the changes in EIBF for non-complicated C-section deliveries.

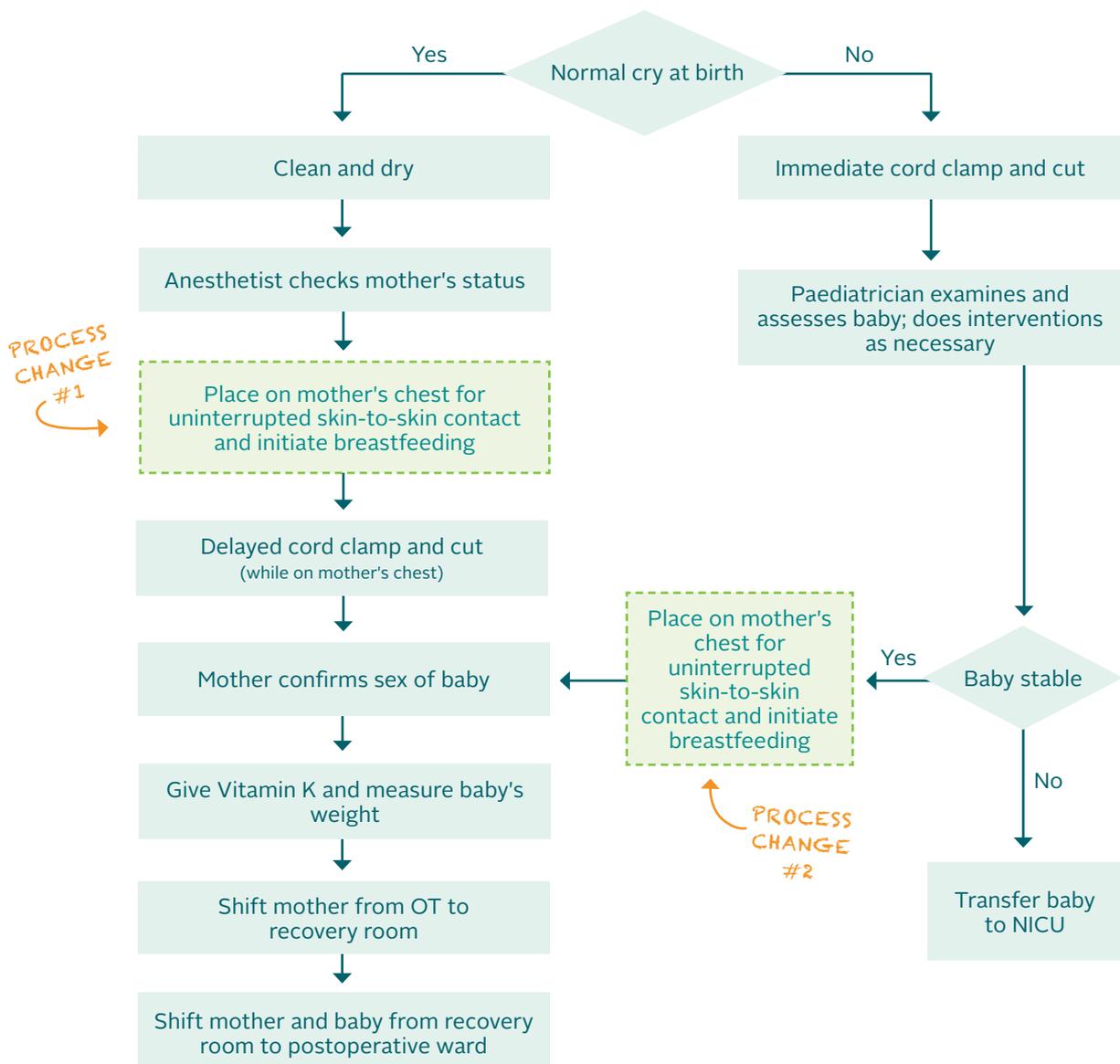


Planning the Changes

The QI team hypothesized what potential changes might improve EIBF practices. They agreed to implement a zero-separation policy for mothers and newborns and they created a new process map to ensure EIBF could occur within one hour of delivery in the OT (Figure 2). Specific roles and responsibilities were assigned to the following staff:

- Anesthetist was assigned to evaluate the mother post-delivery in non-complicated C-section cases.
- The staff nurse was assigned to do the following for a normal baby who cried at birth:
 - clean and dry the baby,
 - place the infant on the mother's chest for immediate skin-to-skin contact,

FIGURE 2. The new process after quality improvement



WHAT WORKED WELL?

- The quality improvement training, and the demonstration videos of EIBF after a C-section delivery, helped to build the confidence of the doctors and staff in the OBGY department.
- Pregnant women and their families were counselled on the importance and benefits of EIBF for the newborn before the C-section procedure. This was an opportunity to address concerns about the mother's health in the OT and her ability to breastfeed even after a C-section. They were also assured that the attending OT nursing staff would provide support for EIBF.
- A trusted family member was allowed to be the mother's birth companion and was oriented on how to help the staff nurse provide motivational support to the new mother and facilitate EIBF.

WHAT WERE THE GAPS?

- There was some initial apprehension amongst the delivery team members regarding EIBF immediately after cord-cutting and while suturing the mother's wound. The support of nursing staff members was found to be critical in this scenario.
- The OBGY department's data management system was found to be insufficient. It did not capture EIBF.



- initiate breastfeeding after cord cutting while the obstetrician continued the suturing procedure.
- A staff nurse was assigned to counsel pregnant woman and her family on EIBF before labour in the OT.
- One family member was allowed inside the OT as a birth companion to help the staff nurse during EIBF.
- A staff nurse in each shift was assigned to record the data on EIBF in the OT register, indicating the time of breastfeeding post-delivery.

Doing the Test

From August 14-19, 2019, the QI team tested the changes among the five non-complicated C-section deliveries that were performed in the unit that week. The anesthetist evaluated the mother post-delivery in non-complicated C-section cases, and the staff nurse initiated immediate skin-to-skin contact and EIBF after cord-cutting in a healthy newborn (cried at birth) while the obstetrician continued the suturing procedure.

Studying the Change Process

The team found that the changes improved the process for EIBF in the OT, reducing the time of initiation of breastfeeding from 2-3 hours to within 30 minutes. The QI team shared what worked well and what was challenging when they studied the change process. (See sidebar.)

Acting on the Study Findings

After the changes were tested in a single unit in the hospital and finding initial positive results, the changes were replicated in the other two units of the hospital. EIBF and zero separation of a newborn from the mother were made compulsory norms in non-complicated C-section by the OBGY department, and the senior nursing staff and doctors supported EIBF on the operation table. Counselling of family members on EIBF preparedness in the OT was made routine, and one family member was oriented and allowed as birth companion inside the OT to support the process.

The Results

The baseline for EIBF in non-complicated C-section deliveries was assumed to be 0% in July 2019 before the implementation of the QI approach since no documentation was available. After the QI process changes, EIBF rose to 55%. By September 2019, the percentage reached 89%. In October 2019, the intervention was scaled up to two additional units in the OBGY department, which resulted in only 56% of women practicing EIBF in October 2019. The reason for this dip was because the other two units needed more time and handholding support. With a greater focus from the QI team and appropriate communication and support to all the units to ensure EIBF in all non-complicated C-section deliveries, the results improved considerably with EIBF in C-sections reaching 79% by the end of November.

FIGURE 3. Percentage of EIBF in non-complicated C-section deliveries, AIIMS Patna (Jul – Nov 2019)



4

SUSTAIN IMPROVEMENTS

The Way Forward

Encouraged by the positive results, the department of OBGY institutionalized the new change processes to ensure EIBF in non-complicated C-section deliveries, and an adopted zero separation policy for mother and newborns. They also set up a regular recording system for EIBF after C-section deliveries. A team of doctors and nurses in the department of OBGY have been trained on the QI approach. They now have hands-on experience in applying the changes to support EIBF in non-complicated C-section deliveries. It is the hope that this team will not only support and sustain the current changes within the department, but also guide and sustain other QI efforts.

Additionally, an interdepartmental coordination committee has been created with a representation of the departments of OBGY, Pediatrics, and CFM under the chairmanship of the dean of the institute to sustain the efforts through regular monitoring and review of progress.

CONCLUSION

The QI intervention at AIIMS Patna demonstrates that EIBF is feasible in non-complicated C-section deliveries in medical college hospitals with existing human and financial resources. Leadership and encouragement of the Head of the OBGY department played an essential role in helping the doctors and nurses to adopt evidence-based practices for EIBF and improve and help sustain their performance. Initial coaching and support, the involvement of the entire team of doctors and nurses, and interdepartmental coordination acted as key drivers of change to adopt the new norm of EIBF in C-section deliveries.



"Despite knowing the benefits of EIBF, the indicator was lagging in the hospital. The training sessions for doctors and nurses were well prepared and enthusiastically done and motivated the medical staff in labour room duties to initiate EIBF. The training helped in building their confidence that EIBF is feasible, safe, and achievable."

—Dr Monika Anant, Additional Professor, Department of Obstetrics and Gynecology



Early Initiation of Breastfeeding *in Non-Complicated Vaginal Deliveries*

PATNA MEDICAL COLLEGE AND HOSPITAL

BIHAR STATE

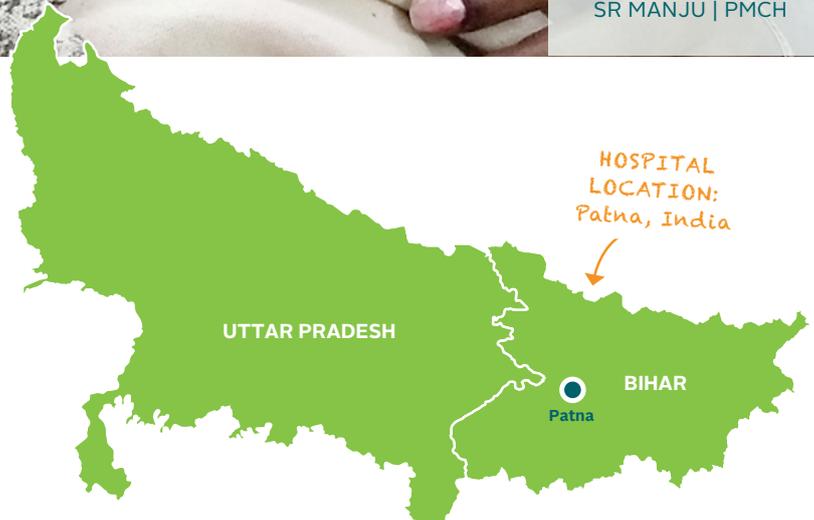


A newborn breastfeeds in the labour room at Patna Medical College and Hospital. Before A&T's quality improvement initiative, mothers did not start breastfeeding their babies until 1-4 hours after delivery. After two months of implementing POCQI, more than 90% of new mothers practiced EIBF.

SR MANJU | PMCH

ABOUT THE HOSPITAL

Founded in 1925, Patna Medical College and Hospital (PMCH) is one of the oldest medical colleges in Asia. It is a leading tertiary care hospital with a high patient turnover. Most of the critical delivery cases from public and private facilities in neighboring districts are referred to the PMCH. The PMCH Department of OBGY manages 520 deliveries on average per month.



QUALITY IMPROVEMENT INITIATIVE

From May-July 2019, A&T engaged MIYCN technical experts and QI experts to train 79 doctors, 123 nurses, and four counsellors from PMCH on updated MIYCN service delivery protocols and POCQI. After the training, the OBGY department formed a QI team to improve MIYCN services with ongoing mentoring and support from A&T. This case study demonstrates the 4-Step POCQI Framework in action.



IDENTIFY A PROBLEM, FORM A TEAM, AND DEFINE THE AIM

The Problem

Early initiation of breastfeeding (EIBF) is a critical MIYCN indicator. Yet, PMCH did not have any process to record and document the time of initiation of breastfeeding post-delivery in non-complicated vaginal deliveries. The revised MIYCN-focused service delivery protocols, supported by A&T, had a major emphasis on improving EIBF practice in all deliveries, including non-complicated normal vaginal deliveries.

The Team

The Department of OBGY formed a QI team of faculty, senior residents, and nursing staff to address the problem.

The Aim

The team chose to address the delay in the initiation of breastfeeding in non-complicated normal vaginal deliveries as the key area of improvement. Early or timely initiation of breastfeeding, specifically within one hour of birth, is of the best practice recommendations by the World Health Organization (WHO) for improving neonatal survival and well-being.

AIM STATEMENT

To improve early initiation of breastfeeding within one hour of birth from 0% to 40% in non-complicated, normal vaginal deliveries over the course of three months.

TIMEFRAME:
July -
September
2019

THE TEAM

TEAM LEADER



Dr Chandar Kiran
Head of Department,
Department of OBGY

COACH



Dr Rupam Sinha
Associate Professor,
Department of OBGY

TEAM MEMBERS



Dr Alka
Labour Room In-Charge,
Department of OBGY



Dr Ritambhara
PG, II Year,
Department of OBGY



Sr Manju
Sister-in-Charge,
Department of OBGY



Sr Meena
Sister-in-Charge,
Department of OBGY



Sr Kanchan Mala
Sister-in-Charge,
Department of OBGY

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ANALYSE AND MEASURE THE QUALITY OF CARE

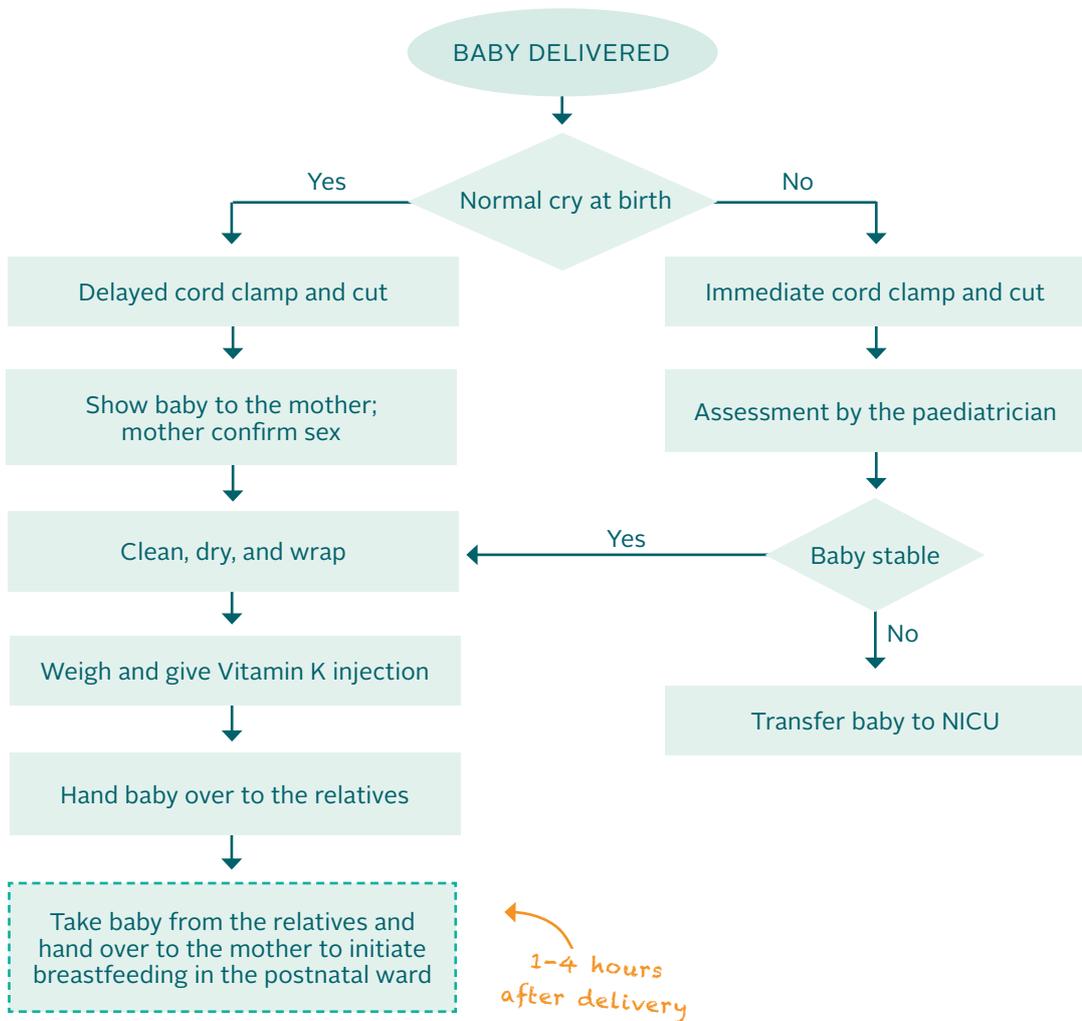
The Analysis

The QI team engaged postgraduate students to observe and analyse the current process for getting new mothers to breastfeed their babies. They observed complication-free, normal vaginal deliveries in the labour room using a process mapping tool. They then charted the steps from the time of delivery to the point that the newborn was given to the mother for breastfeeding (Figure 1).

The Quality Gap

The analysis showed that the primary reason for delayed initiation of breastfeeding was separating the newborn from the mother right after delivery and keeping them separated for a long period of time. Mothers did not start initiating breastfeeding until they arrived in the postnatal ward, approximately 1-4 hours after delivery. Although the nurse in the postnatal ward recorded in the register that breastfeeding was initiated, there was no record of the time of initiation, making it difficult to track if it occurred within one hour of delivery or not.

FIGURE 1. The process before quality improvement



3

DEVELOP AND TEST CHANGES

The Intervention

Within this step, the QI team applied the Plan-Do-Study-Act (PDSA) cycle to develop and test the changes in EIBF for complication-free normal deliveries.



Planning the Changes

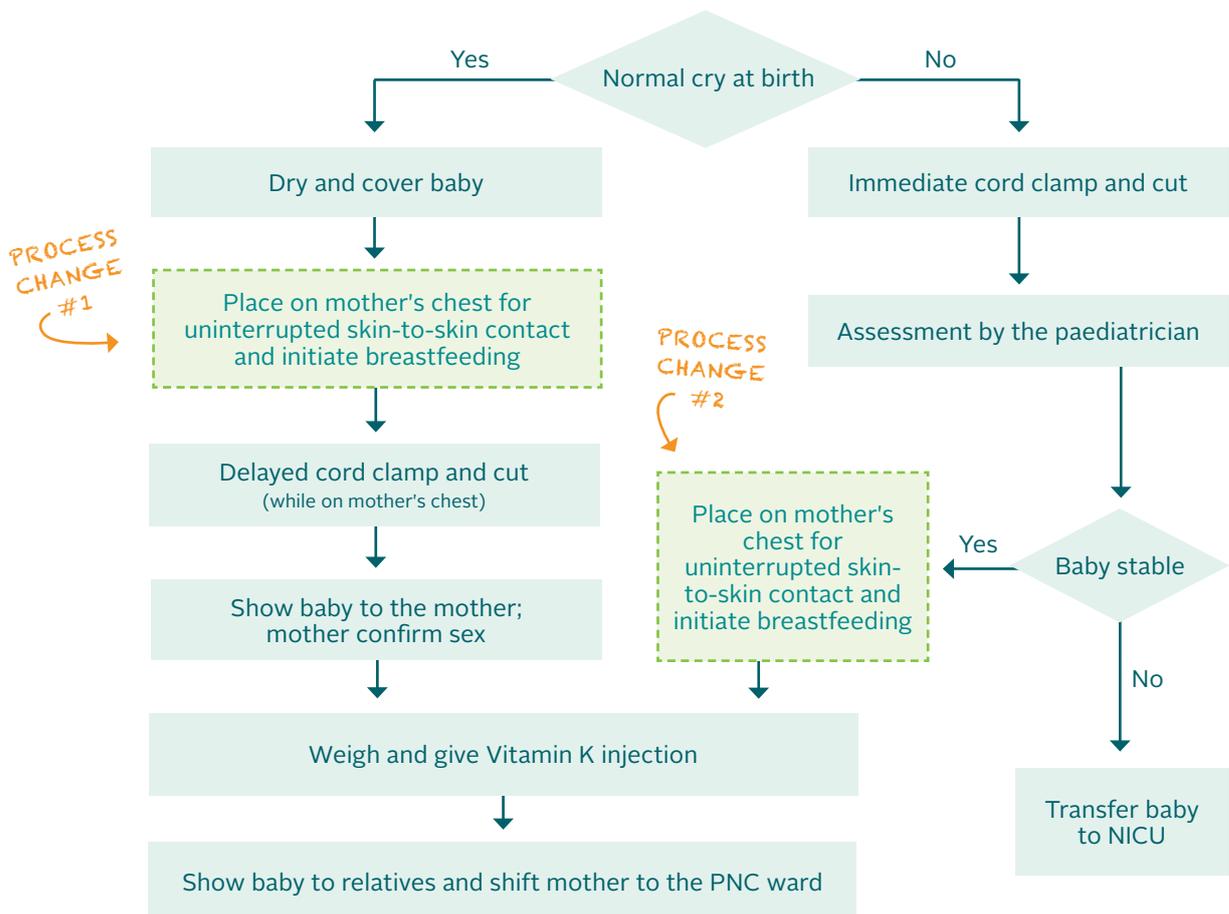
The QI team hypothesized what potential changes might improve the process. They created a new process map with the changes that would ensure EIBF could occur within one hour of delivery in the operation theatre (Figure 2).

The QI team agreed that the newborn would be placed directly on the mother's chest, skin-to-skin, while the mother was still on the delivery table, before cord-cutting. This would allow breastfeeding to start within 10-15 minutes in the labour room, avoiding the delays that were experienced in the old process.

The QI team had many apprehensions regarding the changes, such as:

- The labour table may be too narrow to accommodate the baby for breastfeeding
- The mother may refuse to breastfeed due to pain
- The mother may refuse to breastfeed the baby before he/she is cleaned
- The family members may be resistant to these changes
- The nursing staff may not have time to help initiate breastfeeding

FIGURE 2. The new process after quality improvement



WHAT WORKED WELL?

- To address the apprehensions amongst staff and prepare them for the process change, it helped to have the A&T team share experiences from similar QI initiatives in other hospitals. This built the confidence of the staff in undertaking the EIBF changes.

WHAT WERE THE GAPS?

- The process for documenting the time of initiation of breastfeeding was and continues to be a challenge that needs to be addressed to make it a permanent part of system.



Doing the Test

The team decided to first test the changes on a smaller scale with the help of two postgraduate students who were supervised by the QI team leader. In July 2019, the changes were applied in one unit of the labour room for one day every week.



Studying the Change Process

The team found that the changes they had proposed to support mothers to initiate breastfeeding while in the labour room worked well overall. They did note that the doctors initially faced some challenges in cutting the newborn's cord while the baby was skin-to-skin with the mother, but after several tries, they were able to do so. See the team's assessment of the overall strengths and weaknesses in the sidebar.



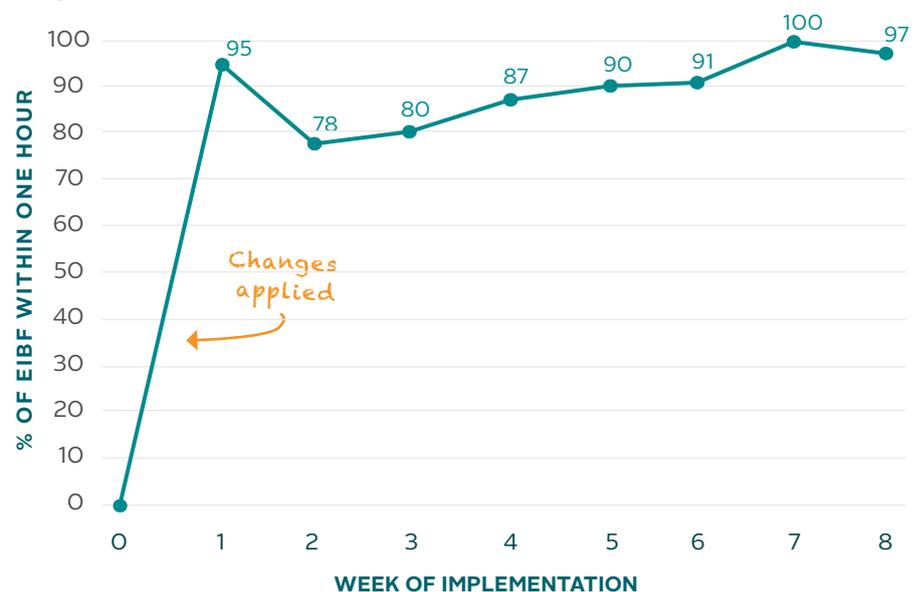
Acting on the Study Findings

Motivated by the positive results, the head of the OBGY department decided to institute EIBF and zero separation of newborns from mothers as a new protocol for normal vaginal deliveries and shared it with all the postgraduate students who were involved in delivery care services.

The Results

Since no data had been collected about the initiation of breastfeeding prior to the POCQI initiative, the QI team decided to set the baseline at zero. After the change in EIBF processes, data was collected weekly from August until September 2019, and the progress was captured and presented to the QI team as seen in Figure 3. The time series chart shows a sharp increase in the initiation of breastfeeding within the labor room after starting the QI initiative.

FIGURE 3. Percentage of EIBF in non-complicated C-section deliveries (Aug – Sep 2019)



4

SUSTAIN IMPROVEMENTS

The Way Forward

The medical staff in the OBGY Department were initially reluctant to apply the QI approach. They felt that it would be difficult to work as a team with different shift timings and that the changes would not be sustainable. However, the QI team successfully demonstrated that it was feasible to make changes in EIBF practices. This helped to build the confidence of the entire department to implement and sustain the changes. Further mentoring support is required before the changes will be fully institutionalised. The QI team plans to initiate the EIBF change for non-complicated C-section deliveries at PMCH.

CONCLUSION

This quality improvement case study demonstrates that EIBF is feasible in non-complicated vaginal deliveries. Facility leadership, initial training, hands-on coaching and support, and teamwork were the key factors that led to the improvements. No additional financial resources were needed.



"Although having known the facts about EIBF, we could not fully operationalize it before. The training sessions for doctors and nurses were so well prepared and enthusiastically done that all involved in labour room duties were motivated to facilitate and ensure EIBF. I find the achievement great and the practice is evidence-based, feasible, safe, and achievable."

—Dr Chandar Kiran, Head of Department, Obstetrics and Gynecology



"Alive & Thrive's efforts in sensitizing doctors and nurses on quality improvement have been important and valuable. The obstetrics team implemented this technique for ensuring early initiation of breastfeeding. We achieved amazing results in just a few months time."

—Dr Rupam Sinha, Associate Professor, Department of Obstetrics and Gynecology



Breastfeeding Support

Early Initiation in Normal Vaginal Deliveries and Counselling

GOVERNMENT MEDICAL COLLEGE, KANNAUJ

UTTAR PRADESH STATE



ABOUT THE HOSPITAL

Government Medical College (GMC), Kannauj, affiliated with King George's Medical University, Lucknow, caters to patients from Kannauj, Farukhabad, Kanpur Dehat, Mainpuri, and Auraiya. It has a monthly outpatient department (OPD) load of approximately 1,000 pregnant women for antenatal care (ANC) and 1,800 children for paediatric care. The hospital conducts between 100-125 deliveries per month.

BASELINE MIYCN PRACTICES

Early initiation of breastfeeding (EIBF) within one hour of birth is a globally recommended practice known to reduce infection-specific neonatal mortality. Exclusive breastfeeding (EBF) (when a baby receives only breastmilk, without any other foods or drinks, including water, until six months of age) helps children survive and supports their healthy brain development and cognitive performance. In GMC, Kannauj, both of these practices were sub-optimal, with very low rates of EIBF and EBF.

QUALITY IMPROVEMENT INITIATIVE

In 2019, A&T engaged MIYCN technical experts and QI experts to train faculty from the departments of Obstetrics & Gynaecology (OBGY), Paediatrics, and Preventive and Social Medicine from GMC, Kannauj on the POCQI approach. After the training, these departments formed a QI team comprised of doctors, faculty, senior residents, and nurses, and the QI experts provided ongoing support as GMC applied the 4-Step POCQI Framework to improve MIYCN services for breastfeeding.



IDENTIFY A PROBLEM, FORM A TEAM, AND DEFINE THE AIM



PHOTO BY AVINENDRA RAJPUT, GMC

The Problem

After receiving the training on POCQI and revised MIYCN protocols by a team of MIYCN and QI experts engaged by A&T, the departments discussed critical problem areas regarding delivery and early essential newborn care—including delayed EIBF, delayed cord clamping, and non-administration of Vitamin K1 injections after birth.

The Team

The departments of OBGY, Paediatrics, and PSM formed a QI team of faculty, senior residents, and nursing staff to address the problems. The team agreed to share the results of each department's QI efforts. They formed two groups—the OBGY and Paediatric QI group—that implemented their respective improvement aims.

Early Initiation of Breastfeeding

The Aim

The QI team decided that the Department of OBGY would focus on the low rates of EIBF in normal vaginal deliveries in their hospital, given the critical benefits of EIBF in reducing infection specific mortality in newborns, neonatal hypothermia, and postpartum bleeding in the mother. EIBF was also chosen as the QI focus since it helps establish early bonding with the mother and provides the baby colostrum, or the first "vaccination." As there was no systematic recording of the EIBF in the labour room logbook, the QI team observed 20 normal deliveries during a week to see whether EIBF was practiced after delivery to obtain an EIBF baseline value. Only 20% of new mothers initiated breastfeeding during the first hour after birth. Using 20% as the baseline measure for EIBF, the QI team decided on the following improvement aim:

AIM STATEMENT

To improve early initiation of breastfeeding within one hour of birth in all normal vaginal delivered babies in the labour room from 20% to 80% in three months.

Exclusive Breastfeeding Counselling

The Aim

The QI team decided that the Department of Paediatrics would focus on counselling and support for EBF to all postpartum women (who had normal deliveries) in the postnatal care (PNC) ward, which was in alignment with the WHO-UNICEF recommended steps of the Baby-Friendly Hospital Initiative. Before the start of the QI efforts, the levels of breastfeeding counselling for postpartum women were suboptimal, and no records of counselling were being kept. To establish a baseline, 20 postpartum women in the PNC ward were interviewed to assess if they had received counselling on breastfeeding and their retention of key messages. Only 15% had been counseled. The QI team decided on the following aim:

AIM STATEMENT

To improve counselling on EBF for postpartum women (with normal vaginal deliveries) in the PNC within 48 hours after delivery from 15% to 80% in three months.

TIMEFRAME:
August -
October 2019



THE TEAM

COACH



Dr Narendra Singh
Assistant Professor,
Dept. of Paediatrics

TEAM LEADERS



Dr D.S. Martoliya
Head of Department,
PSM



Dr Renu Gupta
Head of Department,
OBGY

TEAM MEMBERS



Dr Amrita Saha
Senior Resident,
Department of OBGY



Dr Avinendra Rajput
Junior Resident,
Dept. of Paediatrics



Ms Ismrita Singh
Staff Nurse,
Dept. of Paediatrics



Dr Tanu Midha
Associate Professor,
Department of PSM

2

ANALYSE AND MEASURE THE QUALITY OF CARE

Early Initiation of Breastfeeding

The Analysis

The OBGY QI group developed a process flow chart to map the sequence of activities and services being provided immediately after birth (Figure 1). This helped to identify practices that posed barriers for the initiation of breastfeeding within one hour of birth. The process map showed that the cord-cutting was done immediately after birth, followed by drying/wrapping, placing the newborn in the radiant warmer, weighing, administering vitamin K1, and taking the baby's footprint. Subsequently, the child was handed over to the relatives. It was not clear how much time elapsed before the mother started breastfeeding. The hospital was also not aware whether the newborn was given a pre-lacteal feed.

The Quality Gap

Studying the process flow chart, the OBGY QI group identified that separation of the mother from the newborn immediately after birth was the main cause of delay in EIBF. The team recognized that immediate skin-to-skin contact and EIBF in the first hour of birth was crucial for ensuring optimum health and wellbeing for the newborn. They discussed that a stable newborn does not need to be placed under radiant heat and that weighing of the baby and vitamin K1 administration can be done after the first hour of birth.

FIGURE 1. The process before quality improvement



Exclusive Breastfeeding Counselling

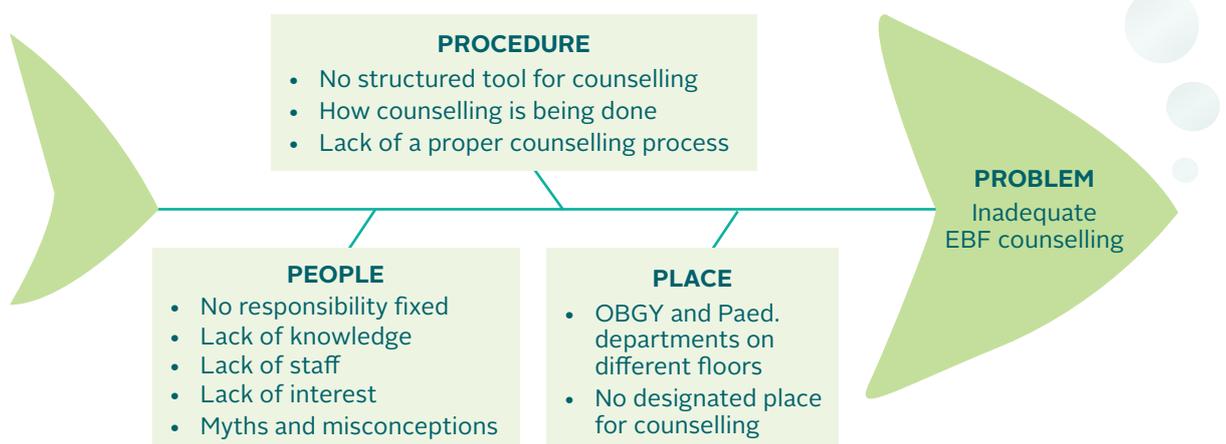
The Analysis

The QI group from the Department of Paediatrics conducted a problem analysis using a fishbone diagram.

The Quality Gap

Lack of dedicated staff, inadequate skills, and tools for counselling, no prescribed process to follow, lack of interest and motivation were critical factors for why postpartum women were not being counselled on EBF.

FIGURE 2. Fishbone analysis of barriers to EBF counselling



3

DEVELOP AND TEST CHANGES

The Intervention

After the completion of process mapping and identification of change areas, the QI groups in both the OBGY and Paediatric departments decided to incorporate changes to improve EIBF and EBF based on evidence-based recommendations and revised MIYCN protocols. They used the Plan-Do-Study-Act (PDSA) cycle to develop and test the changes.

Early Initiation of Breastfeeding



Planning the Changes

The QI members from the Department of OBGY decided that the following changes were needed to align with the current evidence-based protocols for care around birth and early essential newborn care:

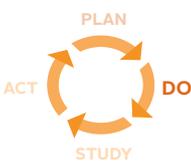
- Immediately after birth, the baby would be delivered on the mother's abdomen.
- The baby would be cleaned, dried quickly, covered and put on the mother's chest with skin-to-skin contact.
- The mother would be supported to hold her baby, and guided on how to initiate breastfeeding.
- Delayed cord-cutting would be done after 3-4 minutes.
- The newborn would be placed in skin-to-skin contact with the mother for the first 1 hour.
- The baby would be weighed, and given the Vitamin K1 injection after the 60 minute skin-to-skin contact and after EIBF has been initiated successfully.

A new process flow chart was developed (Figure 3).

The QI team also decided that the EIBF data needed to be recorded systematically. The department provided a paper register to do so, which was kept in the PNC ward. Junior residents were assigned to record the numbers of women who initiated breastfeeding within one hour.

The team had some apprehensions regarding the proposed changes:

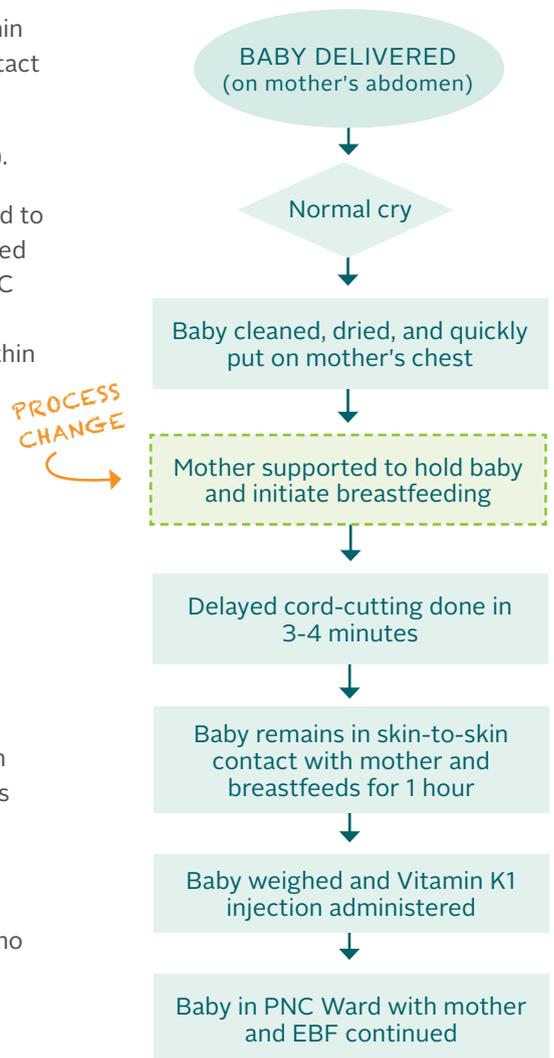
1. The labour table is too narrow and may not be suitable for initiating breastfeeding while the mother is still on the labour table.
2. The mother may not be in the best physical condition due to pain and stress post-delivery to hold the baby and breastfeed.
3. Facilitating breastfeeding immediately after birth might interfere with other essential interventions post-birth.



Doing the Test

For three days, two junior residents who were members of the OBGY QI group implemented the revised processes during their shifts.

FIGURE 3. The process after quality improvement



WHAT WERE THE GAPS?

- There was apprehension among the team, which had to be addressed before the changes could be tests.

WHAT WORKED WELL?

- In order to build the confidence of the QI team and department staff, the leaders shared examples of scenarios where these changes were successfully implemented.
- The coordination between departments was good; they supported each other wherever required. Interdepartmental coordination meetings were held to discuss the progress of the QI project, and accordingly decisions were taken with team members.
- The coach and team leaders provided continuous encouragement and hand-holding support to the team members, which boosted the team's confidence.



Studying the Change Process

They found that it was feasible to deliver the newborn on the mother's abdomen, and then place him/her in skin-to-skin contact on the mother's chest to facilitate EIBF. No other standard labour room practices were affected.



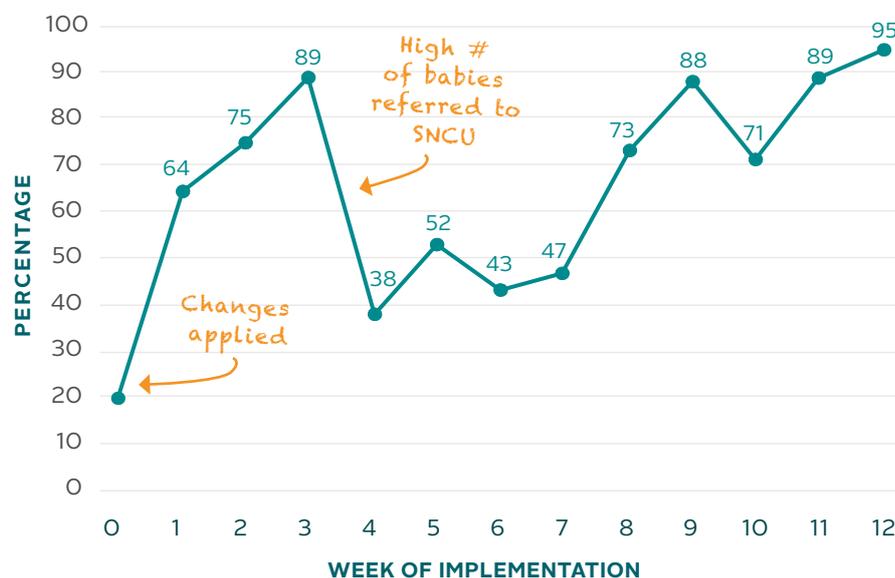
Acting on the Study Findings

These initial positive results motivated the OBGY QI group to test the new process for an additional week. During that period, in all 20 normal deliveries, the new mothers practiced EIBF. As a result, the department adopted the new processes for ensuring immediate skin-to-skin contact and EIBF after all normal deliveries (without any complications). The department also instituted zero separation between the mother and her newborn as a standard practice across all units.

The Results

The time series chart shows that the percentage of children who were breastfed within the first hour of birth improved rapidly across all units from 20% to 95% from August – October 2019 (Figure 4). However, there was a sharp dip from 89% to 38% during the last week of August. The QI team met to discuss the reasons for the decline. They found that during that week, a larger number of babies were referred to the sick newborn care unit (SNCU) to be assessed by a paediatrician, mainly because they were low birthweight. As per the existing protocol, all the referred neonates were kept under 24-hour observation in the SNCU, even if they were stable. The QI team sought support from the QI team of the paediatric department to address this issue. They agreed that in the future, the paediatrician in the SNCU would assess the newborn, and if the baby was stable, he/she would be immediately sent back to the labour room for EIBF. In the last week of September, the new process was tested and found to be feasible, helping to increase the percentage of children who started breastfeeding within one hour of birth.

FIGURE 4. Percentage of EIBF within one hour in normal vaginal deliveries (Aug – Oct 2019)



Exclusive Breastfeeding Counselling



Planning the Changes

Based on the analysis of the current EBF counselling practices in the PNC, the QI group from the Department of Paediatrics planned the following changes:

- Assign the staff nurse and the intern on duty the responsibility to counsel and provide support to new mothers and family members on exclusive breastfeeding.
- Define the key counselling messages on breastfeeding to be given to new mothers in the PNC ward based on the updated protocols, the key messages developed jointly with A&T, and global and national recommendations.
- Monitor and record the number of times post-partum women were counselled.

The counselling included focused information on the following: the benefits of breastfeeding; a warning not to give any water, even in summer months; advice about demand feeding; misconceptions related to breastfeeding; and a demonstration on correct positioning and attachment.



Doing the Test

The QI group tested the changes for a week to see whether they were feasible to carry out. They found that they could be, resulting in 50% of newly delivered mothers counselled during that week.



Studying the Change Process

The group realized that the staff nurse and the intern on duty could counsel new mothers and family members between 8 a.m. to 2 p.m. every day. As it was difficult to designate interns or nurses to provide counselling after 2 p.m., the team discussed the challenge and came up with a solution. See the team's assessment of the situation in the sidebar.



Acting on the Study Findings

Based on these initial positive results, the Department of Paediatrics adopted the norm of counselling postpartum women in the PNC ward from 8 a.m. to 2 p.m. by designating one on-duty staff nurse and one intern to do so.

WHAT WERE THE GAPS?

- Deliveries occurring after 2 p.m. did not initially receive EBF counselling because there was no one available to provide the counselling.

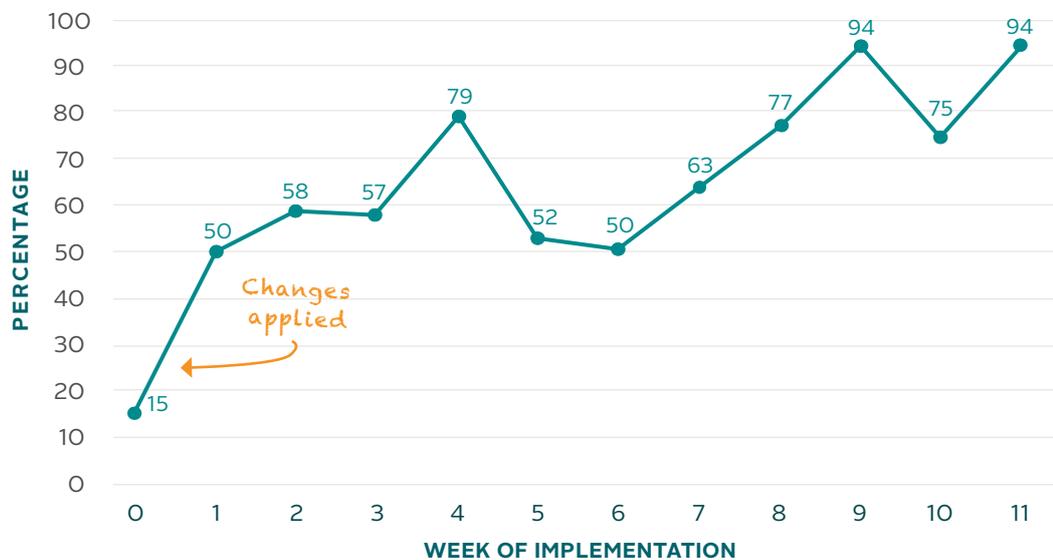
WHAT WORKED WELL?

- The team decided that deliveries occurring after 2 p.m. would be counselled the following morning.
- The overall response from the trial was positive. The mothers appreciated the counselling, and it helped build their confidence in breastfeeding their newborns.

The Results

The results showed that the percentage of postpartum women (with normal deliveries) who were counselled on EBF in the PNC ward within 48 hours of delivery improved from 15% to 94% between August – October 2019, exceeding the original aim of the group (Figure 5).

FIGURE 5. Percentage of postpartum women (with normal deliveries) counselled on exclusive breastfeeding within 48 hours of delivery (Aug – Oct 2019)



4

SUSTAIN IMPROVEMENTS

The Way Forward

Encouraged by the positive results, the Department of OBGY institutionalized the processes to ensure EIBF in all normal deliveries, adopted zero separation of mothers and their newborns and set up a regular recording system for EIBF in normal deliveries. The Department of Paediatrics institutionalized the process of providing and recording counselling on EBF to all postpartum women in the postnatal ward. An interdepartmental coordination committee was formed under the leadership of the GMC principal, with the representation of the departments of OBGY, Paediatrics, and Community Medicine. This committee was responsible for sustaining the QI efforts through regular monitoring and review of progress. Proactive leadership from the heads of each department, active involvement of the entire team of doctors and nurses, and interdepartmental coordination acted as key drivers of change and sustainability.

CONCLUSION

This case study demonstrates that using the POCQI methodology can lead to improved provision of quality services and care to mothers and neonates in GMC, Kannauj, with no additional resources. Several factors helped the improvement efforts —institutional leadership, synergistic work between the departments of OBGY and Paediatrics, and motivation and capacity building of a team of doctors and nursing staff.



"EIBF has immensely reduced the risk of neonatal infection and hospital admission of the neonates. Training and capacity building on MIYCN protocols and quality improvement supported by Alive & Thrive was the key for improvements."

—Dr Renu Gupta, Head of Department, Obstetrics and Gynecology



Maternal Nutrition

During Antenatal Care

GANESH SHANKAR VIDYARTHI MEMORIAL MEDICAL COLLEGE, KANPUR

UTTAR PRADESH



DEEPAK ANAND | GSVM

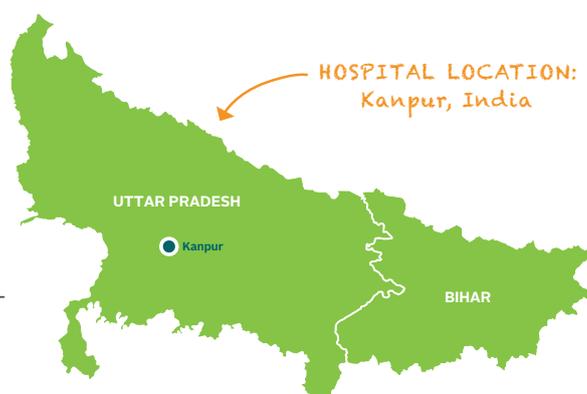
Pregnant woman being counselled on maternal nutrition during ANC at GSVM, Kanpur. Before A&T's quality improvement initiative, pregnant women were not being counselled on maternal nutrition during their ANC visits. After five months of implementing POCQI, 76% of pregnant women were counselled.

ABOUT THE HOSPITAL

Ganesh Shankar Vidyarthi Memorial (GSVM) Medical College is a state-run medical college in Kanpur, Uttar Pradesh affiliated with King George Medical University, Lucknow. It is a 1,055-bed hospital catering to patients from Kanpur and adjoining districts of Kanpur Dehat, Unnao, Hamirpur, and Fatehpur. About 2,500-3,000 women attend the OBGY outpatient department (OPD) monthly, of which 300-350 are for antenatal care (ANC) check-ups.

MIYCN INDICATORS AND PRACTICES

In India, half of all pregnant women between the ages of 15 to 49 years are anaemic. In Uttar Pradesh, this figure is slightly higher at 51%, and only 13% of pregnant women consume the recommended 100 or more iron and folic acid (IFA) tablets during pregnancy (NFHS 4, 2025-2016). Formative research conducted by Alive & Thrive in 2016 found that only 9% of pregnant women in Uttar Pradesh consume foods from at least five designated food groups, as per global recommendations.



HOSPITAL LOCATION:
Kanpur, India

QUALITY IMPROVEMENT INITIATIVE

In April 2019, A&T engaged MIYCN technical experts and QI experts to train a team of 49 staff nurses, 100 junior and senior resident doctors, 37 medical interns, and 20 senior faculty doctors from the departments of OBGY, Community Medicine (PSM), and Paediatrics on evidence-based MIYCN service delivery protocols and the POCQI methodology. After the training, a QI team was formed to improve MIYCN services. This case study demonstrates the 4-Step POCQI Framework in action.

1

IDENTIFY A PROBLEM, FORM A TEAM, AND DEFINE THE AIM

The Problem

At GSVM Medical College, pregnant women who visited the OPD for ANC check-ups were not receiving the following nutrition-related services:

- Anthropometric measurements (height, weight, and body mass index)
- Tracking of gestational weight gain
- Counselling on a diverse and adequate diet
- IFA and calcium supplementation

Only 58% of pregnant women had their haemoglobin (Hb) tested. The health workers from the Department of OBGY had the updated protocols from the Ministry of Health and Family Welfare (MoHFW) on maternal nutrition services and counselling during ANC, but they were not putting the protocols into practice.

The Team

The Department of OBGY formed a QI team to address the problem.

The Aim

The team chose to focus on improving anthropometric measurements, Hb testing, measurement of blood pressure, and maternal nutrition counselling during ANC.

AIM STATEMENT

To improve maternal nutrition services and counselling during ANC at GSVM Medical College by:

- Increasing measurement of height and weight and counselling from 0% to 70% in five months.
- Increasing HB measurement from 58% to 70% in five months.

TIMEFRAME:
April-
September
2019

THE TEAM

TEAM LEADER



Dr Kiran Pandey

Head of Department,
OBGY

TEAM MEMBERS



Dr Neena Gupta

Professor,
Department of OBGY



Dr Pavika Lal

Assistant Professor,
Department of OBGY



Dr Seema Nigam

Head of Department,
Community Medicine



Dr Deepak Anand

Assistant Professor,
Department of
Community Medicine



Ms Anshu Agnihotri

Counsellor

2 Interns

Department of
Community Medicine

2

ANALYSE AND MEASURE THE QUALITY OF CARE

The Analysis

The QI team, with technical support from A&T QI experts, analyzed and discussed the current ANC service delivery process to better understand the steps from the time a pregnant woman entered the OPD to the time she exited.

The Quality Gap

Two critical gaps were revealed:

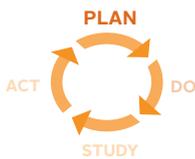
1. There was no systematic mechanism to ensure that all pregnant women in the OPD received all essential ANC components.
2. There was no register to record data on ANC service provision. Other than haemoglobin test results, no other data or register existed to determine if a pregnant woman had received a complete package of ANC services, including maternal nutrition services and counselling, as per the ANC protocol. The QI team thus agreed that the baseline for weight, height measurement, blood pressure checks during ANC was "0%."

3

DEVELOP AND TEST CHANGES

The Intervention

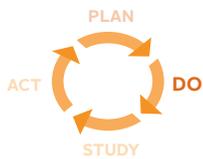
The QI team decided to use a series of Plan-Do-Study-Act (PDSA) cycles in three units (teams) of the OBGY Department to develop and test the changes related to ANC services and counselling.



Planning the Changes

They decided to test the following changes to strengthen ANC services:

- Implement a systematic patient flow system
- Ensure delivery of all essential maternal nutrition services during ANC
- Strengthen maternal nutrition counselling
- Develop an ANC register where all services a woman received during ANC could be recorded



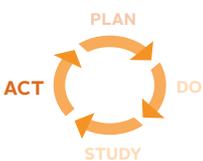
Doing the Tests

Table 1 provides details on the change processes that the QI team developed and tested on a small scale.



Studying the Change Process

The QI team found that during the testing phase, most of the changes listed in Table 1 could be feasibly implemented except the same-day availability of Hb test reports, which continues to be a challenge due to the limited capacity of the in-house laboratory testing.



Acting on the Study Findings

The changes did not require additional resources nor added to the workload of the doctors and staff nurses in the OBGY Department. By recommendation of the QI team, all units of the OBGY Department adopted the changes.

TABLE 1. Tests of Change Processes

Categories of Changes	Tests of Change Processes
Patient flow management	A team of OPD doctors, nurses, and counsellors and Red Cross volunteers developed a plan for improved patient flow during ANC that allowed for pregnant women to obtain the various ANC service components sequentially. This “change” was tested in three OPDs with support from the Red Cross volunteers.
Recording and verification of ANC interventions received	The QI team assigned a senior resident the responsibility of verifying whether a pregnant woman had received all ANC services (e.g., anthropometric measurement, BP check, Hb testing) before the patient was directed to the faculty doctor for a review of the findings and an obstetric assessment. This change was found to be effective for ensuring that pregnant women received all the ANC services available.
Ensuring receipt of Hb test report on the same day	As per current practice, pregnant women would not receive their Hb test results on the same day. Instead, they had to make another OPD visit so that the doctor could review and discuss their findings with them. Often pregnant women, especially those who lived far from the hospital, did not go back for this second visit, given their time and financial constraints. The QI team decided to try to make the Hb report available on the same day as it was critical for timely anaemia assessment and treatment. However, this change could not be applied in 100% of the cases due to the limited capacity of the in-house testing laboratory.
Use of MCP card to record and track ANC data	The QI team facilitated the availability and use of government-issued Mother and Child Protection (MCP) cards, which are designed to record and track anthropometric measurements, clinical examination (blood pressure), and tests (e.g., blood test report for Hb, urine test for sugar and albumin). Initially, a junior resident (JR) doctor was assigned to transfer the ANC data from each pregnant woman from the OPD slips to the MCP cards. However, the team found that this was not sustainable since the JR was also responsible for other patients in the OPD. Therefore, the team decided to assign the responsibility to the auxiliary nurse midwife (ANM) who worked at the adjoining family planning centre. The team found that not all ANC clients reported to the ANM to get their data from the OPD slip transferred to their MCP card. Also, in some cases, the data related to weight, height, and BP was not recorded on the OPD slip. To address this issue, the QI team briefed and oriented the JRs and ANM on the importance of recording these parameters in the OPD slips and the MCP cards.
Nutritional counselling	<p>Since the hospital lacked a dedicated nutrition counsellor, the HIV counsellor was assigned the additional responsibility for counselling the pregnant women on the importance of a healthy diet. However, due to the high patient load, this was not sustainable. Group counselling was also not a feasible option since there was not enough space in the OPD. To address this challenge, a junior doctor from the OBGY Department was appointed to do the nutrition counselling.</p> <p>Additionally, women were separated based on their Hb status (normal, moderate, severely anaemic), and additional need-based counselling was provided to women who were moderately or severely anaemic.</p>
Assessment of counselling quality	To assess the quality of nutrition counselling and to improve counselling, the departments of OBGY and PSM developed an exit interview questionnaire for pregnant women attending ANC. A junior resident from the Department of PSM was assigned to conduct the interviews with randomly chosen patients two times a week. The process was both feasible and sustainable.
Developing data recording system	The QI team introduced the system of recording ANC data, including maternal nutrition services. Previously, the data was recorded by the HIV counsellor. However, as described above, this counselling mechanism did not work. Therefore, at the suggestion of the QI team, the OBGY Department developed a new register to record all relevant information on services provided to pregnant women at the ANC OPD.

The Results

After implementing the POCQI approach and testing changes over five months, more pregnant women were provided nutrition-related ANC services. Below is a summary of the results:

- The percentage of pregnant women weighed during ANC increased from 0% in April to 84% in September. Height measurement increased from 0% to 74% (Figure 1).
- Blood pressure measurement increased from 0% to 84% (Figure 2).
- Haemoglobin testing increased from 58% at baseline to 84% in September (Figure 3).
- Maternal nutrition counselling was provided to 76% of the pregnant women visiting the ANC OPD in September, a significant achievement as this was a new practice introduced in the OPD (Figure 4).

FIGURE 1. Height and weight measurement

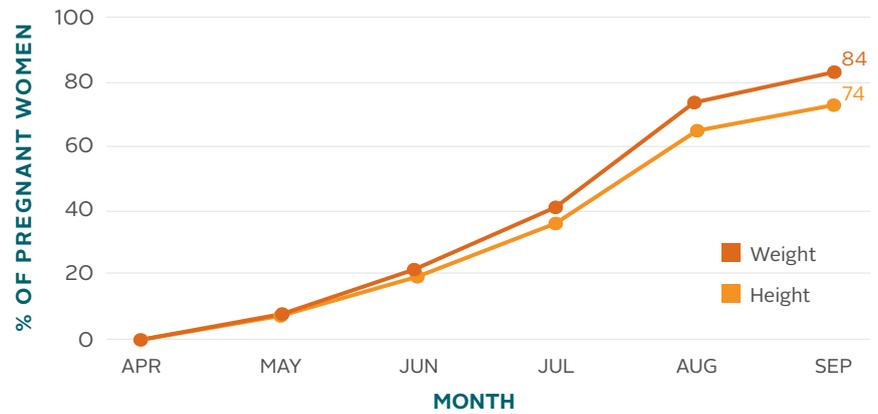


FIGURE 2. Blood pressure measurement



FIGURE 3. Haemoglobin testing

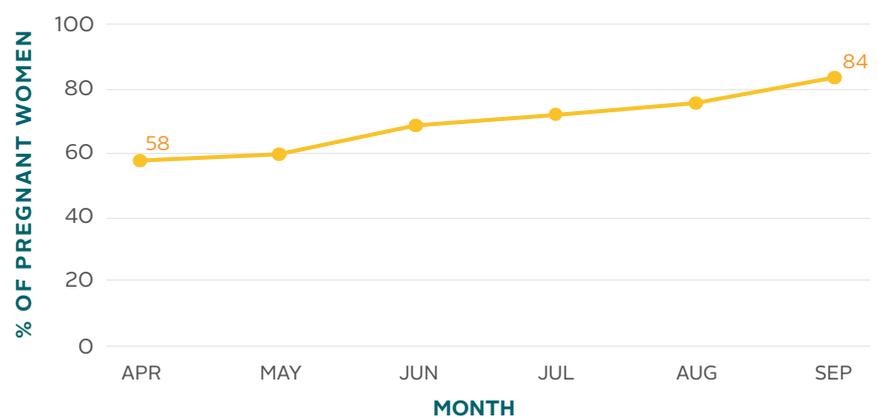
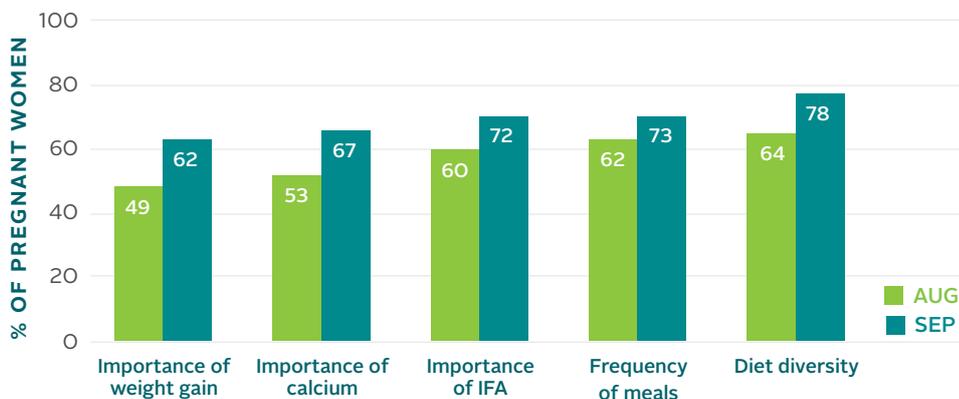


FIGURE 4. Maternal nutrition counselling



FIGURE 5. Recall of maternal nutrition messages



The Results (Cont.)

Exit interview data showed improvements in the recall of maternal nutrition messages among pregnant women attending ANC between August and September 2019 (Figure 5). Improvements in their recall of the importance of weight gain, Calcium tablets, IFA tablets, frequency of meals, and diet diversity were observed.

4

SUSTAIN IMPROVEMENTS

The Way Forward

The improved practices are being institutionalized and sustained through active engagement of the staff and supportive leadership of the Department of OBGY. The hospital has also formed an interdepartmental coordination committee with representation of the departments of OBGY, Paediatrics, and Community Medicine under the leadership of the Principal to regularly monitor and review progress and support as required.

CONCLUSION

Successful application of the POCQI approach built confidence and enhanced the motivation of the doctors and nursing staff that service delivery improvements are possible with minimal additional resource investments. It also demonstrated how maternal nutrition services, including counselling, could be prioritized in ANC and delivered effectively. Proactive leadership from the Head of the OBGY Department, active involvement of the team of doctors and nurses, and interdepartmental coordination acted as key drivers of sustainable change.



"We are able to provide better services for antenatal and postnatal patients with the help of technical support from Alive & Thrive. We have improved ANC interventions through the Point of Care Quality Improvement approach and have been able to sensitize patients on the importance of maternal nutrition. The percentage of haemoglobin tests has increased, and the proportion of pregnant women undergoing other examinations such as height, weight, and blood pressure has also significantly increased. Counselling pregnant women on dietary diversity and quantity, the importance of IFA and calcium supplementation, and weight gain during pregnancy has also improved."

—Dr Kiran Pandey, Head of Department, Obstetrics and Gynecology



Child Malnutrition

Screening and Management of SAM and MAM

BABA RAGHAV DAS MEDICAL COLLEGE, GORAKHPUR

UTTAR PRADESH STATE



MS PADMINI | BRD MEDICAL COLLEGE

Dietician Padmini Shukla takes the anthropometric measurements of a child in the paediatric OPD at BRD in 2019 as part of the new screening process to identify malnutrition cases. Before the quality improvement initiative, there was no screening to detect undernutrition, which has been an underlying complication for the region's high number of acute encephalitis cases in children. After the first week of implementing the new process, 100% of children were screened.



ABOUT THE HOSPITAL

Baba Raghav Das (BRD) Medical College, Gorakhpur is a leading medical institute as well as a tertiary care referral hospital. It is a major centre for treating acute encephalitis—a disease that has seen regular outbreaks in the region during the monsoon season. The 1,050-bed hospital serves 15 districts from the 300 km area around Gorakhpur. It caters to an average of 3,600-4,500 children every month in the paediatric outpatient department (OPD) and 1,200-1,500 pregnant women every month in the antenatal OPD and delivers 250-300 babies per month. The hospital also functions as a state-level resource centre for Infant and Young Child Feeding (IYCF) and is responsible for building the capacity of doctors, nurses, and frontline health workers in IYCF.

QUALITY IMPROVEMENT INITIATIVE

In 2019, A&T engaged MIYCN technical experts and QI experts to train key staff from the Department of Paediatrics. The department head and senior faculty members were introduced to new evidence-based MIYCN protocols and the POCQI methodology, then A&T trained 139 staff nurses, 76 junior and senior residents, and five senior faculty members. After the training, a QI team was formed, and the QI experts provided ongoing support as BRD applied the 4-Step POCQI Framework to improve MIYCN services.



IDENTIFY A PROBLEM, FORM A TEAM, AND DEFINE THE AIM

The Problem

Gorakhpur District in Uttar Pradesh is a hotbed of acute encephalitis cases, especially in children. Underlying undernutrition often aggravates the risk of mortality from this disease. Although appropriate management of acute encephalitis had always been a priority in the Department of Paediatrics, the process of screening children for undernutrition had largely been ignored in the OPD and was identified as a major concern by the department.

The Team

The Department of Paediatrics formed a QI team comprised of the department head, senior faculty members, junior residents and counsellors.

The Aim

After discussions with the QI mentors, the team agreed on the following aim statement:

AIM STATEMENT

To improve screening for undernutrition in children age six months to three years from 0 to 60% in the paediatric OPD over a period of two months.

TIMEFRAME:
September-
November
2019

THE TEAM

TEAM LEADER



Dr Anita Mehta
Head of Department,
Paediatrics

COACH



Dr Mahima Mittal
Former Head of
Department, Paediatrics

TEAM MEMBERS



Dr Amitesh Yadav
Assistant Professor,
Dept. of Paediatrics



Dr Mohd. Furqan
Junior Resident,
Dept. of Paediatrics



Ms Nazmeen Khan
Counsellor IYCF,
Dept. of Paediatrics



Ms Rama Jha
Counsellor IYCF,
Dept. of Paediatrics

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ANALYSE AND MEASURE THE QUALITY OF CARE

The Analysis

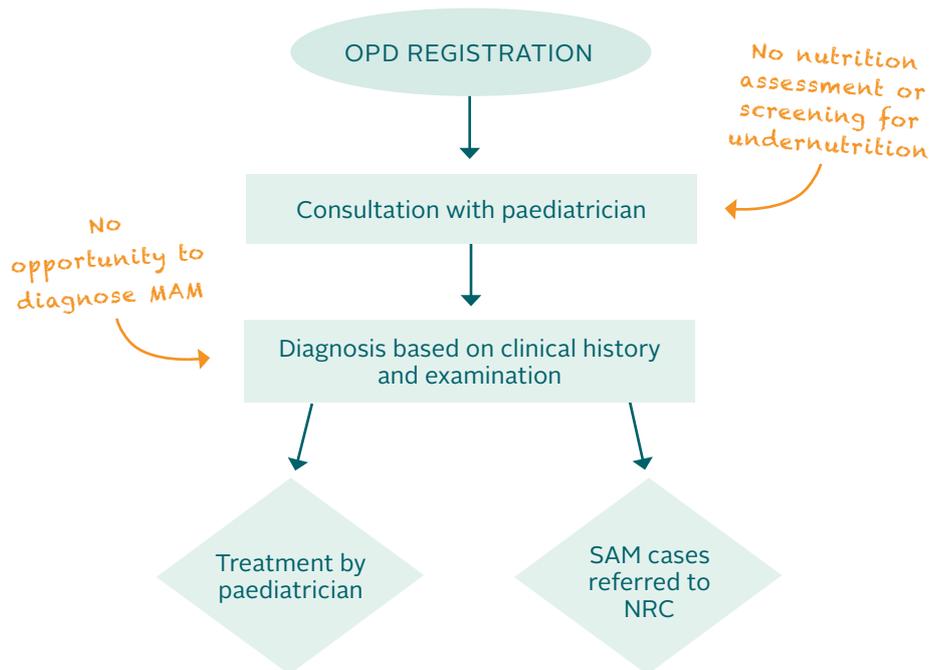
With the help of the QI mentors and coaches, the QI team analysed the process taking place in the OPD to understand the gaps. They created the process map shown in Figure 1.

The Quality Gap

Children who came to the OPD for health check-ups were sent directly to a designated paediatrician at the OPD after registration. The paediatrician only conducted a medical examination and provided necessary treatment based on the clinical signs and symptoms presented by the child. No anthropometric assessment (height, weight, MUAC) was undertaken to determine the child's nutritional status, therefore it was impossible to determine if the child was experiencing moderate acute malnutrition (MAM) or severe acute malnutrition (SAM), and no focused IYCF counselling was provided during the OPD consultation. Only when a child showed visible signs of wasting or clinical signs like bilateral pitting oedema on the ankle were they suspected to have SAM and referred to the hospital's Nutrition Rehabilitation Centre (NRC) for management.

Through further analysis, the team learned why nutrition screening and counselling were not happening. The department lacked designated space, equipment, and staff with the appropriate skills to carry out anthropometric measurements. Without a full-time counsellor to provide nutrition-focused counselling and without the necessary equipment—such as a stadiometer, infantometer, and functional weighing machine—there were no records collected or maintained by the department on the nutritional status of the children coming through the OPD.

FIGURE 1. The process before quality improvement

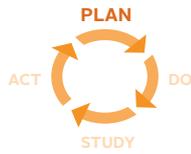


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DEVELOP AND TEST CHANGES

The Intervention

Within this step, the QI team applied the Plan-Do-Study-Act (PDSA) cycle.



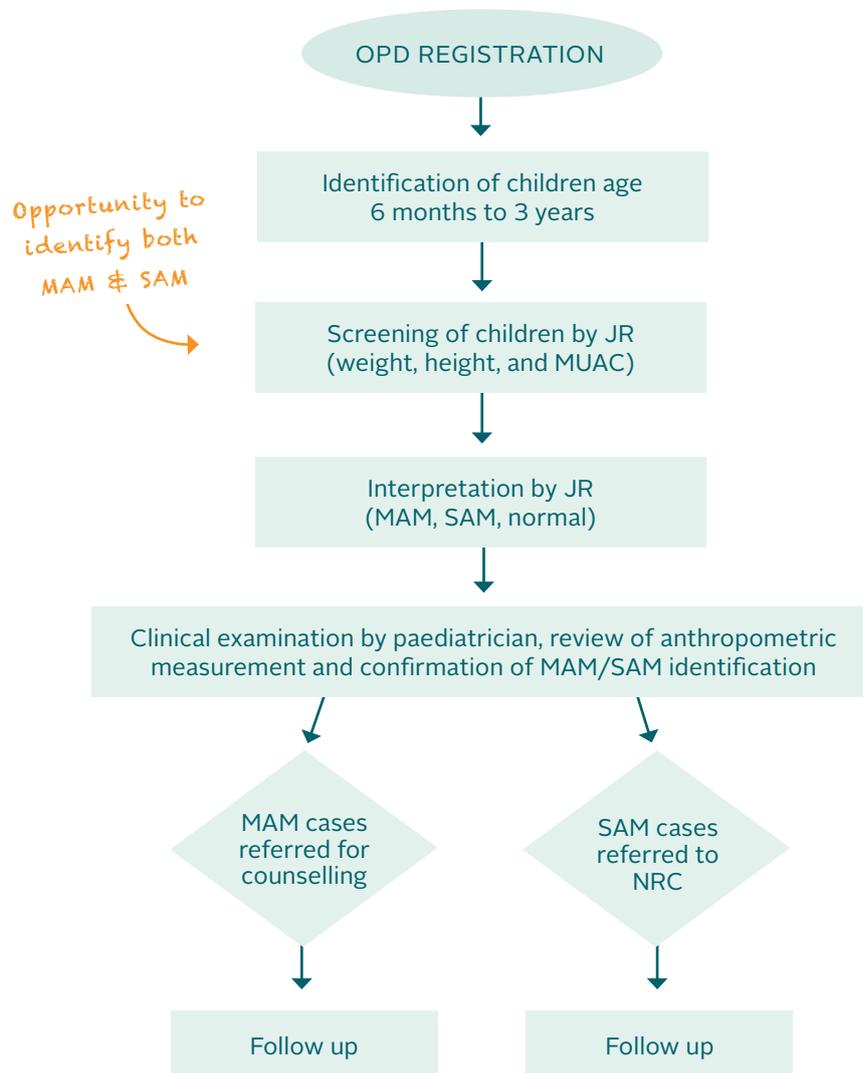
Planning the Changes

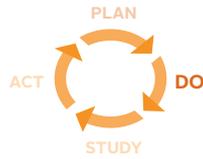
The team decided to include undernutrition screening for all children 6 months to 3 years who arrived at the paediatric OPD seeking care for any health condition. In order to apply this process change, first the team had to designate a space for carrying out the anthropometric measurement of each child. The team planned to repurpose the counter space next to the registration desk for screening.

Next, they determined the roles and responsibilities for the screening process. The responsibility of conducting anthropometric measurements was assigned to one junior resident doctor. An existing IYCF counsellor in the hospital was assigned to be present during the OPD check-ups in order to provide necessary counselling to moderately malnourished children.

To ensure that this vital data would be recorded in the hospital system, a new practice was initiated in which the child's OPD slip would be stamped with the child's age, height, weight, and MUAC.

FIGURE 2. The new process after quality improvement





WHAT WERE THE GAPS?

- Initially, there was a lack of designated space for nutrition screening in the OPD and a lack of anthropometric measurement equipment.
- Another gap was the lack of an efficient way to monitor weight from one visit to the next. When children returned for follow-up care, it was difficult to keep track of the measurements from previous visits due to the limitations of the data collection forms that were used.

WHAT WORKED WELL?

- Problem solving by the team. The space was reorganized near the registration table, and the team was able to acquire the necessary equipment for anthropometric measurement by working with leadership.
- Motivational support and troubleshooting by the leadership where keys to success.
- The QI initiative gave the staff an opportunity to learn about data recording, analysis, and how data can be used to diagnose problems to improve services for patients.



Doing the Test

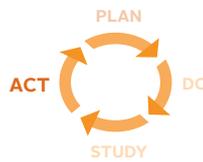
The new process was pilot tested for two days in the paediatric OPD in September 2019. During the two-day testing period, 107 of the 524 children registered in the paediatric OPD were in the designated age group that required nutrition screening. Once the registration formalities were completed, these children were referred to the counter next to the registration desk for anthropometric measurements. The children were measured by a junior resident doctor and counsellor, then they were classified as normal, MAM, or SAM, based on the WHO criteria for the child's measurements. The child's age, height, weight, and MUAC were recorded on the OPD slip. From there, the consulting paediatrician reviewed this information while clinically examining and prescribing treatment for the child. Depending on the anthropometric assessment, the child's WHO classification, and the findings in the clinical examination, the paediatrician would then refer the caregiver/family members of children with MAM to the IYCF counsellor in the OPD for counselling on diet and feeding. Children with SAM were assessed for any existing medical complications and referred to the NRC.

Studying the Change Process

The following observations were noted based on two days of practice in the OPD:

- Despite the space constraints, reorganization of the space with a table and acquiring the necessary equipment near the registration table for anthropometric measurement was feasible.
- Paediatricians needed to be oriented to review the anthropometric measurements stamped on the OPD slip as a part of the clinical assessment.

The QI team shared what worked well and what was challenging when they studied the change process.



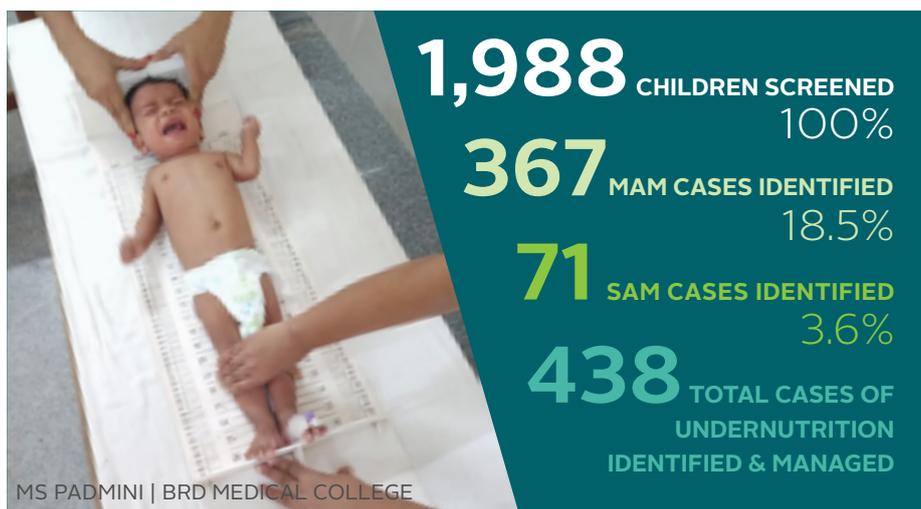
Acting on the Study Findings

Once the QI team was successful in getting all children screened for undernutrition, they decided to improve the way data was used in follow-up visits to track the progress of malnourished children. This required another process change mid-way through the two month implementation period. Formerly, an OPD consultation slip was issued to the child at every visit, which required the paediatrician to refer to multiple consultation slips from previous visits in order to assess progress. This was an inefficient and time-consuming method and unrealistic given the high caseload of OPD patients. To address this issue, the QI team decided to add a "follow-up" column to the slip so the counsellors could record the weight of the child during follow-up visits on one form. During each visit, the child's weight from the previous month was added to the consultation slip. This enabled the paediatrician to determine if the child was gaining adequate weight in one glance.

The Results

The QI team recorded weekly data in a time series chart to determine the results of the changes that were introduced. Within the first week of introducing the new process, improvements were immediately observed in the number of MAM and SAM cases identified. The proportion of children age 6 months to 3 years old who were screened increased from 0 percent to 100 percent in September 2019. All the children who were moderately or severely malnourished received appropriate management and referral. Ninety-five percent of the caregivers of children identified with MAM attended counselling on age-specific diet and feeding practices for their child. By the end of the two-month period, all 1,988 children were screened, and 438 malnutrition cases were identified—367 MAM and 71 SAM.

FIGURE 3. Results from screening children age 6 months to 3 years (September – November 2019)



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SUSTAIN IMPROVEMENTS

The Way Forward

The Department of Paediatrics managed to exceed their QI target, getting every child within the designated age range screened during the two-month period. This boosted the morale and confidence of the paediatric OPD staff to carry forward the services. In response to the positive results, the Head of Department rolled out the practice in all units of the OPD and assigned dedicated staff to continue providing the anthropometric assessment and counselling.

Further, an interdepartmental coordination committee was formed with representation from the departments of OBGY, Paediatrics and Community Medicine under the chair of the college principal. The purpose on this committee is to provide regular monitoring and review of the process and ensure sustainability of the QI efforts. It is hoped that the screening, identification, and timely management of SAM and MAM will improve child health outcomes by reducing the complications that children with acute encephalitis suffer due to poor nutrition.

CONCLUSION

Within two months, 438 malnourished children were identified and given appropriate care.

Before the QI initiative, most of these children would have been missed. Successful application of the QI approach created a sense of confidence and motivation among the doctors, nursing staff, and counsellors in the Department of Paediatrics at BRD. This initiative helped them realize that it is feasible to improve service delivery with minimal resources. Now they are planning to use the POCQI approach to improve other service delivery areas, such as immunisation and Kangaroo Mother Care.



"Application of the quality improvement methodology at BRD Medical College has led to tremendous improvements in the number of children screened for MAM/SAM when they come for consultation for other illnesses at the paediatric OPD. Now, every child attending OPD is screened and treated for undernutrition, and the parents are counselled regarding prevention of undernutrition."

—Dr Anita Mehta, Head of Department, Paediatrics



Infection Prevention in Sick Newborn Care Units

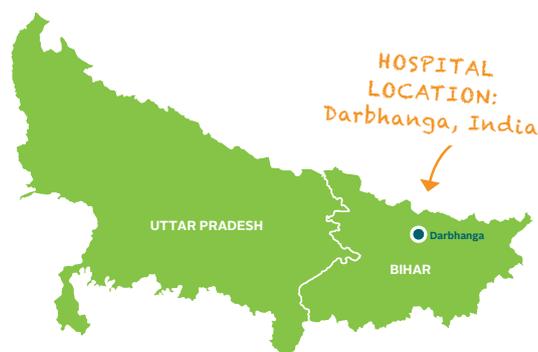
DARBHANGA MEDICAL COLLEGE HOSPITAL

BIHAR STATE



OM PRAKASH | DMCH

Nurse Kavita Kumari wearing a sterile gown for infection prevention in one of the SNCUs at DMCH in October 2019. Before A&T's quality improvement initiative, gowns were never worn in the SNCUs, and handwashing was only practiced about 20% of the time. After two months of implementing POCQI, more than half of the medical staff were wearing gowns consistently and 90% were practicing the recommended handwashing.



ABOUT THE HOSPITAL

Darbhang Medical College and Hospital (DMCH) is managed by the Government of Bihar and recognized by the Medical Council of India. DMCH has 22 departments with well-qualified doctors, dedicated nurses, and supporting paramedical staff. The hospital has two sick newborn care units (SNCUs) with 36 beds, four designated doctors, seven nurses and additional support from post-graduate medical students. At any given time three doctors and three nurses are on duty in the SNCU.

INFECTION RISK IN THE SNCU

Infection is an area of grave concern, particularly among preterm babies. Typically, infection is caused by microbes entering the SNCU via health care workers and visitors. It spreads to preterm and sick neonates with lower immunity through contaminated equipment and contaminated hands of health care workers. While it poses a major threat to neonates, it can be addressed by establishing effective infection prevention and control measures.

QUALITY IMPROVEMENT INITIATIVE

From April – July 2019, A&T engaged QI experts to train a team of 77 doctors and 56 nurses at DMCH on the POCQI approach. After the training, the Department of Paediatrics, formed a team to address one of the hospital's critical areas of concern that affects newborn and child health: infection in the SNCUs. This case study demonstrates the 4-Step POCQI Framework in action to improve handwashing and gown use.



IDENTIFY A PROBLEM, FORM A TEAM, AND DEFINE THE AIM

The Problem

World over, hand hygiene practices are recognized as simple yet effective measures for reducing health care associated infections, yet the anecdotal estimate for handwashing before entering the SNCU at DMCH suggested that it was only being practiced around 20% of the time. The practice of wearing a gown in the SNCU was zero.

The Team

The Department of Paediatrics formed a QI team of faculty, senior residents, and nursing staff to address this problem of newborn infection that was likely to be fuelled by poor handwashing and a lack of gown use.

The Aim

The QI team agreed to test the practices of handwashing and sterile medical gown use because they believed these changes could reduce infection while requiring minimal additional resources. (While this is not a MIYCN-specific issue, DMCH looked broadly at crosscutting practices in their hospital that could affect the quality of care for infants.)

AIM STATEMENT

To improve the practice of handwashing from 20% to 50% and the use of gowns in the SNCU from 0% to 30% during a three-month period.

TIMEFRAME:
August-
October 2019



THE TEAM

TEAM LEADER



Dr K.N. Mishra
Head of Department,
Paediatrics

COACH



Dr Om Prakash
Medical Officer,
Dept. of Paediatrics

TEAM MEMBERS



**Dr Shahnawaz
Ahmad Warsi**
Senior Resident,
Dept. of Paediatrics



Ms Bharti Kumari
Nurse,
Dept. of Paediatrics



Ms Anita Dev
In-Charge,
SNCU



Ms Vinita Kumari
Nurse,
Dept. of Paediatrics

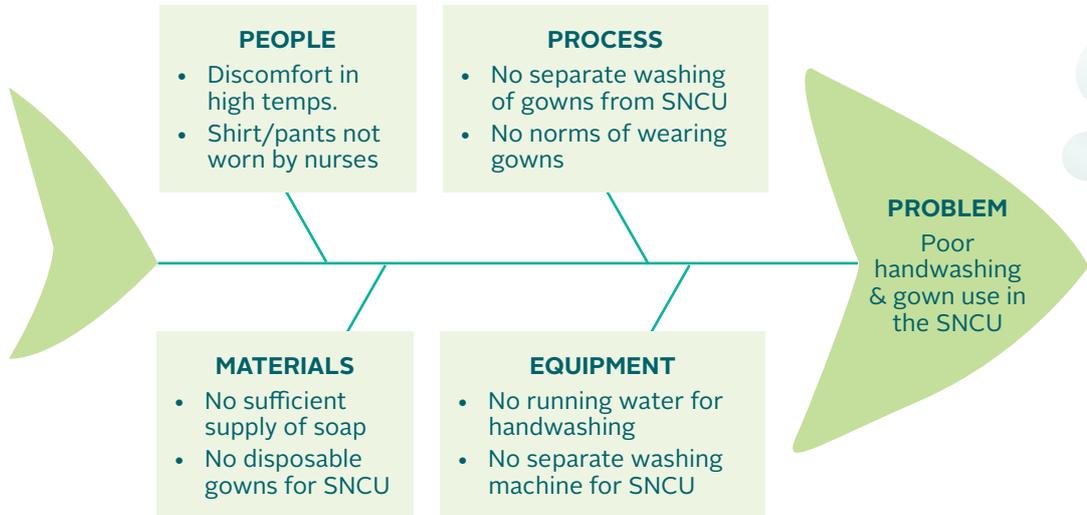
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ANALYSE AND MEASURE THE QUALITY OF CARE

The Analysis

The QI team visited the SNCUs to observe the current hygiene practices. They decided to use the fishbone tool to analyse why handwashing practices were poor and why gowns were not being used (Figure 1).

FIGURE 1. Fishbone analysis of poor handwashing and gown use



The Quality Gap

Discussions with the doctors and nurses revealed some practical reasons why these practices were not in place as well as some system barriers.

Why weren't medical gowns worn in the SNCU?

- They caused discomfort in the warm temperature of the SNCU. The gowns added another layer of clothing on top of the 'Uniform Saree' and the nursing apron. The extra layer was perceived to be uncomfortable, especially in the hot weather and during long duty hours. The alternative uniform—a shirt and trousers—was not preferred by most nurses, particularly the elder nurses, as it was not culturally acceptable, and it was made of polyester material that was not comfortable in the hot and humid weather.
- Medical gowns were deemed non-sterile as there was no segregated washing in the hospital. All laundry, including the blood-stained ones from the labour room was washed together, which made staff members avoid using the gowns.
- Most importantly, there was no norm of wearing medical gowns in the hospital. Hence its use was mostly neglected. Most senior doctors avoided wearing gowns and the juniors emulated the behaviour of the seniors.
- Most preferred disposable gowns, which were not provided in the SNCU.
- There wasn't a protocol requiring all medical personnel and anyone entering to the SNCU to wear gowns.

Why wasn't handwashing happening consistently?

- On most occasions, there was no running water available at the tap in the SNCU. The staff used either a bucket of water, went outside the SNCU, or used saline water to wash hands.
- There was an insufficient supply of soap in the SNCU for washing hands. Sometimes it ran out completely.

3

DEVELOP AND TEST CHANGES

The Intervention

Within this step, the QI team applied the Plan-Do-Study-Act (PDSA) cycle to develop and test changes.



Planning the Changes

Proposed actions to improve gown use

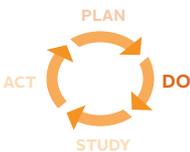
- It was decided that all medical personnel would be required to wear gowns before entering the SNCU. Two doctors in the pediatric department were assigned the responsibility of procuring separate gowns from the medical store for doctors and nurses in the SNCU.
- Two set of gowns were provided to the nurses to wash and wear in rotation.
- To ensure that the gowns provided to the doctors and nurses were clean and sterile, it was agreed that they would be washed separately using a dedicated washing machine in the SNCU.
 - A new automatic washing machine was procured for the SNCU to ensure that the gowns would be washed separately.
 - A staff member was identified to oversee that the gowns were washed regularly.

Proposed actions to improve handwashing

- To ensure the SNCU would have a running water supply, a guard was assigned the responsibility of starting the water pump at regular intervals. Although this addressed the issue of water scarcity overall, there was still no water supply to one of the taps.
- The team decided to install a permanent liquid soap dispenser beside the sink in the corridor of the SNCU to ensure handwashing was feasible before entering the SNCU.

Methods for monitoring progress

- To track these QI efforts, a register was introduced to record if the protocol of handwashing and wearing gowns was being followed by the medical personnel in the SNCU.



Doing the Test

The changes were pilot tested in both of the SNCUs from August 25 – September 4, 2019.

It was agreed that the head of the department, who was also the doctor-in-charge for the month of August 2019, would set an example by donning a gown and washing his hands before entering the SNCU every time. Other medical staff (shown) followed his example.

OM PRAKASH | DMCH



WHAT WORKED WELL?

- Having the Head of Department serve as a role model for the desired practices encouraged more participation.
- The new system of washing gowns separately helped address the doctors' apprehensions about wearing them.

WHAT WERE THE GAPS?

- The provision of uninterrupted running water supply in the SNCU required infrastructural changes, and it was not completely addressed.
- Initially, the gowns were only used by the nurses because the supply of gowns for the doctors was delayed. Once available, the doctors also started donning the gowns. Because the trial period was started before the gowns arrived, there was no data from the trial period for gown use.
- The behaviour changes related to handwashing and wearing a gown were difficult to improve because staff lacked an understanding of the impact of infection prevention and hygiene practices on the wellbeing of sick neonates.
- There were also differing views among the staff regarding the efficacy of wearing a gown.
- Recording and documenting data to track the practice of handwashing and donning gowns was a challenge.



Studying the Change Process

Analysis of the data from the trial period in both SNCUs showed that 40% doctors and nurses were following the practice of handwashing before entering to SNCU on all occasions. The sidebar includes some of the insights that the QI team took away from the trial period.

Acting on the Study Findings

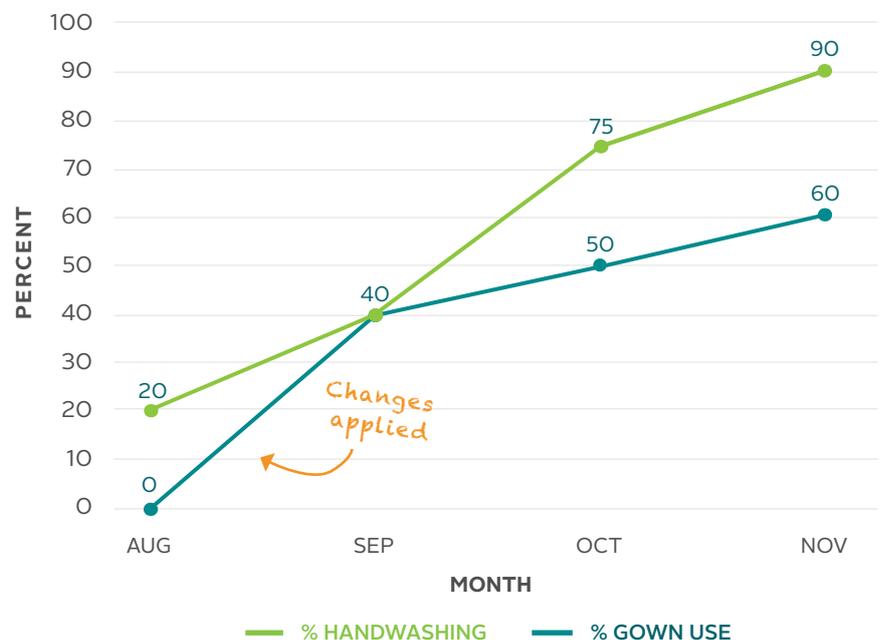
The QI team organized a QI meeting with more than 30 pediatricians, led by the Head of Department, to understand their concerns and sensitize them on the importance of handwashing and donning a medical gown in the SNCU. After learning why these steps were crucial to infection prevention, they were advised to follow the protocols.

A nurse-in-charge was assigned the duty of recording the data for both the medical and paramedical staff in the register. Additionally, the QI team members also randomly observed to substantiate the data that was recorded.

The Results

The results showed notable improvements in both of the infection prevention practices. Handwashing improved from a baseline of 20% to 75% in the month of October 2019, well beyond the target of 50%. It continued to improve to 90% in November 2019. The practice of wearing a gown improved to 50% in October 2019, exceeding the aim of 30%. It continued to improve to 60% in November 2019.

FIGURE 3. Handwashing practices and the use of gowns in the SNCU (Aug – Nov 2019)



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SUSTAIN IMPROVEMENTS

The Way Forward

The new practices were successfully applied and sustained with the support for the dedicated staff of the SNCU, SNCU-in-charge and the head of the pediatrics department. The nurse-in-charge ensured that the data related to the new practices was recorded and maintained. The QI team regularly supervised and motivated the staff to adhere to the new practices until they were accustomed to the changes. These practices have become the norm for the hospital, and they are now part of the system in the SNCU.

CONCLUSION

Existing research has shown that infection control strategies can significantly reduce morbidity and mortality of neonates. At DMCH, handwashing and the use of medical gowns in the SNCU were two practices that were improved in order to reduce infections and ensure better survival outcomes for sick neonates under treatment. With proactive and motivating leadership, the QI team of doctors and nurses jointly developed solutions using available resources. This built a culture of infection prevention in the institution.



"It gives me immense pleasure to see the good practices of handwashing and use of gowns being adopted in the SNCU in the hospital with the support of our team of paediatricians and Alive & Thrive. Quality improvement approach and staff behaviours are pivotal to the survival of the sick child. I will be adopting this QI approach to improve other services also."

—Dr K.N. Mishra, Head of Department, Paediatrics



"Training on QI received from Alive & Thrive provided us with a comprehensive understanding of the approach and helped us identify a critical area for improvement. We were able to ensure handwashing and wearing of a medical gowning in the SNCU with the support of the team of dedicated doctors and nurses."

—Dr Om Prakash, Medical Officer, Department of Paediatrics



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