Improving the Quality of Care for Mothers, Newborns and Children in Health Facilities

POCQI: Point of Care Quality Improvement

Learner Manual | Version 03

Four simple steps to practice quality improvement at health facility level

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Acknowledgement

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SECTION 1
Introduction

Introduction

For reducing maternal, newborn and child mortality the focus has been on reaching higher coverage with key RMNCH interventions[2]. It has been observed that the evidence-based interventions are often delivered with insufficient quality[3]. A number of studies over the past years have documented poor quality of care provided to neonates and children[4,5,6]. Similarly deficiencies in maternal health care, for both routine and emergency care, have also been described[7]. Poor quality of care may even be harmful for the health of the individual and lead to adverse effects on future health-seeking behaviour by communities[8]. Low utilization of health care services by the population and lack of progress towards achieving MDG 4 and 5 can be partially attributed to the poor quality of the services. Issues of quality of care for maternal, newborn, child and adolescent health have been deliberated in several Regional Meetings. Member States have urged WHO-SEARO to provide support for establishing quality of care improvement in a systematic manner.

The Global Strategy for women's children's and adolescents' health (2016-2030) and SDG framework provide further impetus towards ending preventable mortality among mothers, newborns and children. Universal health care is a center piece for SDG3 wherein the quality of health care is a crucial element. Quality of care is embedded in the recently developed global frameworks like ENAP (Every Newborn Action Plan) and EPMM (Ending preventable maternal mortality). It is therefore mandatory that interventions are delivered with sufficient quality, meeting appropriate standards of care.

WHO-HQ with partners has put forth a Global vision for improving quality of MNH care that emphasizes provision of quality of care as well as improved experience of care at the time of childbirth. WHO has worked with partners to finalize the MNH standards[9] for good quality and respectful care, implementation guidelines and a measurement framework.

WHO-SEARO has published Regional Framework for Improving Quality of Care for RMNCAH[10]. The Framework describes the following steps for operationalization at country level:

1. **Getting started**

   - Identify leadership and champions
   - Define roles at various levels

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[2]Countdown to 2015. Accountability for maternal, newborn and child survival: the 2013 update. 2013. WHO and UNICEF.

[3]Souza JP, Gulmezoglu AM, Vogel J, Carroli G, Lumbiganon P, Qureshi Z et al. Moving beyond essential interventions for reduction of maternal mortality (the WHO Multicountry Survey on Maternal and Newborn Health): a cross-sectional study. Lancet 2013 May 18;381(9879):1747-55.

[4]Sidik NA, Lazuardi L, Agung FH, Pritasari K, Roespandi H, Setiawan T et al. Assessment of the quality of hospital care for children in Indonesia. Trop Med Int Health 2013 April;18(4):407-15.

[5]Duke T, Keshishiyan E, Kuttumuratova A, Ostergren M, Ryumina I, Stasii E et al. Quality of hospital care for children in Kazakhstan, Republic of Moldova, and Russia: systematic observational assessment. Lancet 2006 March 18;367(9514):919-25.

[6]Nolan T, Angos P, Cunha AJ, Muhe L, Qazi S, Simoes EA et al. Quality of hospital care for seriously ill children in developing countries. Lancet 2001;357((9250)):106-10.

[7]Ocviyanti D, Prasetyo S, Adisasmita A, Moegni E, Pambudi I, Lawintono L et al. Assessment of the quality of care for mothers and newborns in health facilities in Indonesia. in preparation 2013.

[8]Zaidi AK, Huskins WC, Thaver D, Bhutta ZA, Abbas Z, Goldmann DA. Hospital-acquired neonatal infections in developing countries. Lancet 2005 March 26;365(9465):1175-88.

[9]WHO: Standards for improving quality of maternal and newborn care in health facilities. Access: http://www.who.int/maternal_child_adolescent/documents/improving-maternal-newborn-care-quality/en/

[10]WHO-SEARO: The Regional Framework on improving quality of care for reproductive, maternal, newborn, child and adolescent health. Access: http://www.searo.who.int/entity/maternal_reproductive_health/documents/qoc-framework/en/

2. **Setting standards of care**

   - Develop guidelines based on standards

   - Develop an assessment tool based on standards and guidelines

3. **Assessing current quality of care** and identifying gaps in quality with reference to the established standards. Professionals (Pediatricians, Obstetricians) are trained to access quality of care by using the tools developed in the country

4. **Improvement**

   - Create improvement teams to identify problems and implement solutions

   - Implement a collaborative approach to ensure adherence to guidelines based on standards of care

   - Train health providers (in technical and QI methods) to implement the quality improvement system

5. **Continuous monitoring of performance** and provision of supportive supervision and (self-) assessments of quality of care to measure progress towards the achievement of standards

6. **Documentation and publication** of QI efforts and recognition and celebration of achievements of the standards

7. **Scaling up** to all hospitals and health facilities and communities

WHO-SEARO Member States have reported the use of a variety of approaches for improving quality of care in hospitals/health facilities at a variable scale and pace. Related to steps 1-3 in the Regional Framework, several countries have established or are establishing a structure for quality assurance/quality improvement in MOH at national and sub-national levels; are adopting or updating global standards and guidelines for managing maternal, newborn and child health conditions and have undertaken assessment of quality of care in selected hospitals using WHO integrated assessment tools and others.

What is Quality Improvement?

There are several common reasons why people do not receive the requisite care in health facilities/ hospitals. These include:

- Lack of resources in terms of physical infrastructure and basic facilities, appropriate staff, essential equipment and supplies

- Health workers have insufficient clinical knowledge and skills or understanding of how to ensure good quality of care

- Lack of organization of services at health facilities so that staff are not able to easily provide care that they know is important

Quality Improvement (QI) is a management approach that health workers can use to re-organize patient care at their level to ensure that patients receive good quality healthcare. While QI primarily focuses on re-organizing care within the existing resources, it can also contribute to addressing related issues. For example, QI leads to more efficient use of resources that can solve at least some issues of scarcity. It could help to identify the most relevant gaps in knowledge and skills among healthcare workers and help to prioritize their training and skills building. Quality improvement does help to identify deficiencies in quality of care but is NOT a fault finding exercise. It is a problem solving approach within the local context in health facilities.

Quality improvement is best used as part of a larger healthcare system strategy to address issues of quality of care. An ideal system should include methods to set targets for performance and approaches to change how care is provided to reach those targets as well as a system of accountability so that clients can be sure that good care is being provided. Defining 'Standards of care' is one way of setting clear targets that must be followed in all health facilities. Quality assurance or accreditation mechanisms using external assessors evaluating against the pre-defined standards are ways of ensuring accountability.

In line with the WHO-SEARO Regional Framework for improving quality of care for RMNCAH, Member States are establishing or strengthening the national and subnational institutional mechanisms (e.g. quality of care units and teams at national and state/district levels) across the health system to promote and monitor the quality of care provided and experienced by the clients using the health care services. Member States are in the process of adapting and implementing the global standards for maternal and newborn health care that have been published in 2016 and also the standards for child care published in 2018.[11,12]

In the Regional Framework, step-4 is on promoting improvement of quality of care at the level of health facilities. WHO-SEARO supports Member States to build capacity of healthcare workers to incrementally and progressively improve quality of services at the point of care in health facilities. For this, WHO-SEARO in collaboration with the WHO Collaborating Centre for Training and Research in Newborn Care, All India Institute for Medical Sciences (AIIMS) New Delhi and the United States Agency for International Development Applying Science to Strengthen and Improve Systems (USAID ASSIST) project, has developed a model to be used at point of care in health facilities by the teams of healthcare workers to improve the quality of care for mothers, newborns and children.

This quality improvement approach at health facilities must receive support and active encouragement from the district and state health system. This support should be guided by the national policy and strategy for quality of care led by the ministry of health in the country.[13] WHO SEARO has also developed implementation guidance for setting up and managing a quality improvement program at district level.[14]

Point of Care Quality Improvement (POCQI) model

The POCQI model builds the capacity of healthcare workers in improving the quality of care in health facilities. These improvement efforts by frontline healthcare staff must be supported by the management and leadership of the health facility and the district availability of essential infrastructure for patient care is a pre-requisite for quality improvement.

For this model a training package has been developed to build knowledge and skills of front line health workers to use quality improvement approaches to solve problems in their health facilities and reliably deliver better care. The POCQI package includes a facilitator's manual, a learner's manual, a set of slides and other learning materials.

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[11]Standards for improving quality of maternal and newborn care in health facilities. Geneva: World Health Organization; 2016. Access: https://www.who.int/maternal_child_adolescent/documents/improving-maternal-newborn-care-quality/en/

[12]Standards for improving the quality of care for children and young adolescents in health facilities. Geneva: World Health Organization; 2018. Access: https://www.who.int/maternal_child_adolescent/documents/quality-standards-child-adolescent/en/

[13] Handbook for national quality policy and strategy: a practical approach for developing policy and strategy to improve quality of care. Geneva: World Health Organization; 2018. Access: https://www.who.int/servicedeliverysafety/areas/qhc/nqps_handbook/en/

[14] Setting up and managing a quality improvement programme at district level. World Health Organization Regional Office for South EastAsia. 2018. Access: https://www.pocqi.org/wp-content/uploads/2018/07/Programme-Managment-Guide.pdf

The unique feature and strength of the POCQI model is that it offers a simplified common sense approach that has been used successfully in many settings to improve the quality of care within the available resources.

The POCQI model offers a new paradigm, beyond the often followed approach of providing clinical training/coaching to health workers with the assumption that knowledge-deficit is the primary cause of poor performance and inadequate quality of care. The focus in this model is on team building among the health workers at the health facilities and build their capacity to collectively decide, based on local data, a target that involves problem solving and improving availability and efficient use of existing resources including time, essential medicines and equipment in order to achieve standardization of care for improving quality of care and patient satisfaction.

The underlying assumption for this approach is that healthcare workers want to ensure the best health outcomes for all their patients. The simplified approach of POCQI that looks for early success will immediately improve job-satisfaction among healthcare workers as well as keep them motivated to work as a team at the health facility.

The training package builds upon the work of several initiatives and organizations active in the field of quality improvement including – USAID ASSIST, Institute for Healthcare Improvement (IHI), Helping Babies Survive and Thrive, and Canadian Evidence Based Practice for Improving Quality (EPIQ). The POCQI package has been used in several WHO-SEARO Member States and has been found to be acceptable and feasible to apply in health facilities for improving maternal,newborn and child care.

Learning objectives

This two-day course teaches the principles of and a simple step-wise approach for quality improvement at the point of care in health facilities. It is designed to build the skills of front-line health workers to identify and solve problems at their level without seeking significant additional resources. It does not discuss standards of care or external assessment.

At the end of this course, it is expected that participants will have learned to:

1) **Identify a problem with quality of care, form a team and write an aim statement**

   - How to review data to identify problems
   - How to prioritize which problems to work on
   - How to form a team to work on that problem
   - How to write a clear aim statement

2) **Analyze the problem and measure quality of care**

   - Know the tools for understanding processes and systems of healthcare
   - How using these tools can help identify the causes of and possible solutions to reach your aim
   - How to develop indicators for process and outcome of care
   - How to use indicators to track progress of improvement

3) **Develop changes and test these to learn what works**

   - How to come up with ideas about what to change to reach your aim
   - How to plan a plan-do-study-act (PDSA) cycle to test change ideas
   - What to do as you learn from a PDSA cycle
   - How to test multiple change ideas to achieve your aim

4) **Sustain improvement**

- How to take specific actions to sustain improvement to hardwire the gains – changing the way we work
- How to embed the new process in the hospital policy / system – not just tinkering
- How to work with the system and involve the health workers from beginning
- How to build enthusiasm, motivate team, recognition by certificates and celebration

Course structure

The first day of the course focuses on introducing four QI steps and basic principles and concepts in improving quality of care. The second day guides facility level staff to develop a simple QI project related to their present work and responsibility that they consider is feasible to implement in their health facility with possibility of visible improvement in short time.

- This two-day course mostly involves working in small groups using the learner's manual.
- The learner's manual includes a case scenario with exercises and discussion around each of the four POCQI steps
- On the first day of the course, Each POCQI step is introduced with a short presentation. This is followed by participants working in small groups on a selected case scenarios with exercises and discussion.
- On the second day, participants use a QI project template to develop a simple QI project for their health facility.

SECTION 2

Day 1: The four steps of quality improvement

Case scenario & discussion

STEP: 1 ✔

Identify a problem, form a team and write an aim statement

Learning objectives

You will learn:

1. How to review data to identify problems

2. How to prioritize which problems to work on

3. How to form a team to work on that problem

4. How to write a clear aim statement

Case scenario 1.1

You work at a district hospital in which around 2000 babies are born annually.

*A **single nurse** at a time works in the labour room where she provides routine delivery care, basic emergency obstetric care and postnatal care for mothers and babies.*

*A **nurse in-charge** oversees operations, including ordering supplies. There is also a pharmacist on site.*

*A **doctor** manages the labour ward and is available for emergencies but because they have no blood bank and limited facilities, most emergencies are referred.*

Mothers and babies are kept together after birth and are typically discharged after 24-48 hours. The staff work hard but they think that the care they provide is not as good as it could be.

They decide to look at the data in their hospital birth register to identify some problems that they can fix. The register has information about both processes of care and outcomes. Processes are activities that health workers carry out and outcomes are the end result of those activities.

*The team looks at how well they are carrying out important processes of care and if they are getting the outcomes that they want for their patients. Information on care at birth is collected from the records as shown in the **Hospital Birth Register (Table 1).***

Table 1: Selected data collected from hospital birth registers

	Name	Date of birth (DD/MM)	Time of birth (24 hr)	Delivery route	Uterotonic given in 1st minute	Birth Wt (grams)	Temp °C at 1 hour	Immediate drying	Delayed cord clamping	Discharge date (DD/MM)	Discharge (Home/ Died/ Referred)
1	Gini	15.06	00.45	Vaginal	✓	3400	35.4	✓	✓	16.06	Home
2	Meenu	15.06	06.30	C/S		2460	34.5		✓	17.06	Home
3	Geeta	15.06	14.30	Vaginal		2350	35.2			16.06	Home
4	Ranchu	16.06	09.20	Vaginal	✓	3310	36.8	✓	✓	17.06	Home
5	Tina	16.06	17.50	Vaginal		2670	37.1	✓	✓	17.06	Home
6	Puja	17.06	02.42	Vaginal		2740	34.9		✓	18.06	Referred, PPH
7	Kiran	18.06	08.16	Vaginal	✓	2851	36.8	✓		19.06	Home
8	Meera	18.06	12.25	Vaginal	✓	2780	37.1	✓	✓	19.06	Home
9	Saroj	19.06	18.20	Vaginal		2618	35.8	✓	✓	23.06	Referred, PPH
10	Kirti	19.06	22.10	Vaginal	✓	2651	37.4	✓	✓	24.06	Home

PPH = postpartum hemorrhage

*Normal axillary temperature for newborns is 36.5-37.5°C. In hypothermia the temperature is below 36.5°C. .

** Low birth weight <2500 grams

Discussion 1.1: Identifying the problem

A) What are the different "processes of care" and "outcomes of care" listed in the Hospital Birth Register (Figure 1)?

Processes of care
1.
2.
3.

Outcomes of care
1.
2.
3.

B) Calculate the percent performance of three processes of care

Processes of care	Performance
1.	
2.	
3	

C) Calculate the percent performance of two outcomes of care

Outcome of care	Performance
1.	
2.	
3	

Case scenario 1.2

The staff in the facility identify a number of problems with the care that they are providing. They realize that they are not able to give all women uterotonic (Inj Oxytocin) within one minute and that women are suffering from post-partum hemorrhage (PPH).

They also realize that 20% of babies are born at low weight, that many are not dried quickly and are having their cord clamped early and that many are cold at one hour after delivery. (Hypothermia is temperature < 36.5C)

They decide that they cannot fix everything at once so decide to prioritize one or two projects to work on. They ask for advice on filling in a prioritization matrix.

Discussion 1.2: Prioritizing a problem

Fill out the **prioritization matrix.** Based on your experience in your facility, assign points from to 1 to 5 for each factor (process or outcome):

Note: Please fill the table vertically - i.e score all boxes in one column before moving to the next column. This will help compare all possible aims for the given criteria.

- Important to patients – how important is each aspect of care for better patient outcomes?
  1 is not important (lowest score), 5 is vitally important (highest score).

- Affordable in terms of time and resources – how easy do you think it will be to fix this problem?
  1is not affordable (it will take a lot of time or resources), 5 is very affordable.

- Easy to measure – how easy will it be to measure the problem you are trying to fix?
  1 is very difficult,5 is very easy.

- Under the control of team members – will people in the unit be able to fix this themselves? 1 is not at all under the control of the team members, 5 is entirely under the control of the team members.

Possible aim	Important to patient outcomes (1-5)	Affordable in terms of time and resources (1-5)	Easy to measure (1-5)	Under control of team members (1-5)	Total score (4-20)
Uterotonic given within 1 min					
Management of PPH					
Immediate drying of the body					
Delayed cord clamping					
Low temperature at 1 hr <36.5 degree C					
Low birth weight <2500 grams					

Choose the gap in quality that you think the team should improve:

Case scenario 1.3

The staff has now figured out which of the problems in the care of mothers and newborns they should prioritize and tackle first. They now need help in forming a team to address these gaps.

Discussion 1.3: Forming a team

Discuss how you would organize a team to improve care of mothers and babies in this facility. Determine how many people should be on the team, and who the members might be. Consider the roles of members on the team. Choose and describe an ideal team leader.

Team members	Team Roles
Team leader	**Characteristics of a good team leader?**

Case scenario 1.4

Now that a team is in place to address the problem they all need to develop a clear aim statement. This is important to do so that all of them have the same common understanding of what needs to be achieved.

Discussion 1.4: Writing an aim statement

SMART stands for: Specific, Measurable, Achievable, Relevant, Timely

Aim statements answer the questions what, who, how much and by when.

- *"What" describes the outcome or process that needs improvement*
- *"Who" describes the patient group that will be affected*
- *"How much" describes the change from baseline to the desired result*
- *"By when" describes by when you plan to achieve your desired goal*

The aim statement should follow the structure:

We aim to (what do you want to achieve) **in** (which patient group) **from** (what is the current performance) **to** (what is the desired level of performance) **by** (how long).

Write an aim statement related to the quality gap that you think is most important.

We aim to

In (which patient group)

from (current performance)   to (desired performance)

by (in how much time)

STEP: 2 ✔

Analyze the problem and measure quality of care

Learning objectives

You will learn:

1. Know the tools for understanding processes and systems of healthcare

2. How using these tools can help identify the causes of and possible solutions to reach your aim

3. How to develop indicators for process and outcome of care

4. How to use indicators to track progress of improvement

Case scenario 2.1

The team decides that they want to fix two problems and develop two aim statements.

A) Maternal health: We will increase the percentage of women receiving a uterotonic within one minute after vaginal delivery from 50% to 100% within 4 weeks.

B) Neonatal health: We will reduce the percentage of newborns with low temperature (<36.5°C) at one hour after delivery from 50% to 10% within 6 weeks

Discussion 2.1 – Selecting tools for analysis

List the tools that can be used for analyzing these problems

Case scenario 2.2M

Analysis - Improving uterotonic administration

For Improving uterotonic administration the team uses the following analysis tools:

*   The team develops a process flowchart for maternal care at the time of delivery (Figure 1) in order to understand how they can ensure that all women receive a uterotonic within one minute of delivery.

*   They also use a fishbone diagram (Figure 2) to identify problems with providing a uterotonic in the first minute after delivery.

Figure 1: Maternal care flowchart
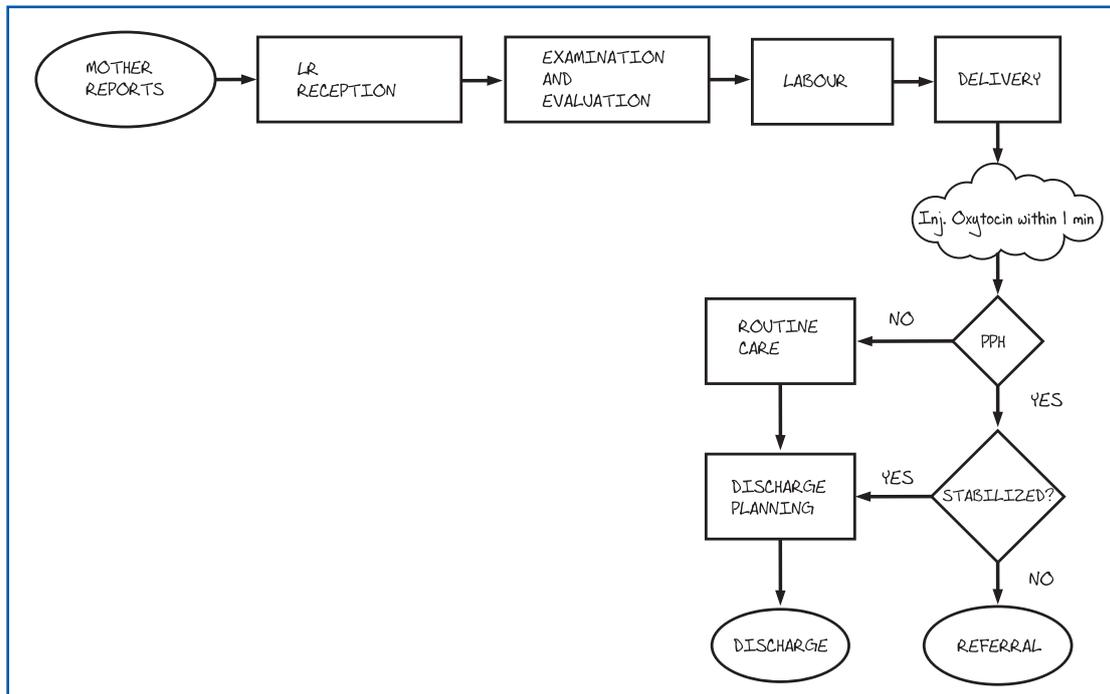
Figure 2: Maternal care fishbone
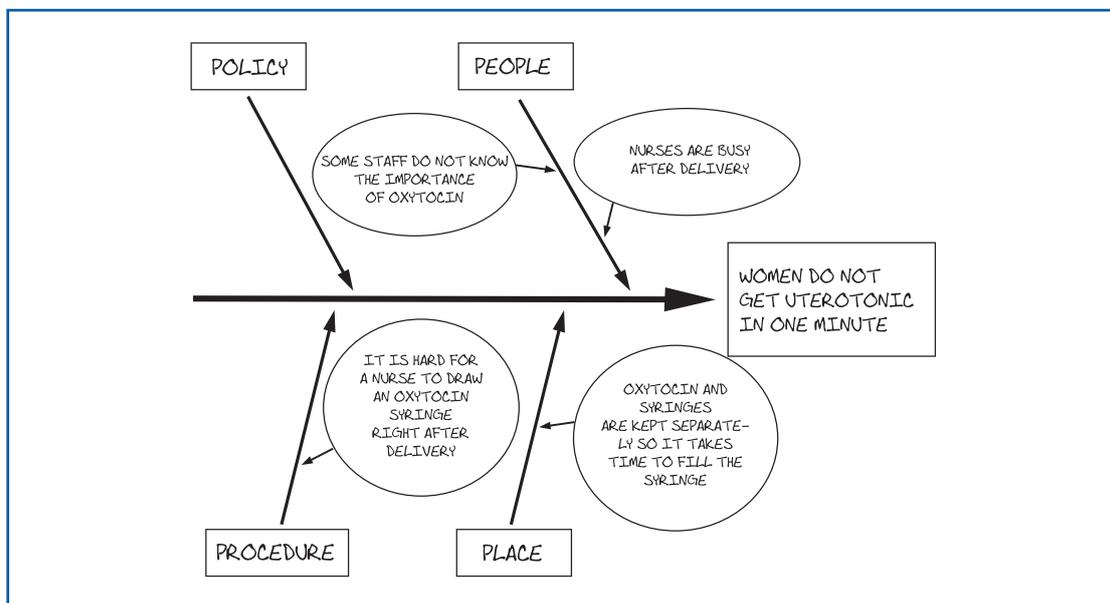
Discussion 2.2M: Using a fishbone to analyze the problem

Based on the **Maternal Fish bone Diagram (Figure 2)** what do you think could be some of the problems contributing to women not receiving a uterotonic after delivery?

Case scenario 2.2N

Analysis - Reducing neonatal hypothermia

*The team is not sure why so many babies are getting cold so they decide to use a process **flowchart** to describe all actions to care for the babies and see if they can identify what is making the babies cold.*

Figure 3: Newborn care flowchart
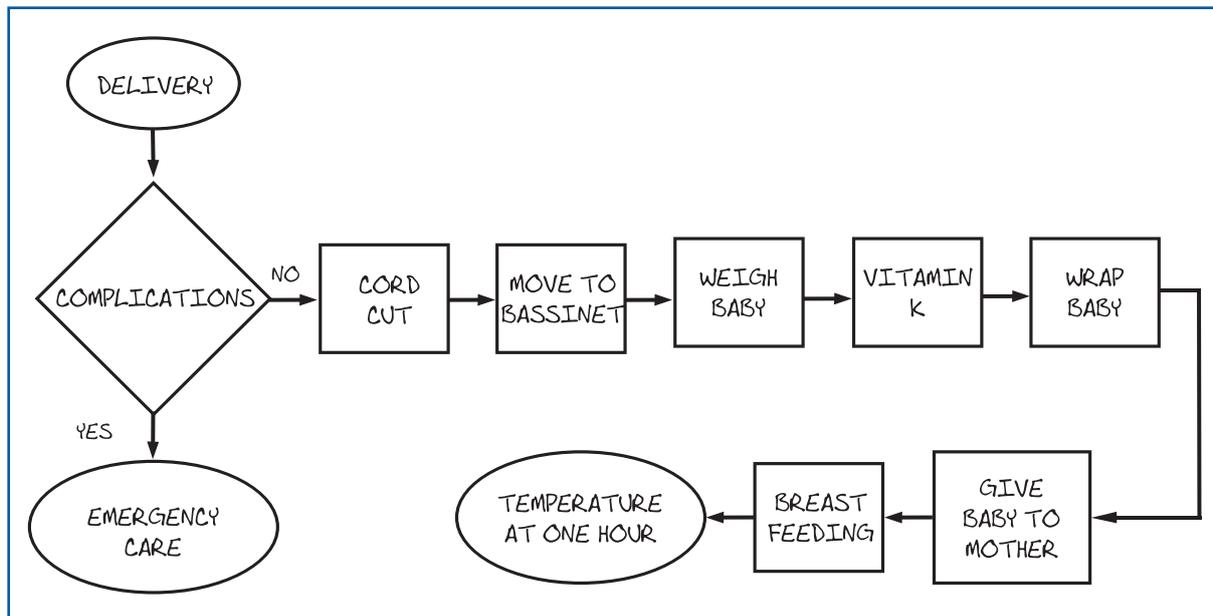
Discussion 2.2N: Using a flowchart to analyze the problem

Based on the **Newborn Care Flowchart** (**Figure 3**), what do you think could be some of the problems contributing to babies getting cold?

Case scenario 2.3

The team now discusses what indicators to use to measure progress.

Discussion 2.3: Developing indicators

Use the following tables to define indicators to monitor progress in achieving the aims.

A) **How to measure women receiving uterotonic within one minute after vaginal delivery.**

Who will you count? (numerator)	
Out of whom will you count? (denominator)	

Therefore your measure for women receiving uterotonic within one minute after vaginal delivery is:

$$\frac{\text{Who will you count (numerator)}}{\text{Out of whom will you count (denominator)}} \times 100 = \boxed{}$$

Where will you get this information from? (data source)	
Who will collect/collate this information? (Person responsible)	
How often will you need to count this?	

B) **How to measure how many women get PPH after vaginal delivery.**

Who will you count? (numerator)	
Out of whom will you count? (denominator)	

Therefore your measure for women getting PPH after vaginal delivery is:

$$\frac{\text{Who will you count (numerator)}}{\text{Out of whom will you count (denominator)}} \times 100 = \boxed{}$$

Where will you get this information from? (data source)	
Who will collect/collate this information? (Person responsible)	
How often will you need to count this?	

C) How to measure how many neonates are hypothermic

Who will you count? (numerator)	
Out of whom will you count? (denominator)	

Therefore your measure for babies with low temperature at one hour of birth is:

$$\frac{\text{Who will you count (numerator)}}{\text{Out of whom will you count (denominator)}} \times 100 = \boxed{}$$

Where will you get this information from? (data source)	
Who will collect/collate this information? (Person responsible)	
How often will you need to count this?	

Case scenario 2.4

The team decides to use the following indicators for tracking uterotonic administration:

- Percentage of women who received a uterotonic within one minute of delivery

- Percentage of women with post-partum hemorrhage

The team looks at their data for these indicators for the past 16 weeks (Table 2). They then plot the data on a graph to make it easier to review.

Discussion 2.4: Plotting data over time

Use the flipchart to draw time-series charts from the **Maternal and New Born Health Data (Table 2M and Table 2N).**

Table 2M: Maternal health data

Indicator		Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14	Week 15	Week 16
Women receiving oxytocin in 1 minute	Numerator	4	3	6	5	8	15	34	36	33	30	32	34	40	41	36	34
	Denominator	34	42	47	37	42	40	50	41	36	50	40	36	43	42	37	35
	Percent	12%	7%	13%	14%	19%	38%	68%	88%	92%	60%	80%	94%	93%	98%	97%	97%
Women with PPH	Numerator	5	7	7	4	5	4	5	3	3	4	2	2	3	3	2	2
	Denominator	34	42	47	37	42	40	50	41	36	45	33	36	43	42	37	35
	Percent	15 %	18 %	15 %	11%	12%	10%	10%	7%	8%	9%	6%	6%	7%	7%	5%	6%

Table 2N: New born health data

Indicator		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Day 11	Day 12	Day 13	Day 14	Day 15	Day 16	Day 17	Day 18	Day 19	Day 20	Day 21
% of babies receiving immediate skin to skin care	Numerator	0	0	0	0	0	0	2	4	9	9	10	9	7	11	9	12	10	20	22	10	13
	Denominator	9	10	11	5	7	5	5	13	10	11	10	9	7	11	9	13	10	20	22	11	13
	Percent	0%	0%	0%	0%	0%	0%	40%	31%	90%	82%	100%	100%	100%	100%	100%	92%	100%	100%	100%	91%	100%
% of babies below 36.5°C at 1hour of birth	Numerator	6	3	7	1	7	2	3	6	3	4	2	2	0	2	0	2	2	1	0	2	2
	Denominator	9	10	11	5	7	5	5	13	10	11	10	9	7	11	9	13	10	20	22	11	13
	Percent	67%	30%	64%	20%	100%	40%	60%	46%	30%	36%	20%	22%	0%	18%	0%	15%	20%	5%	0%	18%	15%

STEP: 3 ✔

Develop changes and test these to learn what works

Learning objectives:

You will learn:

1. How to come up with ideas about what to change to reach your aim

2. How to plan a plan-do-study-act (PDSA) cycle to test change ideas

3. What to do as you learn from a PDSA cycle

4. How to test multiple change ideas to achieve your aim

NOTE:

Step 3 has two sections:

– Maternal health section (Section M)

– Newborn health section (Section N).

Each group should choose which scenario they want to focus on. If time permits, the group can do the other one as well.

Maternal health scenario

Case scenario 3.1M

The facility team reviews the flowcharts and fishbone diagrams to gain a better understanding of what was causing them to deliver suboptimal care.

This helps them to come up with some ideas about changes to make that could help to provide the uterotonic in time.

Discussion 3.1M: Developing change ideas

Based on the analysis, list some ideas that might help improve uterotonic administration.

Change	Why do you think this will improve care?

Case scenario 3.2M

The team discusses that they should try to make sure there is a pre-loaded syringe of oxytocin available at the labour table for each delivery. They discuss some of the challenges with this:

1.   *Who will prepare the syringe?*

2.   *When should it be prepared?*

3.   *Where will it be kept after preparation?*

4.   *Where will it be kept during delivery?*

The nurses on the team say that they can prepare the syringe. One of them (nurse A) thinks it will be easiest to prepare the syringe when a new woman comes in labour to the labour room and the other one (nurse B) thinks that they should prepare a few syringes at the start of each new shift.

Because the facility does not have a fridge in the labour room, both nurses decide to keep the syringes on a cold pack.

The team discusses that both ideas seem reasonable and that there are pros and cons to both of these options.

	Pre-load one syringe when woman comes into the labour room	**Pre-load a few syringes at the start of each shift**
Pros	There will be no waste of oxytocin You will not run out of oxytocin	There will always be enough time to do this
Cons	Some women are already pushing when they arrive so there will be no time	We may under- or over-estimate the need for oxytocin and end up wasting it or running out of preloaded syringes

Discussion 3.2M: Planning a PDSA cycle to test a change idea

How would you advise the team to use PDSA cycles to learn which is the best time to pre-load the syringe of oxytocin?

Plan	What is the change idea and how will you try it (give details)?	
	Who will try out this change?	
	Where will this change be tried?	
	When and for how long will this change be tried?	
	What do you want to learn from testing this change idea?	
Do		
Study	What will the QI team ask the person(s) who tried this change idea?	
Act		

Case scenario 3.3M

The team agrees that the two nurses should try their own preferred method during their next shift to learn:

- Is there enough time to do this when a woman comes into the delivery room?
- If they pre-load at the start of a shift, do they run out of preloaded syringes or waste oxytocin?
- In both cases, where should they keep the pre-loaded syringe after preparation and during delivery?

The two nurses work in different shifts and test their preferred method the next time they work.

- The nurse who is testing pre-loading one syringe when the mother comes into the labour room delivers three babies.
- The nurse who is testing pre-loading multiple syringes at the start of the shift delivers two babies.

From these tests, the team learned that:

- Pre-loading one syringe when women come into the delivery room
  - This worked well for two of the deliveries but one woman came into the delivery room in advanced labour and there was no time to draw up the syringe.
- Pre-loading multiple syringes at the start of the shift
  - The nurse who wanted to try this method remembered that the highest number of babies she had ever delivered in a shift were five. So, she pre-loaded five syringes and kept them on an ice pack in the emergency tray kept at the side of the labour table.
  - This system worked well although the tray was rather crowded with five syringes.
  - She delivered two babies in the shift. At the end of the shift, she told the next nurse about the three remaining pre-loaded syringes and suggested pre-loading two more syringes (to keep five available). The other nurse did not want to do this because there were no more cold packs.

Discussion 3.3M: What to do as you learn from PDSA cycle

Which change idea should be abandoned?	
Which change idea should be adapted?	

What should the team do next?

Case scenario 3.4M

The team agrees that pre-loading syringes at the start of the shift is a good idea but realizes they still have some details to work out:

- How many syringes to pre-load at the start of the shift?
- What to do with the leftover syringes at the end of the shift?
- How to make sure there are enough cold packs?

The team decides:

1. that five pre-loaded syringes are too many and that three will be enough as it is rare to have more than three deliveries.

2. to keep the unused syringes for the next shift and that the incoming nurse will pre-load more to bring the total to three.

3. to get an extra cold pack from the pharmacist and to always keep one in the freezer so that there is always one extra frozen pack available.

They decide to test these changes for the next shift. During that shift, two babies were born and the system worked well.

At the end of the shift, the incoming nurse wanted to throw out the pre-loaded syringe because she thought it would get mixed up with the new syringes she was going to pre-load.

Instead, the two nurses decided that they would add the date and time to the syringe label when it was drawn up so that the nurse would know which one to use first. In the next shift, four babies were born.

After the third baby was born, the nurse pre-loaded three more syringes to keep the total at three syringes. The team met again to discuss what they had learned from these changes and PDSA cycles.

The team decides that:

1. they would add the date and time to the syringe label when it was drawn up so that the nurse would know which one to use first

2. after the third baby was born in any shift, the nurse would pre-load three more syringes in her shift to keep the total at three pre-loaded syringes

Discussion 3.4M: Testing changes

List all the changes that the team has tested so far

List all the PDSA cycles that the team has done

Case scenario 3.5M

The team decides to ask the nurses on duty for the next three shifts to get their feedback on this new approach and their suggestions for improvement.

Eight babies were born during those shifts. All of them got oxytocin in the first minute after delivery. This is much better than the baseline data.

At the end of these three shifts, they decide that this approach is feasible.

The team members to hold a series of meetings for other labour room staff who have not been involved in the project to discuss the new way of working, showing them how to pre-fill the syringes in advance and share the data showing improvement.

Other staff start administering oxytocin in this manner as well. Data continues to be monitored and it shows that women are getting oxytocin in a timely manner now.

Newborn health scenario

Case scenario 3.1N

Reducing neonatal hypothermia

The team reviews their process flowchart and realizes that they are providing care in the bassinet rather than following the evidence-based practice of starting skin-to-skin care immediately after delivery.

Part of the reason for this is that some nurses are not aware of the importance of skin-to-skin care.

Another reason is that nurses are following the steps in the flowchart because that is the easiest way to provide care given the current way the room is set up and how supplies are kept.

Discussion 3.1N: Developing change ideas

Based on the analysis, what changes in care do you think that the team could make to see if that reduces neonatal hypothermia at one hour?

Change	Why do you think this will improve care?

Case scenario 3.2N

One of the team members is aware of the evidence that skin-to-skin contact is beneficial for both mother and baby. She convinces everyone that it will be possible and beneficial to do this.

The team discusses how to change the order of activities after birth to ensure that skin-to-skin care happens immediately and is not interrupted. They decide to follow the new steps of care:

1. put the baby on the mother's chest immediately after delivery and keep the baby there while doing the other activities

2. dry the baby and clean his or her eyes (as per national guidelines)and cover with a dry towel

3. cut the cord after 1-3 minutes

4. encourage breastfeeding as soon as the baby wants

5. leave the vitamin K and weighing until after the first breastfeeding has been given

Now that the team has decided that they are going to use skin-to-skin care as the process to reduce hypothermia, they realize that they need to measure this.

They develop a new process measure: the percentage of babies getting skin-to-skin contact at birth for at least one hour.

Not everyone in the group is convinced that this will be feasible. Different people raise possible objections, which include:

- mothers will not want to put the baby skin-to-skin right after delivery because they are tired and because the baby is wet

- it will be hard for nurses to dry and clean the baby and cut the cord while the baby is on the mother

- if the babies do not get weighed and receive vitamin K immediately, then nurses will forget to do this later

Discussion 3.2N: Planning a PDSA cycle to test changes

How would you advise the team to plan a PDSA cycle to learn if changing the order of care is feasible or if the objections raised by some people in the team will make it hard to make this change?

Plan	What is the change idea and how will you try it (give details)?	
	Who will try out this change?	
	Where will this change be tried?	
	When and for how long will this change be tried?	
	What do you want to learn from testing this change idea?	
Do		
Study	What will the QI team ask the person(s) who tried this change idea?	
Act		

Case scenario 3.3N

The team decides to try using the new order of care for all babies born in a single shift and to learn:

- How do mothers feel about starting skin-to-skin immediately?

- How easy is it to provide care on the mother's chest?

- Do nurses still remember to weigh the baby and give vitamin K?

One of the nurses who is enthusiastic about this new idea volunteers to test it during her next shift. She delivers two babies. From this test, the nurse learned that:

- Both the mothers were happy to receive the baby right after delivery

- Drying the baby on the mothers' chest was more difficult than doing this in the bassinet because the towels and other supplies were placed by the bassinet and the nurse had to walk over to get them

- The nurse remembered to weigh the baby and give vitamin K because they had to be noted on the medical record which she had to fill out before transferring the baby to the postnatal ward

At the end of the shift, members of the team who are there meet to discuss what to do next

Discussion 3.3N: What to do as you learn from PDSA cycle

What should the team do next?

Case scenario 3.4N

The team agrees that reordering the steps of care is a good idea and should keep babies warm. They feel that the way the room is currently organized makes it difficult.

They decide to move the supply table from the bassinet to the bedside to make it easier to care for babies on the mother's chest.

As a group, they go to the labour room and move the supplies closer to the labour table.

They try two options until they have a set-up that people think will work.

They then decide to test for one shift if the new organization of the room makes it easier to provide immediate care to babies while they are in skin-to-skin contact with their mother.

In the next shift, the nurse delivers two babies. She had to reorganize the room again after the first delivery and found that this made caring for the babies much easier.

Discussion 3.4N: Testing multiple changes

List the changes has the team in the scenario has tested so far

List the PDSA cycles carried out by the team

Case scenario 3.5N

The team decided to ask the nurses on duty for the next three shifts to get their feedback on the new room set-up and get their suggestions for improvement.

At the end of the three shifts, they have made a few more small changes in the room set-up and also involved the cleaning and maintenance staff so that they also know about how the room should be set up. Eight babies were born in those shifts. Six of them had normal temperatures at 60 minutes. This is much better than the baseline data.

The team members hold a series of meetings for other labour room staff who have not been involved in the project to discuss the new way of working, showing them how to care for babies on the mother's chest after delivery and sharing the data showing improvement.

Other staff members start delivering babies in this way as well. Data continues to be monitored to ensure that the improvement is sustained.

STEP: 4 ✓

Sustain improvement

Learning objectives

You will learn:

1. How to take specific actions to sustain improvement to hardwire the gains – changing the way we work

2. How to embed the new process in the hospital policy / system – not just tinkering

3. How to work with the system and involve the health workers from beginning

4. How to build enthusiasm, motivate team, recognition by certificates and celebration

Discussion 4.1 – Sustaining successful changes

After testing ideas and finding ones that work, you will want to implement them so that the changes are permanent and consistently applied in all situations.

This involves:

1. Making the change the new standard process across the unit/department

2. Taking specific steps to prevent from slipping back to the old ways of working. (hardwiring through job descriptions, protocols, etc.)

3. Keeping an eye on key indicators to ensure improvement is sustained

Examples of actions the team can take to prevent them from slipping back into old ways of working

Discussion 4.2 – Building enthusiasm for quality improvement

Some ways to build enthusiasm for quality improvement at a facility or region.

Case scenario summary

Step 1: Identify a problem, form a team and write an aim statement

Staff in this hospital decided that they wanted to improve care for mothers and babies.

They reviewed their data and used a **prioritization matrix** to pick two specific **aims:**

a) increasing the use of uterotonic within one minute of delivery

b) reducing neonatal hypothermia

They then formed a **team** to work on these aims

Step 2: Analyze the problem and measure quality of care

The team used **flowchart and fishbone** diagrams to **analyze** the problems and identify key issues that they needed to address to reach these aims.

They realized that their main problems were that babies did not receive skin-to-skin care immediately after delivery which led to hypothermia, and that the procedure of filling a syringe with oxytocin after delivery led to a situation that most women did not get the drug within one minute of delivery.

Step 3: Develop changes and test these to learn what works

Based on their analysis, the team decides to pre-load oxytocin syringes for the mother and to change the work flow for newborn care after delivery so that skin-to-skin care can start immediately.

The additional benefits were:

a) Delayed cutting of the cord

b) Early initiation of breastfeeding in one hour

They **tested these ideas** first during one shift to see if these are feasible and then a series of **PDSA cycles** to identify the best way to work for different nurses working at different shifts on different days

Step 4: Sustaining improvement

Once they identified successful change ideas, they also involved all the other staff, nurses and cleaners so that they all understood the new way of working. They made new protocols based on the successful change ideas and all new staff are now routinely briefed about this way of working. The figures below show the progress of the team.

Figure 4: Percentage of women receiving a uterotonic within one minute and women with post-partum hemorrhage
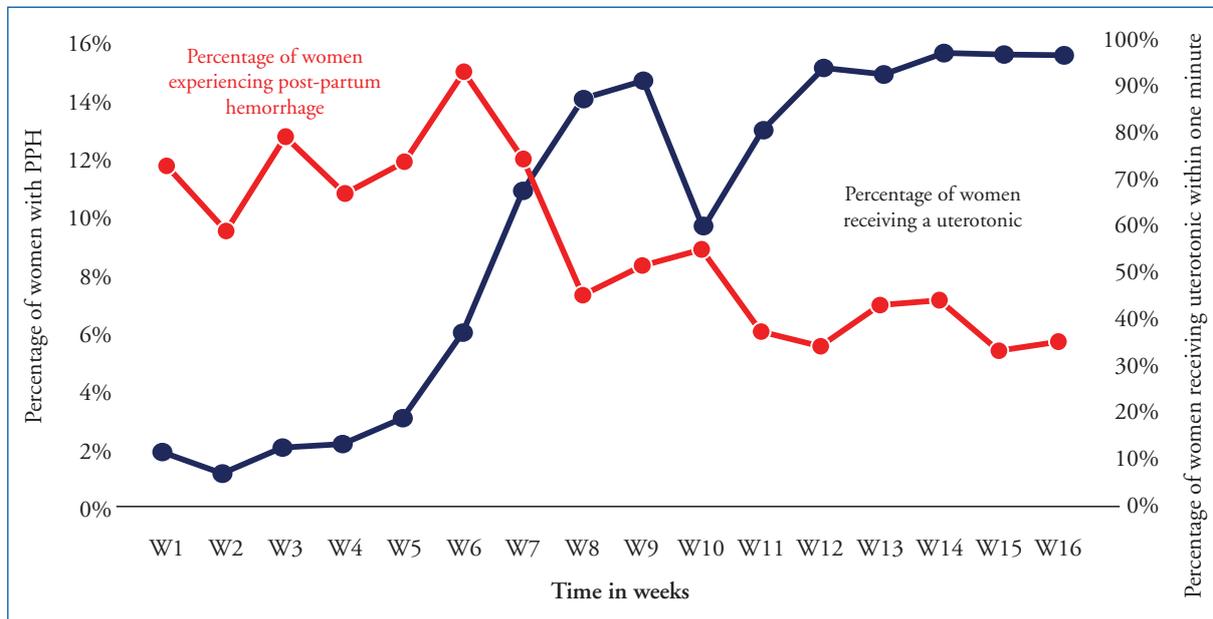
Figure 5: Annotations show the relationship between various PDSA cycles and improvement in the indicator
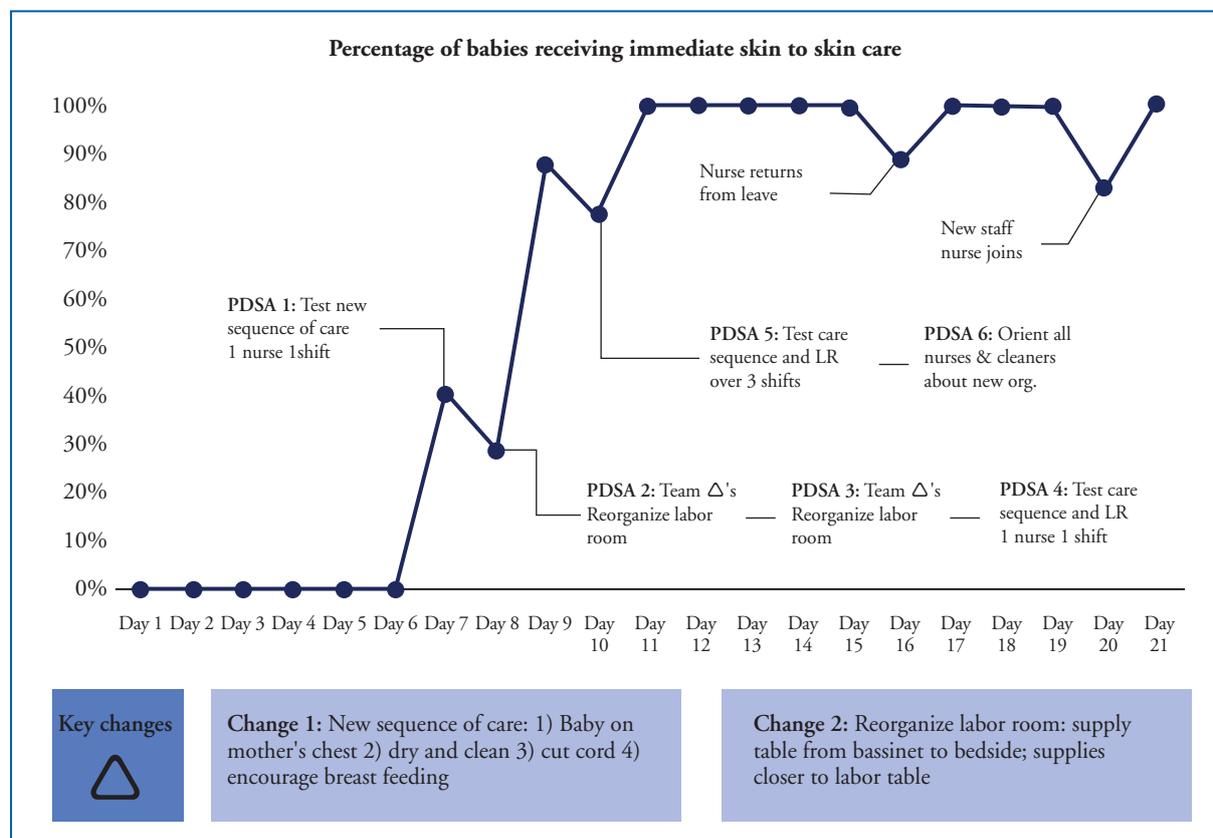
Figure 6: Percentage of babies with hypothermia and percentage of babies receiving skin-to-skin care
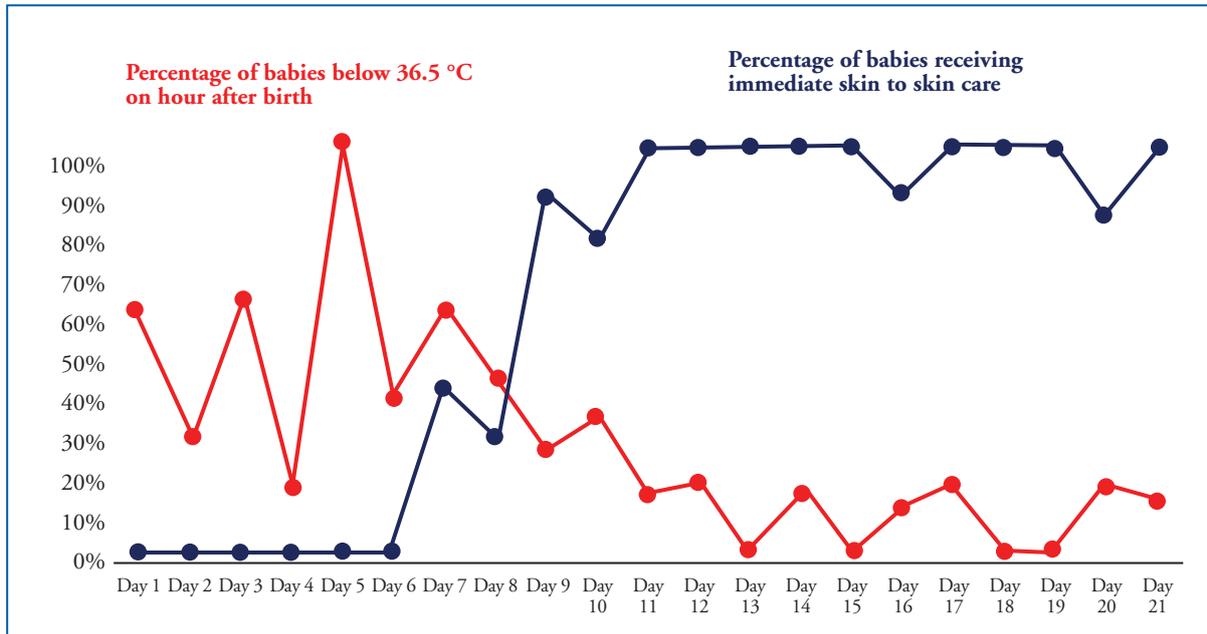
Knowledge assessment

Select ONE right answer for each of the following questions:

1. **When starting your first quality improvement project, you will aim to do which of the following?**

    a. Fix all the problems

    b. Do whatever the facility in-charge decides

    c. Select a single and easy problem for the first QI project

    d. Select a challenging problem to solve

2. **Who should decide at a facility what needs to be achieved in a QI project?**

    a. The facility in-charge will order what needs to be achieved

    b. The medical officer will decide

    c. QI team members get together and decide

    d. QI coach tells staff what to do

3. **A quality improvement team should have (tick which one is NOT correct)**

    a. Staff from various cadres

    b. Health workers who carry out the processes that will need to be changed

    c. A manager or leader of facility

    d. A team leader who should always be the facility in-charge

4. **To understand all the steps of a process, which problem analysis tool will be helpful to use?**

    a. Five whys

    b. Fishbone

    c. Process flowchart

    d. Pareto chart

5. **To understand the multiple causes of a problem, which tool will be helpful to use?**

    a. Five whys

    b. Fishbone

    c. Process flowchart

    d. Pareto chart

6. **To understand in depth the underlying causes of a problem, which tool will be helpful to use?**

    a. Five whys

    b. Fishbone

    c. Process flowchart

    d. Pareto chart

7. **Measurement is important for (tick which is NOT correct)**

    a. Identifying barriers that may be stopping us from getting results

    b. Understanding whether there is any improvement or not

    c. Judging which health facility is doing badly so that action can be taken against it

    d. Planning what to do next in a QI project

8. **PDSA is:**

    a. Plan, Do, Say, Act

    b. Plan, Do, Study, Act

    c. Program, Do, Study, Accurate

    d. Program, Do, Study, Act

9. **Why is it important to test a new change idea?**

    a. To understand whether the change is working or not

    b. To increase acceptability among the health workers involved in the change

    c. To prevent large cost of failure

    d. All of the above

10. **In a health-care setting, there is always scope for improvement. Yet not much effort is made for improvement. Which of the following is NOT the reason for this?**

    a. At present, there is limited knowledge in the health system on how to systematically improve quality of care

    b. It may be difficult to identify changes that can be made and will lead to improvement

    c. Doing better always requires more resources such as beds, equipment, supplies and human resources.

    d. It requires soft skills to motivate people to participate in improvement activities

11. **A team of nurses and doctors in a newborn care unit have found that mothers of preterm babies can provide more expressed breast milk if they are encouraged to come to the newborn care unit within the first day of birth of baby and handle the baby. As doctor-in-charge of another newborn care unit after hearing this success story, what should you do?**

    a. Implement this practice in your unit

    b. Cannot do this in your unit as mothers do not maintain hygiene and it can result in increased incidence of sepsis

    c. Do nothing. It will not work because this is a different set up

    d. Test this idea in your unit by doing it for a small number of babies over the next few days and collect data how it affects feeding practices and sepsis and see what nurses think

12. **A newborn care doctor wants to decrease the time it takes to get an X-ray done for a baby with respiratory distress. How can he/she think of what changes will lead to achieving this objective?**

    a. By buying and placing an X-ray machine within the unit

    b. By recruiting and placing an X-ray technician at the unit

    c. By outsourcing X-ray services

    d. By first understanding various steps (processes) that are needed to get the X-ray done

13. **Over the last few years, fewer users are forgetting their ATM card in the ATM machine. What is the reason for this?**

    a. ATMs now have posters reminding people not to leave behind their ATM card

    b. Banks send an SMS after money withdrawal, which reminds them to collect the ATM card

    c. You get the money after you take out the card. The steps in money withdrawal from ATMs have been revised to ensure that users do not forget their card

    d. Average bank balances have improved over last few years, which makes people more alert

14. **Newborn care units in three of ten hospitals are reporting high infection rates. The state child coordinator passes an order that all doctors and nurses should wash hands as per guidelines. Is this going to decrease infection rates significantly?**

    a. Yes, orders work best and doctors and nurses will start washing hands consistently

    b. This is not an effective way of changing behaviour as frontline health-care workers are not involved

    c. No, because health-care workers lack the knowledge and skill to do hand washing

    d. Yes, because the guidelines are evidence based

15. **The doctor-in-charge of a newborn care unit starts to monitor infection rates. What type of measure is incidence of infection?**

   a.   Outcome measure

   b.   Process measure

   c.   Balance measure

   d.   Ranking measure

16. **The doctor is also recording proportion of health-care workers washing hands. What type of measure is compliance to hand-washing?**

   a.   Outcome measure

   b.   Process measure

   c.   Balance measure

   d.   Ranking measure

17. **The aim statement written by the doctor for this improvement project is "To reduce the rate of hospital-acquired infection in my unit". What is missing in this statement?**

   a.   Does not specify how much reduction

   b.   Does not specify the timeline by when infection will be reduced

   c.   Does not specify in which patients

   d.   All of the above

18. **The data collected for infection rates are being plotted in the graph shown below.**

   What is this type of chart called?

   a.   Time series chart

   b.   Frequency polygon

   c.   Incidence chart

   d.   Histogram

Infection Rate
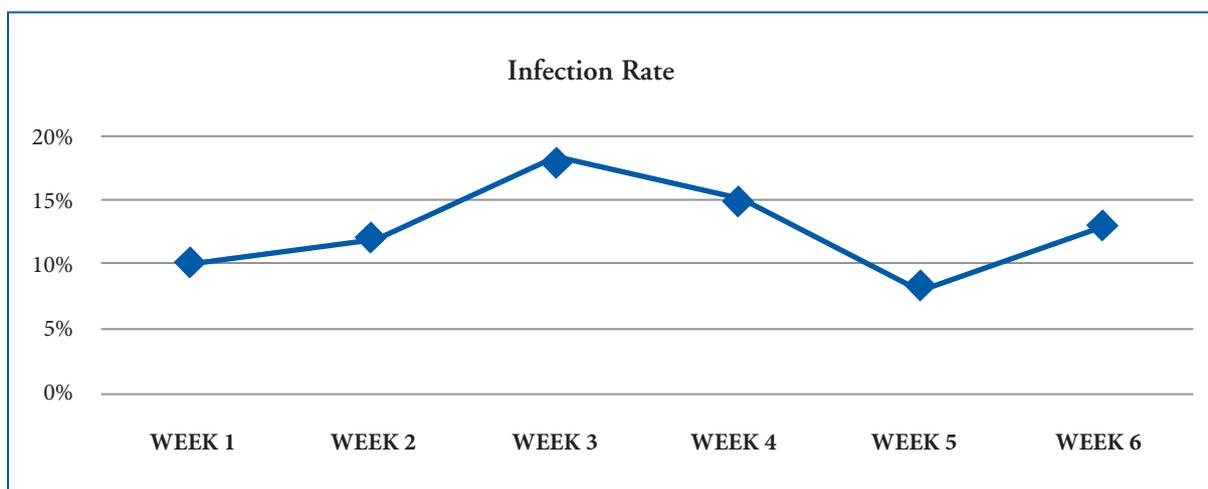
19. **You notice in your unit register that despite a recommendation of routine administration of vitamin K to all neonates at birth, 20% neonates do not get the dose. What will you do next?**

    a. Tell everyone to fill a syringe and keep it as a part of resuscitation tray

    b. Hang a poster near the resuscitation trolley

    c. Tell the nurse in-charge to review the patient file before discharging the baby

    d. Form a team and get together to analyse the problem

20. **The district health officer forms quality improvement teams in newborn care unit at one health facility. Whose presence is least likely to be beneficial in the QI team of facility?**

    a. Nurses from the unit

    b. Doctors working in the unit

    c. Hospital administrator

    d. A senior specialist from a tertiary health-care facility

SECTION 3

Day 2: Developing your own quality improvement project

Quality improvement project template

STEP: 1 ✔

Identify a problem, form a team and write an aim statement

What problem do you want to solve?

Who should be on your team?

Member names and designation:

Team leader:

Recorder:

Date of first team meeting:

What is your aim statement?

Step 1 - Project review checklist

Why is this a good aim?

Can you get results quickly?	
How important is the aim to the QI team - has the team used the prioritization matrix?	

Why is this the right team? Do you have people on the team who are:

Enthusiastic about fixing this problem?	
Involved in delivering care related to this problem?	
Influential enough to get more people involved?	

STEP: 2 ✓

Analyze the problem and measure quality of care

What tools will you use for the analysis?

What information do you want from each tool that you plan to use?

What measures will you use?

A) Process Measure:

Who will you count? (numerator)	
Out of whom will you count? (denominator)	

Therefore your measure is

$$\frac{\text{Who will you count (numerator)}}{\text{Out of whom will you count (denominator)}} \times 100 = \underline{\hspace{4cm}}$$

Where will you get this information from? (data source)	
Who will collect/collate this information? (Person responsible)	
How often will you need to count this?	

B) Outcome Measure:

Who will you count? (numerator)	
Out of whom will you count? (denominator)	

Therefore your measure is:

$$\frac{\text{Who will you count (numerator)}}{\text{Out of whom will you count (denominator)}} \times 100 = \underline{\hspace{4cm}}$$

Where will you get this information from? (data source)	
Who will collect/collate this information? (Person responsible)	
How often will you need to count this?	

Step 2 - Project review checklist

Why is this the right analysis plan??

Will the tools you have chosen help you to identify the right changes?	
Do you have people on the team who can analyse what happens at the patient level?	

Why is this the right measurement plan?

How difficult will it be to collect the data?	
Is this data already being collected or will new data collection be required?	
Can you review these data frequently?	

*A simple MS Excel file is provided in the USB flash drive for analyzing data and making time-series charts (run charts).

STEP: 3 ✔

Develop changes and test these to learn what works

Develop Changes:

What changes do you think will help solve the problem and why do you think it will improve care?

Change	Why do you think it will improve care?

Test changes: Planning initial PDSA cycles

PDSA cycle 1		
Plan	What is the change idea and how will you try it (give details)?	
	Who will try out this change?	
	Where will this change be tried?	
	When and for how long will this change be tried?	
	What do you want to learn from testing this change idea?	
Do		
Study	What will the QI team ask the person(s) who tried this change idea?	
Act		

Test changes: Planning initial PDSA cycles

PDSA cycle 2		
Plan	What is the change idea and how will you try it (give details)?	
	Who will try out this change?	
	Where will this change be tried?	
	When and for how long will this change be tried?	
	What do you want to learn from testing this change idea?	
Do		
Study	What will the QI team ask the person(s) who tried this change idea?	
Act		

Step 3 - Project review checklist

Will these changes address the root causes of the problem?

Do the changes you are planning address what you found in your analysis?	
If your changes are related to education or senior management directives, how sure are you that lack of information or lack of direction is the root cause?	

How easy will it be to put these changes into action?

Were the staff who will have to make these changes involved in picking them?	
Will you need to change anything else to test these changes?	

Are you making sure that you can learn as much as possible from your tests?

Is there any way of doing the testing faster?	
What will you do if the change does not work?	

STEP: 4 ✔

Sustain improvement

Step 4 – Project review checklist

How should we get other people involved?	
How can the organization and its leaders promote improvement?	

Checklist for QI project

STEP 1	Tick
i) Identify the problems by reviewing data (process/outcome) ii) Define problem by 'prioritization matrix' iii) Make a SMART aim statement iv) Make a team and assign roles	

STEP 2
i)   Analysis of problem (Flow chart, Fish bone, 5 Whys or 80/20)
ii) Collect baseline data (if not known)
iii) Measure the problem –
    – Process indicator/Outcome indicator
    – Numerator? Denominator? Data source? How long?
iv) Make time series chart	

STEP 3
i)   Plan:
    – Identify change ideas – (Knowledge, Skills, Orientation, Reallocation, Realign, Feedback, Variability, Policy)
    – Pros and cons of change idea
    – One PDSA at a time
    – Who? How? When? Why
ii) Do – Carry Out Plan
iii) Study – Run Charts, Feedback
iv) Act – Adapt, Adopt, Abandon	

STEP 4 i) Share data with all stake holders ii) Specific steps to prevent slip back iii) Know the trend iv) Appreciate, credits, awards, publish, presentation	

Plan of action for the team

By now you must have ideas on how to practice QI projects in your own hospital/health facility. As a hospital team, please prepare a plan of action to undertake upon returning to your duty station. Please use the table to prepare such a plan and complete this exercise in 15 minutes.

Be prepared to share the activities you have identified in the plenary feedback session (10 minutes).

1.	Activity to be undertaken immediately	
2.	When (Start date)	
3.	Why are we doing this/ what output is expected?	
4.	Responsible person	
5.	By when (End date)	
6.	Comments	
7.	Status of progress (Not started, In progress, Completed)	(Not to be filled now. Can be used later to track progress)

SECTION 4
Presentation slides

01

POCQI - Point of Care Quality Improvement

Steps in QI

➡ **Step 1: Identify a problem with quality of care, form a team and write an aim statement**

➡ Step 2: Analyze the problem and measure quality of care

➡ Step 3: Develop changes and test these to learn what works

➡ Step 4: Sustain improvement

| Step 1 | Group Work | Step 2M | Step 2N | Group Work | Step 3 | Group Work | Step 4 |

02

POCQI - Point of Care Quality Improvement

Step I :
Learning objectives

You will learn

➡ How to review data to identify problems

➡ How to prioritize which problems to work on

➡ How to form a team to work on that problem

➡ How to write a clear aim statement

| Step 1 | Group Work | Step 2M | Step 2N | Group Work | Step 3 | Group Work | Step 4 |

03

POCQI - Point of Care Quality Improvement

Identifying a problem to solve

- **Data-based**: Review local health facility data and identify gaps related to quality of care
- **Simple** and easy to change
- **Value** for **patient outcomes**
- Does **not** need many **new resources**
- **Not a rare event**. Higher frequency. More patients affected.
- **Short turn-around time** → early success is motivating
- **Avoid long-term projects** initially
    - Decreasing maternal mortality in a small facility:
    - Decreasing hemorrhagic disease in newborn (vitamin K related): since onset is late, follow up after discharge is required to capture this

| Step 1 | Group Work | Step 2M | Step 2N | Group Work | Step 3 | Group Work | Step 4 |

04

POCQI - Point of Care Quality Improvement

Select your team

Look for volunteers who are:

- **Enthusiastic** - they want to make changes
- **Involved** - they are the ones doing the work that needs change
- **Influential** - others people listen to them and they can get things done

| Step 1 | Group Work | Step 2M | Step 2N | Group Work | Step 3 | Group Work | Step 4 |

05

POCQI - Point of Care Quality Improvement

Select your team

Identify who should be in the team:

➤ Need people from every level: from administrators to cleaners

➤ From all involved departments

➤ Assign some key roles

  ➤ Leader

  ➤ Recorder

  ➤ Communicator

| Step 1 | Group Work | Step 2M | Step 2N | Group Work | Step 3 | Group Work | Step 4 |

06

POCQI - Point of Care Quality Improvement

Why is teamwork important for improvement ?

➡ Healthcare is delivered by a range of people in the hospital

➡ Given the opportunity, staff can identify problems and generate ideas to resolve them

➡ Participation improves ideas, increases buy-in, and reduces resistance to change

➡ Accomplishing things together increases the confidence of each member

| Step 1 | Group Work | Step 2M | Step 2N | Group Work | Step 3 | Group Work | Step 4 |

07

POCQI - Point of Care Quality Improvement

Aim statement
Characteristics of a good aim statement

- States a clear, specific aim –'**what**' are we improving
- Linked to specific patient population – '**who**' will be affected
- Should include a goal – '**how much**' will we improve
  - Neither too difficult nor too long to achieve
- Includes a timeline – '**by when**' will the goal be achieved

| Step 1 | Group Work | Step 2M | Step 2N | Group Work | Step 3 | Group Work | Step 4 |

08

POCQI - Point of Care Quality Improvement

SMART Aim

- **S** Specific
- **M** Measurable
- **A** Achievable (but challenging)
- **R** Relevant and recorded
- **T** Timely

| Step 1 | Group Work | Step 2M | Step 2N | Group Work | Step 3 | Group Work | Step 4 |

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Aim statement
Problem: All babies are not dried immediately after birth

We will increase immediate drying at birth in 100% of live births from current 60% within 4 weeks, from 1st May to 1st June.

- **Who** (which patients)- Newborn
- **What** (the process)- Immediate drying
- **How much** (the amount of desired improvement)- from 60% to 100%
- **By when** (time over which the improvement will occur)- within 4 weeks (mention specific dates)

| Step 1 | Group Work | Step 2M | Step 2N | Group Work | Step 3 | Group Work | Step 4 |

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POCQI - Point of Care Quality Improvement

Aim statement
Problem: Babies are cold at one hour following birth

We will reduce the percentage of newborns with low temperature (<36.5 C) from current 50% to <10% within 6 weeks, from 15th June to 30th July.

- Who (which patients) - Newborns
- What (the outcome) - Hypothermia (<36.5 C)
- How much (the amount of desired improvement) - from baseline of 50% to <10%
- By when (time over which improvement will occur)- within 6 weeks (with dates)

Step 1 | Group Work | Step 2M | Step 2N | Group Work | Step 3 | Group Work | Step 4

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POCQI - Point of Care Quality Improvement

Is this a good aim statement

To establish skin to skin contact after delivery in low risk mothers admitted in Labour Room ✗

To establish skin to skin contact immediately after delivery for at least one hour from 0% to 50% within four weeks (Jan 1st to Feb 1st) for newborns of low risk mothers admitted in Labour Room ✓

Step 1 | Group Work | Step 2M | Step 2N | Group Work | Step 3 | Group Work | Step 4

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Step 1 | Group Work | Step 2M | Step 2N | Group Work | Step 3 | Group Work | Step 4

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Steps in QI

➡ Step 1: Identify a problem with quality of care, form a team and write an aim statement
➡ **Step 2: Analyze the problem and measure quality of care**
➡ Step 3: Develop changes and test these to learn what works
➡ Step 4: Sustain improvement

| Step 1 | Group Work | Step 2M | Step 2N | Group Work | Step 3 | Group Work | Step 4 |

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POCQI - Point of Care Quality Improvement

Step 2
Learning objectives

You will learn

➢ **Know the tools for understanding processes and systems of healthcare**
➢ **How using these tools can help identify the causes of and possible solutions to reach your aim**
➢ How to develop indicators for process and outcome of care
➢ How to use indicators to track progress of improvement

| Step 1 | Group Work | Step 2M | Step 2N | Group Work | Step 3 | Group Work | Step 4 |

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POCQI - Point of Care Quality Improvement

Step 2: Importance of Analysis

➢ Explore **in detail possible causes** of a problem
➢ Helps focus on things that are within our **control**
➢ Gives an **opportunity for everyone** to give their insights based on their role in the process
➢ Helps us **understand what is happening in the system** at **present** and thus identify possible solutions

| Step 1 | Group Work | Step 2M | Step 2N | Group Work | Step 3 | Group Work | Step 4 |

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Tools for analysis

Understanding the current system:

1. Fishbone
2. Five Why's
3. Pareto Principle
4. Process Flowchart

| Step 1 | Group Work | Step 2M | Step 2N | Group Work | Step 3 | Group Work | Step 4 |

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1. Fishbone : Identify all possible contributing factors

Why might a problem be happening?

➡ People
➡ Places
➡ Procedures (practices)
➡ Policies
➡ anything else

| Step 1 | Group Work | Step 2M | Step 2N | Group Work | Step 3 | Group Work | Step 4 |
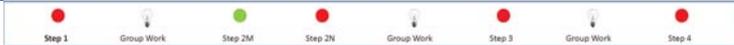
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1. Fishbone : Identify all possible contributing factors

Step 1 | Group Work | Step 2M | Step 2N | Group Work | Step 3 | Group Work | Step 4
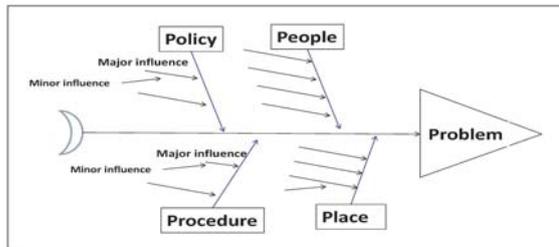
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2. "Five whys"

Understanding why something is the way it is:

- Mothers are not breastfeeding – **Why**?
- They feel uncomfortable taking their gown off – **Why**?
- The gown opens at back, so they have to take entire gown off to breastfeed, so they feel uncomfortable.
  - **Why** they have this type of a gown?
- That is what store keeper orders.
  - **Why** doesn't the store keeper order gowns appropriate for breast feeding?
- Because no one has requested him to do that

Step 1 | Group Work | Step 2M | Step 2N | Group Work | Step 3 | Group Work | Step 4

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2. "Five whys"

Understanding why something is the way it is

Alternative Scenario

- Mothers are not breastfeeding – **Why**?
- They feel uncomfortable taking their gown off
  Why ?
- There is no privacy to breast feed, so they feel exposed.
  Why is there no privacy to breastfeed?
- They are in a common ward. There are no curtains or separate covered space for privacy for breastfeeding

Step 1 | Group Work | Step 2M | Step 2N | Group Work | Step 3 | Group Work | Step 4

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3. Pareto Principle
80% of the problem is due to 20% of the causes

Many Trivial Tasks — 80% of time expended → 20% of results

Few Vital Tasks — 20% of time → 80% of results

Video on Pareto chart

Step 1 | Group Work | Step 2M | Step 2N | Group Work | Step 3 | Group Work | Step 4
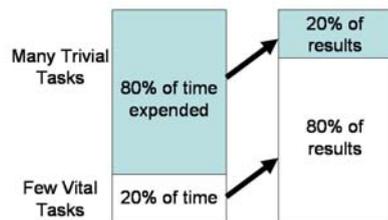
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Pareto Chart Example: Medication Error

80% of the problem is due to 30% of causes

Prescription Error	Improper Storage	Dilution Error	Wrong Label	Missed Dose	Wrong Dose	Expired Drug	Wrong Patient	Wrong Route
45	20	15	6	5	3	3	2	1

Step 1 | Group Work | Step 2M | Step 2N | Group Work | Step 3 | Group Work | Step 4
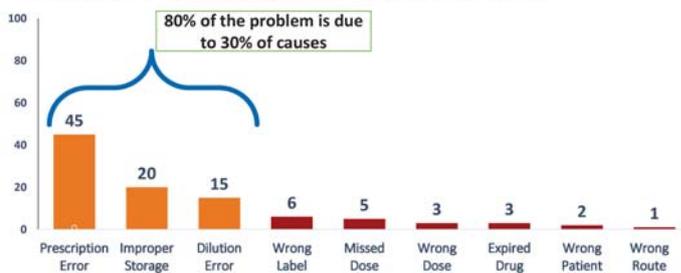
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4. Process flowchart

How to develop a process flow chart

1. Decide the **beginning** and **end** points of the process being improves

2. Identify the **steps** of the process as done **at present**

3. Link the steps with **arrows** showing direction

4. Now **review** the flowchart to see whether the steps can be improved upon to achieve the end point efficiently:

   • are some steps unnecessary?

   • can the order of steps be changed to make things better / easier?

Step 1   Group Work   Step 2M   Step 2N   Group Work   Step 3   Group Work   Step 4

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Step 1   Group Work   Step 2M   Step 2N   Group Work   Step 3   Group Work   Step 4

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Key tips for analysis

- Analysis helps **identify several causes** of the problem
- Try to find **few causes** that account for most of the problem
- Focus on causes that are within our **control** and possible to remedy
- Use these tools to **stimulate discussion** among team members
- **Involve** all team members in the analysis
- Think about how **re-organization** can help improve the process

Step 1   Group Work   Step 2M   Step 2N   Group Work   Step 3   Group Work   Step 4

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Step 1   Group Work   Step 2M   Step 2N   Group Work   Step 3   Group Work   Step 4

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Step 2: Analyze and measure quality of care

➢ Know the tools for understanding processes and systems of healthcare
➢ How using these tools can help identify the causes of and possible solutions to reach your aim
➢ **How to develop indicators for process and outcome of care**
➢ **How to use indicators to track progress of improvement**

Step 1 | Group Work | Step 2M | Step 2N | Group Work | Step 3 | Group Work | Step 4

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Why measure?

➡ To know whether or not we have an improvement
➡ Helps us know how we are progressing in achieving our aim
➡ Data is objective – helps communicate with others and among the team
➡ Helps us to compare how we are doing over time
➡ Data allows us to make comparisons with other units / facilities

Step 1 | Group Work | Step 2M | Step 2N | Group Work | Step 3 | Group Work | Step 4

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Process and outcome indicators

An indicator defines a rate/ratio or an event

- Measure of Process – "actions that are taken in delivery of care"
  - Washing hands

- Measure of Outcome - "the result of the actions taken..."
  - Incidence of infection in the patients

| Step 1 | Group Work | Step 2M | Step 2N | Group Work | Step 3 | Group Work | Step 4 |

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Process and outcome indicators?

- You measure process

  To learn whether the action you want done is really happening or not

- You measure outcome

  To learn whether the action is really leading to the desired patient outcome or not

| Step 1 | Group Work | Step 2M | Step 2N | Group Work | Step 3 | Group Work | Step 4 |

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Qualities of a good indicator

- Clear and unambiguous (teams will not confuse what is meant by a particular indicator)
- Should be linked to aims
- Should be used to test change and guide improvement
- Should be integrated into team's daily routine

Step 1 | Group Work | Step 2M | Step 2N | Group Work | Step 3 | Group Work | Step 4

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Developing indicators

Patients in hospital	Patient gets treated	Result
DENOMINATOR	**PROCESS**	**OUTCOME**
• Number of women delivering in hospital	• Percentage of women receiving Inj. Oxytocin within 1 min of delivery	• Percentage of women with post-partum haemorrhage

Step 1 | Group Work | Step 2M | Step 2N | Group Work | Step 3 | Group Work | Step 4

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Example of good indicator

Indicator: The rate of PPH in women in the hospital

- **Numerator:** Number of cases of PPH
- **Denominator:** Number of women giving birth
- **Source:** Labour room register in the health facility
- **Person responsible:** Delivery room nurse
- **Frequency:** Labour room register will be reviewed monthly

Step 1 | Group Work | Step 2M | Step 2N | Group Work | Step 3 | Group Work | Step 4

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Time-series chart:

Percentage of women receiving uterotonic within one minute

| Step 1 | Group Work | Step 2M | Step 2N | Group Work | Step 3 | Group Work | Step 4 |

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Plotting a time series chart

➡ **Title:** Clear and well defined title including what and when
➡ **X and Y axis** have clear scale and are labelled
  ➡ X axis: time - days/weeks/months
  ➡ Y axis: measurement in %, proportion or number
➡ Annotation
➡ Numerator and denominator values are shown

| Step 1 | Group Work | Step 2M | Step 2N | Group Work | Step 3 | Group Work | Step 4 |

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Key tips

- Looking at data overtime is crucial
- Frequent measurement (daily or weekly) is better than less frequent (monthly)
- Only collect data what you are going to use
- Don't overburden with endless data collection
- If possible, try to use data that are already recorded in your health facility or that will be easy to collect

| Step 1 | Group Work | Step 2M | Step 2N | Group Work | Step 3 | Group Work | Step 4 |

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| Step 1 | Group Work | Step 2M | Step 2N | Group Work | Step 3 | Group Work | Step 4 |

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Steps in QI

- Step 1: Identify a problem with quality of care, form a team and write an aim statement
- Step 2: Analyze the problem and measure quality of care
- **Step 3: Develop changes and test these to learn what works**
- Step 4: Sustain improvement

| Step 1 | Group Work | Step 2M | Step 2N | Group Work | Step 3 | Group Work | Step 4 |

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Step 3
Learning objectives

You will learn
- How to come up with ideas about what to change to reach your aim
- How to plan a plan-do-study-act (PDSA) cycle to test change ideas
- What to do as you learn from a PDSA cycle
- How to test multiple change ideas to achieve your aim

| Step 1 | Group Work | Step 2M | Step 2N | Group Work | Step 3 | Group Work | Step 4 |

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Develop changes

- Determine possible change ideas that may lead to improvement
- Ask your **team.**
  - **Based on the analysis** what changes can we make?
  - **Why** will this change result in an improvement?
  - **How** will it work?
  - **What will we expect** to see as a result of this change?
- Organize changes according to **importance and practicality**
- Test **one change at one** time

| Step 1 | Group Work | Step 2M | Step 2N | Group Work | Step 3 | Group Work | Step 4 |

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Some categories of changes

Category	Description
Improve knowledge or skills	Training or standards
Eliminate waste	Stop doing useless or harmful things
Reassign tasks	Change who does what
Reorganize tasks	Do tasks in different order or different location
Improve patient relationship	Listen to what patients want
Reduce variation	Do things to make work more standard

| Step 1 | Group Work | Step 2M | Step 2N | Group Work | Step 3 | Group Work | Step 4 |

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Some categories of changes

Category	Examples
Improve knowledge or skills	Teach about the importance of skin-to-skin care to keep babies warm
Eliminate waste	Have equipment closer to hand to reduce time getting it
Reassign tasks	Share work between staff members
Reorganize tasks	Start skin to skin and dry babies before cutting the cord
Improve patient relationship	Learn from mothers how they would like care to be provided during delivery
Reduce variation	Triage new admissions in the labour room

Step 1   Group Work   Step 2M   Step 2N   Group Work   Step 3   Group Work   Step 4

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Testing Changes
What is a PDSA cycle?

PLAN
Plan the change

DO
Test the change

STUDY
What did you learn?

ACT
Next steps on the basis of the test

Adopt, Adapt, Abandon

- Is the change feasible?
- Did the change lead to improvement ?

Step 1   Group Work   Step 2M   Step 2N   Group Work   Step 3   Group Work   Step 4

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Plan the test
What will your team do ?

Discuss and document the details for:

➡ **What** change idea will you test
➡ **Who** will make the change
➡ **Where** will this test be done
➡ **When** will the test be started
➡ **For how long** will this test be done
➡ **How will we know** whether this test happened as planned
➡ **What do we expect to learn from this test?**

Step 1 | Group Work | Step 2M | Step 2N | Group Work | Step 3 | Group Work | Step 4

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Planning Example

What change will you test?	New protocol for post-partum assessment to pick up PPH earlier
Who will make the change?	Two of the nurses involved in developing the protocol
Where will they do it?	They will test the protocol in the post-partum ward
When will they test?	They will test it on their next shift
How long will they test?	They will test on one shift only
What do you want to learn?	• Is it feasible to follow the protocol? • Do we need to adapt the protocol? • Do we need to change anything in the ward to make it easier to follow the protocol?

Step 1 | Group Work | Step 2M | Step 2N | Group Work | Step 3 | Group Work | Step 4

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Do the test

➡ Sometimes the plan might not happen exactly as envisioned.
➡ Make sure you **document exactly what happens** as there is valuable **learning** happening while carrying out a test

Step 1 | Group Work | Step 2M | Step 2N | Group Work | Step 3 | Group Work | Step 4

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Study the learning from the test

After testing the change you need to think about:
- Was the test carried out as planned?
  - If not why?
  - What else needs to be done so this change can happen
- Is this change feasible in our setting
- Do we think it will solve the problem
- Does the change improve our indicator

Step 1 | Group Work | Step 2M | Step 2N | Group Work | Step 3 | Group Work | Step 4

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Act – Take action based on how the test went

- After reviewing the results of the test the team decides whether the change should be:
  - **Adopted** – The change worked well and led to improvements in the data and is feasible and acceptable.
  - **Adapted** – The change idea worked partially but needs some modifications and further testing. This is usually the most common scenario.
  - **Abandoned** – The change idea did not work at all.

Step 1 | Group Work | Step 2M | Step 2N | Group Work | Step 3 | Group Work | Step 4

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Testing Changes

- ➡ Test BIG changes on small scale
- ➡ Test individual changes separately when possible
- ➡ Negative results are opportunity to learn
- ➡ Think about how conditions change over time (monthly, seasonal patterns, external variables)

Step 1   Group Work   Step 2M   Step 2N   Group Work   Step 3   Group Work   Step 4

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Multiple changes towards a single aim

Aim: Reduce severe hypothermia in newborn babies by 50% in 3 months

Maintain baby's temperature

Staff educated and involved
On job mentoring

Revert to cling wraps and improve application

Put wall thermometer in newborn corner

Orientation for new staff

Make ziploc bags available (abandon)

Switch off air conditioner in labour room prior to anticipated preterm birth

Transport incubator warmed before transfer

Adapted from the Institute of Healthcare Improvement (IHI)

Maintain ambient temperature

Step 1   Group Work   Step 2M   Step 2N   Group Work   Step 3   Group Work   Step 4

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What to do after identifying successful change ideas?

While testing changes

- Few people are involved
  - less resistance
- Rapid cycles
  - take less time
- Support needed low: Testers do not yet intend changes to be permanent
- Tolerance for failure is high: A failed test is an opportunity to learn
- Low certainty that the idea will work

While implementing changes

- More people involved
  - expect more resistance
- Longer cycles
  - More time, people, resources needed.
- More support needed from all levels

- Tolerance for failure is less
- Implement only those changes that have been tested and show improvement in indicators

Step 1 · Group Work · Step 2M · Step 2N · Group Work · Step 3 · Group Work · Step 4

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Key tips

- Change ideas will improve care, if
  1. They are based on analysis
  2. They are actually implemented and tested!
  3. Adapted to the local context by testing
- Testing is important to make sure that:
  - You selected the right change idea
  - That the effect of the change is studied on a small scale
  - Change ideas that are successful can be made routine practice and those that fail are abandoned

Step 1 · Group Work · Step 2M · Step 2N · Group Work · Step 3 · Group Work · Step 4

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Step 1　Group Work　Step 2M　Step 2N　Group Work　Step 3　Group Work　Step 4

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Steps in QI

➡ Step 1: Identify a problem with quality of care, form a team and write an aim statement
➡ Step 2: Analyze the problem and measure quality of care
➡ Step 3: Develop changes and test these to learn what works
➡ **Step 4: Sustain improvement**

Step 1 | Group Work | Step 2M | Step 2N | Group Work | Step 3 | Group Work | Step 4

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Step 4
Learning objectives

You will learn how to

➡ How to take specific actions to sustain improvement to hardwire the gains – changing the way we work
➡ How to embed the new process in the hospital policy / system – not just tinkering
➡ How to work with the system and involve the health workers from beginning
➡ How to build enthusiasm, motivate team, recognition by certificates and celebration

Step 1 | Group Work | Step 2M | Step 2N | Group Work | Step 3 | Group Work | Step 4

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Take specific actions to sustain improvement

➡ **Documenting the flow of the new process** — the new way of doing things
➡ **Teaching people new ways to work**
➡ Making changes **in job descriptions, policies, procedures**
➡ Assigning day-to-day **ownership** for the **maintenance** of the new process
➡ Having **senior leaders remove any barriers** that might allow slipping back to the old process
➡ Addressing **supply and equipment issues** related to the aim

Step 1 | Group Work | Step 2M | Step 2N | Group Work | Step 3 | Group Work | Step 4

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Tinkering vs. System Change

Problem	Tinkering	System change
Physicians orders are illegible, causing medication errors	Encourage Physicians to write more clearly	Pre-printed standardized order sets to minimize need for hand writing
Oximeter alarms not set as ordered	Penalize nurses who are non compliant	Modify alarm defaults
Breast milk use is low for premature babies	Suggest hospital to hire lactation consultants	Analyze current process and make changes to improve use of breast pumps

Step 1　Group Work　Step 2M　Step 2N　Group Work　Step 3　Group Work　Step 4

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Improvement is more likely to be sustained when:

The new way of working	Is easier Is obviously better Can be adapted as needed Is easy to measure and monitor
Front line workers	Were involved and allowed to develop the new way of working Have skills to monitor and adapt the new way of working
Unit and facility leadership	Are involved in the developing and sustaining the new way of working
Organization	Has structures and systems to support quality improvement Has structures and systems to support the new way of working

Step 1　Group Work　Step 2M　Step 2N　Group Work　Step 3　Group Work　Step 4

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Building Enthusiasm for Improvement

- Be **smart** about choosing your first project
- **Carry out the project and celebrate success**
- Build your **team.** Do not work alone.
- **Keep higher ups informed.**
- **Seek guidance** from QI mentors / continue **self-learning**
- **Document** your work so you can **share** it
- **Display** your progress in the department on notice boards.
- **Involve new members** and **teach** others the basics of improvement

| Step 1 | Group Work | Step 2M | Step 2N | Group Work | Step 3 | Group Work | Step 4 |

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Key to success

- **Local champion:** A leader who respects others, is a keen listener, uses collective wisdom of the team rather than being directive, identifies & harnesses key strengths of members, sets example

- **Incentives:** System **rewards successful teams** – e.g. certificates, 'QI star of month'. Provides **opportunities** to **disseminate and share successes**

- **Personal aspirations:** Most of us entered medical profession to reduce suffering and help society

- **Positive attitude:** Being positive and prepared to address barriers, challenges which may prevent us in achieving the aim.

Step 1 | Group Work | Step 2M | Step 2N | Group Work | Step 3 | Group Work | Step 4

SECTION 5
QI case studies

A Quality Improvement Initiative
Breast feeding practices among mothers of infants admitted in Neonatal Intensive Care Unit

USAID FROM THE AMERICAN PEOPLE
USAID ASSIST Project
Applying Science to Strengthen and Improve Systems

All India Institute of Medical Sciences, New Delhi

Background

- Breast milk is unquestionably the best milk for a baby.
- ideally all babies should get mother's milk from day 1 till 6 months (WHO recommendation)
- Late expression of milk ultimately leads to inadequate milk resulting in lactation failure
- Formula feeding has been identified as one of the risk factors for the development of Necrotizing Enterocolitis (NEC) in low birth weight sick neonates
- Practice in Neonatal Intensive Care unit at AIIMS:
  ❖ Neonates are fed with other mother milk (with consent) or formula feed intermittently till the time their mothers can produce sufficient own milk for exclusive maternal milk intake
  ❖ This period of formula /other mother milk feeding may vary from 6-7 days after birth.

Problem Identified

- Mothers whose babies are admitted in NICU start expressing milk only after day 3
- The frequency of milk expression in these mothers is limited to two to three times in a day including the night expression of breast milk)

"This problem was bigger than we thought"

Aim

- To increase the amount of breast milk intake in admitted neonates from 5% to 30% over six weeks

Baseline Data Collection

- To evaluate if the mother has received antenatal counseling related to BF
- To evaluate if the mother received post natal counseling related to BF issues
- Identified barriers related to early expression of breast milk/BF as reported by mother

Mother	D1 (mL)	D2 (mL)	D3 (mL)	D4 (mL)	D5 (mL)	D6 (mL)
M1	0	0	0	20	50	100
M2	0	0	0	15	35	110
M3	0	0	2	20	60	75
M4	0	0	15	20	40	133
M5	0	0	10	50	75	100
M6	1	0	30	40	80	235
M7	0	0	10	35	68	90
M8	0	0	0	10	50	95

Day 1 (Milk intake of admitted neonates)

■ Own Mothers Milk ■ Formula Feeding ■ Other Mothers Milk

Day 6 Milk intake (number of feeds) of admitted neonates

■ Own Mothers Milk ■ Formula Feeding ■ Other Mothers Milk
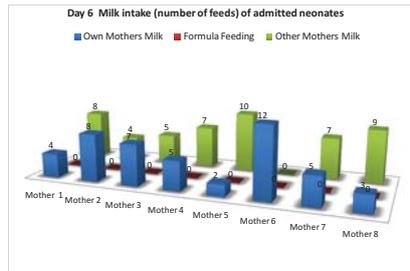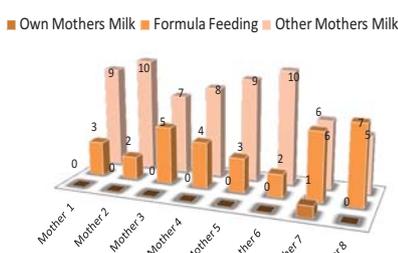
Postnatal - feeding counseling

- Current status of counseling prior to implementation
  ❖ Two lactation counsellers are posted in postnatal and their target is only the mother newborn dyads in postnatal wards
  ❖ No separate counseling of mothers whose infants are admitted in NICU

Root cause analysis (Fish bone)

- Administrative Issues
- Lack of staff
- Lack of breast pump
- Baby separated from mother
- Maternal health issues
- Delayed expression/ No night expression
- Lack of knowledge of health care professionals
- Perception problem
- Lack of knowledge/specific training of staff
- Lack of Education of mothers
- Lack of role model mother/ staff

PDSA Cycle

Act — ■ Apply on larger scale
Plan — ■ Baseline data collection ■ Comprehensive – counselling package
Study — ■ Studied effect of counseling on amount of breast milk intake by baby ■ Expressed breast milk amount and frequency
Do — ■ Comprehensive counselling ■ Videos and Relaxation ■ Involvement of nurses working in NICU

Results

- Frequency of expression of milk including night also increased from 2-3 times to 5-6 times/day
- Amount of EBM increased by 50%
- Intake of breast milk by neonates increased by D7 from 1/8 (12.5%) to 5/6 (83%).

Proportion of neonates fed with own mothers milk
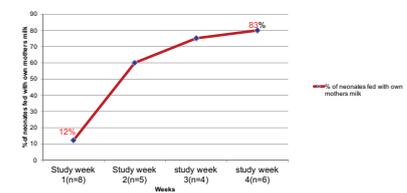
Quantity of breast milk expressed on day 1
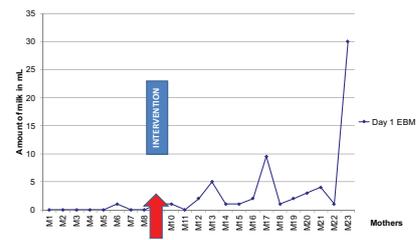
Quantity of breast milk expressed on day 7
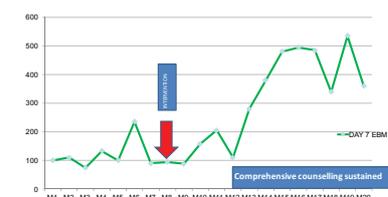
Conclusions

- Expressed breast milk (EBM) output increased following postnatal counseling
- Early and frequent expression day and night helped mother to express more milk
- These two changes resulted in early substitution of other mothers milk and formula milk by own mother's milk

Division of Neonatology, Department of Pediatrics & College of Nursing AIIMS, New Delhi — Designed & Printed at KL Wig CMET, AIIMS

80

Establishing Skin to Skin Contact as a standard of care in Labour ward

K Aparna Sharma, Seema Singhal, Rajesh Kumari, Philomina Thomas, L. Levis Murry, Shilin Sunny, Suman

Dept of Obstetrics and Gynaecology and College of Nursing

All India Institute of Medical Sciences, New Delhi

To establish mother to child skin to skin contact immediately after delivery and before clamping the cord as a standard procedure for low risk mothers admitted to the Labour Room at AIIMS, New Delhi

Background

- **Definition of Skin to Skin Contact (SSC):** Placing the naked baby, covered across the back with a warm blanket, prone on the mother's bare chest.
- **Advantages:** SSC through sensory stimuli such as touch, warmth, and odor is a powerful vagal stimulant. This releases maternal oxytocin, which provides warmth, decreases maternal anxiety and improves parenting behaviour.

Moore et al . Cochrane Systematic Review, 2012

Progress in implementation of SSC at Labour Room , AIIMS between 24 August 2015 and 19 September 2015 as measured by percentage of eligible mothers (normal baby cases) adopting SSC
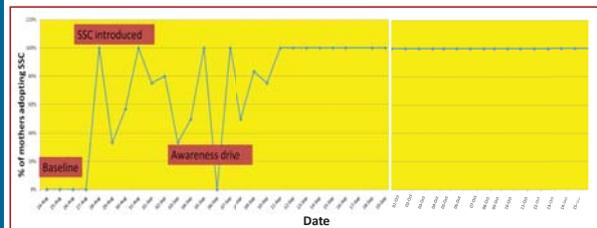
Team members and role

Staff nurses/Doctors on Duty

- Counsel in labor regarding SSC
- To encourage mother to perform SSC
- To assist the SSC on delivery table
- To maintain SSC in post partum room
- To document the SSC

Student Nurses:

- Follow up of mothers in PNC

Administrator:

- To sensitize staff for SSC (benefits and technique)
- To standardize the SSC practice
- Monitoring (process standardization, Documentation)
- Trouble shooting
- Analysis

Root Cause analysis: Fishbone

AIM: To ensure 100% Documentation and Validation

AIM: To ensure 100% compliance of SSC

Average duration - 45.6 min ± 15.4 min

AIM: To ensure standardization of SSC
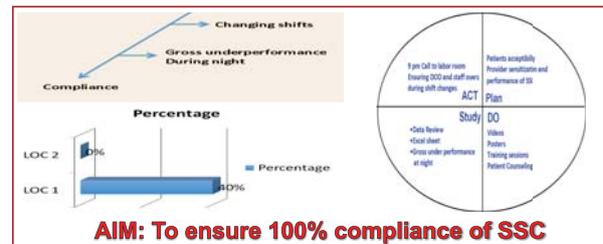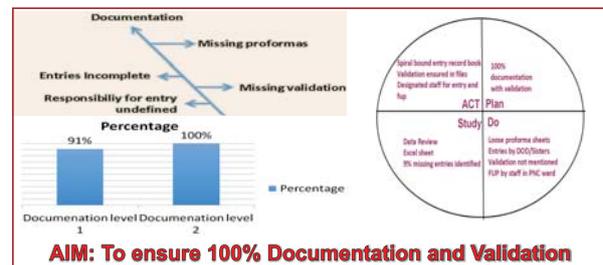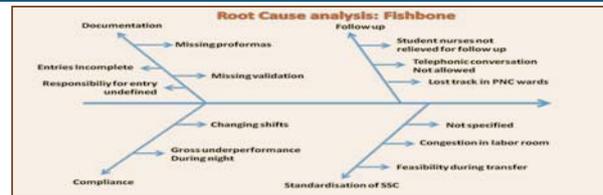
Conclusion: Skin to Skin Contact established in 100% cases in 2 weeks

Next Steps…..

- SSC as a standard of care for all eligible deliveries
- Planned learning sessions and frequent monitoring to establish and maintain SSC
- Structured patient counselling during antenatal period as well
- Target the ultimate aim of establishing exclusive breast feeding at the time of discharge.

Latest situation

- SSC has become a standard practice in the Labour Room at AIIMS for all normal babies.
- Periodic follow-up studies have also indicated that SSC has helped in ensuring 100% exclusive breast feeding at the time of discharge. Breast feeding is started between 30 and 60 minutes of birth.

Message

- Planned Group effort has helped to bringing about a highly useful change in the Labour Room at AIIMS

A NICU quality initiative to improve admission temperature of preterm neonates < 32 weeks gestation

Sindhu S, Jeeva Sankar M, Ramesh Agarwal , Ashok Deorari, Vinod Paul
Division of Neonatology, All India Institute of Medical Sciences, New Delhi

Background

- Preterm neonates are prone to very rapid heat loss due to their higher body surface area, immature skin and poor sub cutaneous fat

- Hypothermia is associated with increased morbidity like hypoglycemia, respiratory distress, more oxygen needs, metabolic acidosis.

- For every 1 C decrease in admission temperature the odds of late onset sepsis increases by 11% and odds of death increases by 28%

Problem identified

Among 8 neonates < 32 weeks gestation born in the year 2015, whose charts were reviewed retrospectively , the mean admission temperature was 35.5 C and only 12.5% had admission temperature in normal range 36.5-37.5 C

SMART AIM

To achieve an admission temperature of 36.5-37.5 C in ≥ 80 % of babies < 32 weeks gestation born at AIIMS over a period of 6 months by implementing a "golden hour bundle" through staff education and multiple PDSA cycles

Golden hour bundle focuses on thermoregulation, delayed cord clamping and gentle ventilation

Conclusion

Implementation of golden hour bundle led to improved admission temperature of neonates < 32 weeks gestation. Admission temperature of 36.5-37.5 C was noted in 28% of neonates at baseline and increased to 35% after intervention.

Study flow

| Baseline assessment Duration 3 months | Implementation Phase Duration 3 months | Continued implementation Duration 3 months |

No intervention

- Implementation of golden hour bundle
- In-service training of staff
- Pre- post test assessment to determine knowledge transfer

- Monthly audit and feedback to health care workers
- Staff appraisal in audit meet

Root cause analyses (Fish Bone)

People — Lack of awareness- residents and nurses — Availability of staff for transport

Process — Team work — Preparation

Hypothermia at admission

Equipment — Radiant warmer — Cling wrap and hats

Transport incubator — Cold delivery room

Environment

Intervention

Cycle 1 Use ziploc bags and hat

Cycle 2 Education

Cycle 3 Team work Delivery room temperature

Cycle 4 Previous + emphasis on warm transfer and preparation to admit baby

71 eligible neonates were admitted to NICU during study period

Admission temperature

35.9 C   36.1 C   36.3 C

Figure: Admission temperature of neonates

Reduction of Neonatal Hypothermia at admission
A Quality Improvement Initiative

Dr. Srishti Goel, Dr. Vikram Datta, Dr Arvind Sailli
Kalawati Saran Children's Hospital and Associated Lady Hardinge Medical College, New Delhi

NQOCN
Nationwide Quality of Care Network

Background

- The admission temperature of newly born non-asphyxiated infants is a strong predictor of mortality at all gestational ages.

- Hypothermia is associated with serious morbidities such as increased risk of IVH, respiratory issues, hypoglycemia and late onset sepsis.

- Dose dependent effect on mortality: For every 1° fall in temperature below 36.5° C mortality increases by 28 %.

Baseline Data (June 2016)

Of the 93 babies admitted to Neonatal ICU in June 2016,

- 28 (30%) neonates were Normothermic (36.5- 37.5)
- 26(28%) had cold stress (36-36.4° C)
- 36(39%) had moderate hypothermia (32-35.9° C)
- 3 (3%) had severe hypothermia (<32° C).

3.50% / 30% / 28% / 38.50% Normal, cold stress, mod, severe

Aim Statement

- To achieve a rate of 0% severe hypothermia at admission in NN Ward of KSCH from an existing rate of 3.5% over 6 weeks

- To reduce the present rate of moderate hypothermia from baseline levels (38.5%)to less than 50 % (<19.25%) over 12 weeks.

Root cause analysis

- Poor sensitization of the staff about the concept
- Non availability of pre-warmed towels in labor rooms in adequate number
- Non functional warmer in main OT
- Malfunctioning Battery of transport incubator
- Non availability of room thermometers in labor room and OT

PROCESS — PEOPLE
- Deficient — Kap
  ➢ Baby temp. Monitoring — ➢ Nurses
  ➢ Delay — ➢ Doctors
  ➢ Informing pediatrician — ➢ Attendents
  ➢ Arrange transport manpower
  ➢ Longhty paperwork — Overworked staff
  - Skin to skin contact — Multi tasking
  - Plastic cling wrapping

- Hypothermia prevention SOP (post delivery, transport)
  - Implementation
  - Work reward/ incentivization (hypothermia free days)
  - Temp log (LR/ NICU)
  - Equipment checklist

- Labour room
  ➢ Temperature monitoring
  ➢ Downtime radiant warmer/ TI
  ➢ Inadequate prewarmed sheets
  - Corridor
  ➢ Congestion
  ➢ Long distance
  ➢ Air droughts
- NICU
  ➢ Waiting area
  ➢ Battery backup & charging issues

POLICY — PLACE

Hypothermia at admission

Change Ideas

- Sensitization of team members
- Pre- warmed linen made available
- Installation of LR thermometers
- Warmers made available in OT
- TI shifted with leads
- Power cords taped to TI
- "TI Charging Bay" created
- Maintenance of temperature logs in LR
- Babies shifted wrapped in warmed linen
- New functioning TI battery made available

Results

Normothermia

- 89.7% reduction of moderate hypothermia.
- 55% reduction in deaths/1000 patient days.
- 71% reduction in LONS/1000 patient days.

Average Moderate Hypothermia — LONS /1000 patient days
Death/1000 patient days — LONS Death /1000 patient days
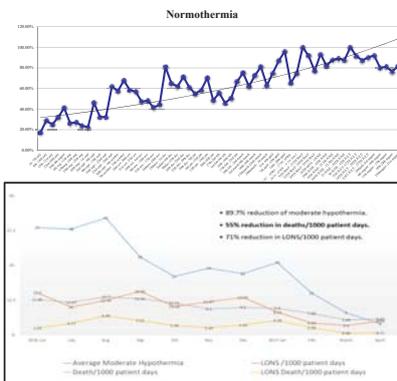
Conclusions

- Neonatal hypothermia is a common and dangerous condition
- Simple and innovative ideas can make wonders
- Specific factors in the labour room that lead to hypothermia differ from facility to facility, but the approach of forming a team, analysing and measuring the problem, developing and testing change ideas and then sustaining the successful changes is generalizable

Quality improvement initiative in Kangaroo Mother Care Practices in NICU

Background

- Kangaroo mother care (KMC) is a safe and alternative method of providing care for low birth weight (LBW) babies. This includes early, continuous and prolonged skin to skin contact of baby with the mother or any caregiver from the family.
- Ideally KMC should be practiced uninterruptedly for 24 hours/day (WHO recommendation)
- Our unit practice is to give KMC for minimum an hour and gradually increased to as long as possible up to 24 hours, as any session of KMC lasting less than an hour could be stressful for the baby
- Benefits of KMC include
  - ❑ Increased breast feeding rates
  - ❑ Better thermal control
  - ❑ Less morbidity and mortality and
  - ❑ Early discharge from neonatal intensive care unit (NICU)

Status of KMC in our Nursery

- KMC is initiated for all preterm and LBW babies as soon as they become hemo-dynamically stable and for initially hemo-dynamically unstable babies, on ventilatory support or having shock, receiving ionotropes etc., it gets delayed for days to weeks before their condition allows for the same

Aim

- To increase the durations of KMC practice of LBW infants from the current baseline value (current average 3 hours/day) by 3 hours (minimum 6hours duration/day) our 2 months

Baseline Data Collection Plan

- Baseline data collection of eligible babies who were initiated KMC during the study period was collected in a predesigned performa which included:
  - ❑ Demographic profile related to mother and baby
  - ❑ The weight and gestational age at birth of the baby
  - ❑ Age at which KMC was initiated for the baby
  - ❑ Average duration of KMC per day
  - ❑ Questionnaires for mother for identifying barriers from mother
- Team member: Nurse Educator, 4 Nurses, Resident doctor, Faculty Incharge NICU, Mothers

Problem analysis
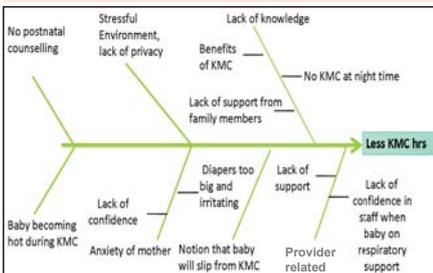
Main barriers of KMC

- Lack of support from health care team
- No proper counseling, lack of privacy for mothers.
- Lack of accountability of assigned Nurse.
- Lack of initiative by other family members for KMC (lack of knowledge, support to the mother, lack of confidence)
- Lack of knowledge and confidence among the mothers and family members in providing KMC due to absence of counseling sessions related to KMC
- No KMC paretic at night
- Mothers spending more time in milk expression and feeding the baby.

PDSA Cycles

ACT
- Unit policy developed
- Dissemination of information
- Apply on large scale

Plan
- Baseline data collection
- Develop CPNC programme on KMC

Study
- Apply on large scale
- Analyze data to study the duration of KMC for each baby and who is giving KMC

Do
- Implement CPNC programe (PDSA1)
- Plus felicitation of nursing staff (PDSA 2)
- Plus increasing the nursing staff accountability for sick babies receiving KMC

## Comprehensive postnatal counselling (CNPC): PDSA cycle week 1

- By a team of 4 dedicated nursing staff working in NICU in different shifts, which includes
- Showing video shows on KMC for the mother and 2-3 family members, explaining benefits of KMC, duration, involvement of family members in KMC in 1 to 1 basis
- Motivating mothers and family for increasing the duration of KMC.
- Motivating other family members for participating providing KMC where mother is the sole provider for KMC

Comprehensive Postnatal Counseling

PDSA cycle week 2

- Encouraging nurses for ensuring KMC for at least 2 hours per shift
- Felicitation and provision of certificate of appreciation to staff nurses responsible for ensuring maximum KMC hours in their shifts on weekly basis in periodic meetings.
- Promoting supportive environment in NICU for KMC.
- Mothers and the family members involved in KMC were also encouraged and acknowledged for doing KMC.

Neonatal Intensive Care Unit
Department of Pediatrics
All India Institute of Medical Sciences

Quality Improvement Initiative

Certificate of Appreciation

This is to certify that _____ has been awarded "Champion of the Month Award" for the month of _____, for achieving maximum hours of Kangaroo Mother Care at NICU, AIIMS, New Delhi, as a part of Quality Improvement Initiative.

Dr. Vinod K Paul
Prof & Head
Dept. of Pediatrics

Dr Ashok K Deorari
Professor
Dept. of Pediatrics

Ms Geetha George
ANS NICUA

MS. Veena Behri
ANS, NICU B

PDSA cycle week 3

- Round the clock availability of nursing staff for babies on KMC with some kind of respiratory support like oxygen therapy. This decreased anxiety and fear of KMC provider due to occasional desaturation at the time of KMC Resulting in batter compliance

Average KMC hours/day
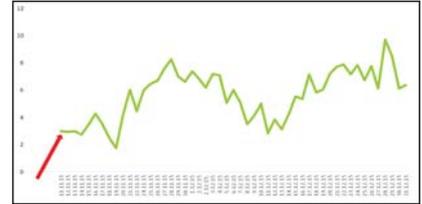
70% of our mothers are doing KMC for more than 5 hours
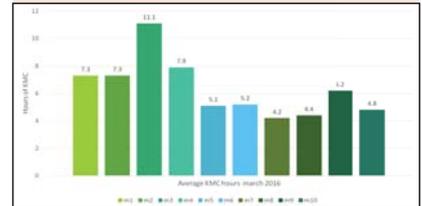
Average KMC hours/day
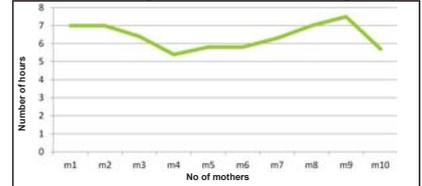
Longest hour of KMC achieved in a day

Steps for sustaining KMC in post implementation phase

- Allowing father and other close relatives for doing KMC even in night
- Assigning responsibility of assigned nurse for ensuring KMC at least 2 hours in her shift
- Making it as a part of doctors daily treatment order.
- Continuing on going CPNC in the unit.
- Constant positive re enforcement and encouragement for KMC in the unit by HCP

Lessons Learned

- The simple measures like active participation of family members and continuous positive reinforcement from treating team resulted in improving current existing KMC duration significantly.
- This will ultimately result in decreasing infection rate, batter growth of preterm babies and early discharge

Conclusion

- Average duration of KMC increased from 3hours to 6 hours within a span of 8 weeks
- Almost all mothers were doing KMC>6 Hours
- Longest duration of KMC is up to 16hour/day
- Active involvement of mother as well as all other relative for KMC resulted in sustained increased duration of KMC practice implementation

Quality Improvement Initiative in UHC Phulbari, Kurigram, Bangladesh

Sharmin Afroze, Ankur Sooden, Md. Saddam Hossain, Aminul Hasan, Shamina Sharmin, Ziaul Matin

Background

- Health care quality is the sustained improvement in health care services to increase the likelihood of desired health outcome.
- Hypothermia in newborn (Temperature <36.5℃) is a significant contributor to neonatal morbidity and mortality but often a missed issue in resource limited countries.
- By reducing neonatal hypothermia after birth, quality newborn care can be provided.
- 39% babies in UHC Phulbari hypothermic at 1 hr. after birth.

Aim

We aimed to see the impact of Quality improvement initiative in reduction of neonatal hypothermia at 1 hour of life among all live born babies in labour room of Phulbari Upazila Health Complex from 39% to 0% in 8 weeks

Method

PDSA (Plan-Do-Study-Act) a four staged quality improvement approach was undertaken for resolving the problem.

Process Flow Chart of Neonates from Birth to 1 Hour of Life

Baby at birth →
Put on mother's abdomen →
Dry, wrap and observe →
Baby 's umbilical cord is cut and 7.1% CHX applied **Partial Unwrapped**

Baby is taken to father and family members for seeing ←
Baby's weight is taken **Un wrapped** ←
Baby is taken to resuscitation table for vitamin K administration **Partial Unwrapped**

Baby shifted to post natal ward when mother is transferred to ward and BF initiated

Root Cause Analysis (Fish Bone)

People
-Didn't know importance of keeping babies warm
-Didn't know consequences of hypothermia
-Lack of motivation

Policy
-No written protocol in labour room

Hypo-thermia

Place
-Weight machine not available in post natal ward

Process
-Frequent un-wrapping
-Cord cut soon after birth
-Vitamin K and weight recording soon after birth
-Long time babies remained with family members

PDSA Cycle-1

Act: Planned for another PDSA cycle as results were not satisfactory

Plan: Babies were dried and wrapped on mother's abdomen

Study: Studied the effects of adequate covering, delaying cord cutting and increasing awareness of staff. **Hypothermia incidence 25%**

Do: Increased the awareness LR nurses and doctors to follow the protocol of cord cutting (National EMEN protocol)

PDSA Cycle-2

Plan: Vitamin K injection and weight recording were delayed within 90 minutes of life in post natal ward
Do: Re-arrange the weighing machine in post natal ward and follow vitamin K and weight recording as per National EMEN protocol
Study: Studied the effects of change in sequence of action
- **Hypothermia incidence: 18%**
Act: Planned for another PDSA cycle as results were not satisfactory

PDSA Cycle-3

Plan: Ensuring skin to skin contact between mother and baby soon after birth.
Do: Family members were counseled about the importance of STS after birth.
Study: Studied the effect of STS contact after birth despite handling babies to family members
Hypothermia incidence: 0%
Act: Adopt and sustain the policy of STS contact for all healthy live newborns

Results
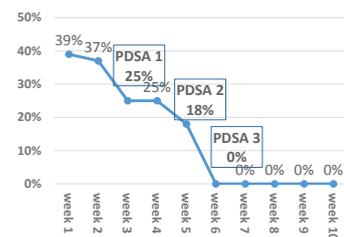
Hypothermia at 1 hour after birth, UHC Phulbari, Kurigram, Bangladesh

Conclusion

- We were able to reduce hypothermia in newborn at 1 hour of life by using multiple PDSA cycles
- **PDSA cycle-1:** Adequate covering of baby and delayed umbilical cord cutting.
- **PDSA cycle-2:** Vitamin K administration and Weight recording delayed but within 90 minutes of birth
- **PDSA cycle-3:** Skin to skin contact between mother and baby for 1 hour

We reduced hypothermia at 1 hour among babies from 39% to 0%

Small Quality Improvement projects involving medical staff's own skill and knowledge in clinical neonatology can improve neonatal outcome

Mother Baby Friendly Facility Initiative
Kurigram, Bangladesh

"Second Meeting of the Network for Improving Quality of Care for MNCH, 12-14 March, Addis Ababa".

SUCCESS STORY: Improving outcome among admitted patients at SCANU of Kurigram District Hospital by controlling infection through PDCA approach

Outcome of admitted patient in SCANU

CFR of SCANU at Kurigram DH

AIM STATEMENT:
TO IMPROVE OUTCOME OF PATIENTS THROUGH REDUCING NEW INFECTION RATE (HOSPITAL ACQUIRED) FROM BASE LINE TO 50% WITHIN 8 WEEKS IN SCANU OF KURIGRAM D HOSPITAL.

Process Indicator:
Decrease new infection rate among admitted patient- failed to measure- change to
Increase rate of discharge with advice among admitted patients

Outcome Indicators:
Decrease mortality rate among admitted patients (CFR in SCANU)

PDSA 1-To talk to a attendant why there are too many visitors-

Study- Primary attendants are mothers, secondary ones for food, medicines etc.

Act- To ask primary attendant to handover the medicine slip outside and not enter into SCANU. It was PDSA-2 and worked well

Analyzing the problem: Fish bone analysis
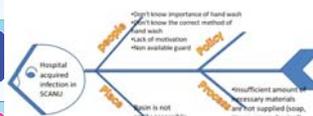
PDSA 3- To conduct session on hand wash for 5 attendants in SCANU at 9 AM by one Nurse

Study- Not worked due to workload of nurse. Engaged counselor for training and 3 attendants at a time.

Act- Trained attendant train other attendant to do hand wash before entry in to SCANU and monitoring by nurse/counselor- which was PDSA 5

PDSA 4- To make a system not to enter more than one attendant for same patient and ensure no entry without gown

Study- Due to appointing guard for three shift, ensuring gown and hand wash before entry, reduced attendants to one per patient

Act- Continued system along with arrangement of tools/chair and locker for attendants at SCANU

PDSA 6- To make basin accessible and soap, Liquid soap and tissue available as per need for attendants along with total requirement

Study- Inside basin was not comfortable for attendants. Liquide/Bar soap- lost. Increased requirement of soap due to increase hand wash

Act- Continued outside basin along with soap hanged within net for attendants.

unicef

Reducing General Anaesthesia Waiting Area Time In Eye OT by 87% : R.P. Centre QI Initiative

USAID FROM THE AMERICAN PEOPLE
USAID ASSIST Project Applying Science to Strengthen and Improve Systems

All India Institute of Medical Sciences, New Delhi

BACKGROUND

Only 1 case is operated in single general anaesthesia (GA) OT at any time, but a large number of children are present in GA waiting area. This leads to unnecessary crowding, chaos, with many patients sitting on floor! Moreover, there is difficulty in coordination, increased risk of infection, and prolonged long fasting period for small babies. It adds to the anxiety of child and attendant.

AIM

To reduce average waiting time in GA (general anaesthesia) waiting area for admitted patients by 50% in 4 weeks in a single retina unit eye operation theatre of Dr R.P. Centre, AIIMS.

DATA COLLECTED

- Time Junior Resident (JR) calls to ward
- Time patient moves out of ward
- Time patient reports to OT reception
- Time patient seated in GA waiting area
- Time patient shifted for surgery
- Time patient shifted out after surgery

### BASELINE FLOWCHART & QUALITY ISSUES
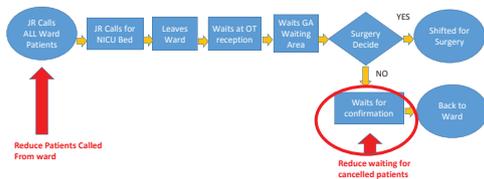
- All 8/8 patients called before 8:30 AM
- Of these 6/8 patients called before 8 AM !! – OT team comes at 8:30 AM
- 2 patients cancelled after 5 hours of waiting in OT
- For a 5 min intravitreal injection, an infected case waited 6.30 hrs
- Average Waiting Time: 221 min (~3½ hrs)
- Maximum Waiting Time: 390m (6½ hrs)
- WAITING TIME = Time of entry to OT reception to shifting for surgery

QUALITY IMPROVEMENT (QI) PHASE I
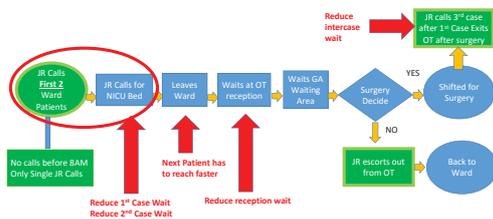
- Only single JR will call ward – prevents multiple calls
- Do not call patient from ward before 8AM, as OT does not start till 8:30
- Call ward for 1st & 2nd case at 8AM to shift to OT [In case 1st case cancelled, 2nd should be ready]
- 3rd case call when 1st case comes out after surgery and so on …
- JR will physically escort cancelled patient out of OT – No cancelled patient needs to wait

QUALITY IMPROVEMENT (QI) PHASE 2
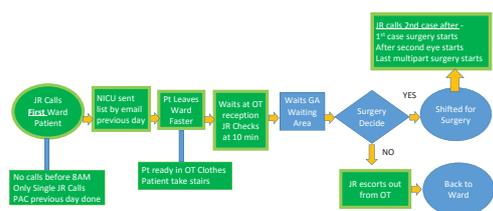
- PAC clearance ensured for all patients previous day
- Cases informed to NICU previous day by email > No morning NICU calls
- Only one patient called by JR at 8AM
- Sister keeps patients ready in OT clothes at 8AM
- Sister advises patients to take stairs, to reach OT faster
- JR checks after 10 min in OT reception, brings patient inside
- JR calls second case when: 1st case surgery starts (opsite cut) / Bilateral surgery when 2nd eye surgery starts / Multipart surgery, last part starts

RESULTS

Average GA Area Waiting Time

Maximum GA Area Waiting Time

QI Phase 1, QI Phase 2, QI Sustained

Average Waiting Time Reduced by 87% [221min (3½hr) → 29min(< ½hr) max]

Maximum Waiting Time Reduced by 87% [390 min (6½ hr) → 52 min (<1 hr)]

Conclusions: QI Significantly Reduced GA Waiting Area Times and Single JR Could Sustain QI Changes

Content: Dr. Rajendra Prasad Centre for Ophthalmic Sciences, AIIMS

Designed & Printed at KL Wig CMET, AIIMS

SECTION 6
Newborn unit case scenario

STEP: 1 ✓

Identify a problem, form a team and write an aim statement

Learning objectives

You will learn:

1. How to review data to identify problems

2. How to prioritize which problems to work on

3. How to form a team to work on that problem

4. How to write a clear aim statement

🔍 Case scenario 1.1

You work at the newborn unit of a hospital in which around 500 babies are born monthly. The newborn unit has 16 beds. It is a very busy unit with about 120 newborn unit admissions per month. In addition to this the newborn unit staff also sees neonates who may not need full admission but need a few hours of evaluation and observation.

The following staff work at the newborn unit.

Staff	Total	In one shift
Doctor	6	2
Staff Nurse	21	6
Nurse in charge	2	1
Data entry operator	1	1 (daytime only)

The staff work hard but they believe that they can provide even better care.

They try to figure out what they can improve upon. Some of the staff get together to have a discussion to identify problems. During the discussion the staff members bring up several concerns

- Some of the staff are really concerned about delay to start emergency management of sick babies. Last week there was a baby with respiratory distress that received treatment after waiting for 60 mins! Thankfully the baby is recovering well but such a delay is not acceptable.

- Some of the staff share that there are problems with hand washing compliance and it is difficult to maintain hand hygiene.

The facility has an electronic database for patient data. One of the nurses suggests looking at the facility database to identify gaps in care. The facility database (Table 1) shows:

- Main causes for babies dying in the facility are birth asphyxia, sepsis and complications due to prematurity or low birth weight.

Many newborn units maintain a manual register that has similar information. In addition to this, one of the nurse reviews patient files from the last week and determines that only 20% of babies coming to the newborn unit received emergency management during admission within 30 mins.

The staff realizes that some of the issues they have discussed are processes of care and some are outcomes of care. Processes are activities that health workers carry out and outcomes are the end result of those activities.

Table 1: Selected data collated from newborn unit database system

S.No case record	Admission date	Gestational Age (weeks)	Age at admission (days)	Time to first assessment (minutes)	Weight at admission (gms)	Temp °C on admission**	KMC received in eligible LBW babies	Antenatal corticosteroids	Diagnosis	Discharge/Referral Date	Discharged/Died/Referred
1	15.06	34	10	20	1680	36.6	No	No	LOS	28.06	Died
2	15.06	36	4	50	2300	35.8	Yes	NA	PM, CM	17.06	Refer
3	16.06	33	1	80	1600	36.9	Yes	No	RD	29.06	Home
4	16.06	37	1	50	2600	36.5	NE	NA	Asp	22.06	Died
5	17.06	38	1	70	2760	36.8	NE	NA	Asp	20.06	Home
6	17.06	33	10	60	1600	35.6	No	No	RD	19.06	Died
7	18.06	34	2	18	1800	36.2	Yes	Yes	LBW	25.06	Home
8	18.06	36	2	100	2390	35.9	No	NA	PM	24.06	Home
9	19.06	40	15	38	3010	37	NE	NA	LOS	30.06	Home
10	19.06	39	20	50	3260	38	NE	NA	LOS	30.06	LAMA

*CM = Congenital malformations; RD = Respiratory distress; LBW = Low birth weight (<2500 gms); PM = Premature (<37 completed weeks of gestation); Asp = Asphyxia; KMC = Kangaroo mother care; LAMA = Leaving against medical advice; LOS = late onset sepsis; NE = Not eligible; NA = Not applicable

**Normal axillary temperature is 36.5-37.5°C. In hypothermia the temperature is below 36.5°C. Cold stress 36.0°C to 36.4°C. Moderate hypothermia 32.0°C to 35.9°C. Severe hypothermia <32°C

Discussion 1.1: Identifying problems

Based on the given scenario and data discuss the following:

A) What problems in care were identified based on **staff experiences?**

Problems identified based on staff experiences

B) What problems in care were identified from the **data review?**

Problems identified based on data review

C) What are the various outcomes of care in the newborn unit?

Outcomes of care

D) What are the various **processes** of care in the newborn unit?

Processes of care

E) Calculate the percent **performance** of **two processes of care** from the database or staff experience?

Process of care	Performance

F) Calculate the percent performance of two outcomes of care from the database

Outcome of care	Performance

Case scenario 1.2

The staff realizes that they cannot fix everything at once so decide to prioritize one or two problems to work on. They are required to fill in a prioritization matrix.

Discussion 1.2: Prioritizing the problem

Fill out the prioritization matrix. Based on your experience in your facility, assign points from to 1 to 5 for each factor (process or outcome):

- *Important to patient outcomes* – how important is this factor for better patient outcomes? 1 is not important (lowest score), 5 is vitally important (highest score).

- *Affordable in terms of time and resources* – how easy do you think it will be to fix this problem? 1 is not affordable (it will take a lot of time or resources), 5 is very affordable.

- *Easy to measure* – how easy will it be to measure the problem you are trying to fix? 1 is very difficult, 5 is very easy.

- *Under the control of team members* – will people in the unit be able to fix this themselves? 1 is not at all under the control of the team members, 5 is entirely under the control of the team members.

Sample prioritization:

Possible aim	Important to patient outcomes (1-5)	Affordable in terms of time and resources (1-5)	Easy to measure (1-5)	Under control of team members (1-5)	Total score (4-20)
Reducing delay in emergency management of sick babies					
Improving respiratory distress management by improving use of antenatal corticosteroids in preterm babies					
Reducing sepsis (early onset sepsis within 72 hours of birth)					
Ensuring KMC in eligible babies					
Reducing congenital malformations					
Reducing low birth weight babies (<2500 grams)					
Reducing asphyxia					

Important note

Sometimes participants may give 5 points to all the criteria. This defeats the purpose of the prioritization exercise and will not help them determine which aim to select. For example, if someone gives 5 points to all aims under the column 'important to patient outcomes', then you can ask them to compare the options.

What is worse from the point of view of patient outcome?

- An eligible baby does not get KMC

  OR

- A baby who has hypothermia at admission

A baby who has hypothermia at admission, since this increases the risk of death.
Such comparisons will help give the various problems different scorings and help guide participants towards doing a useful prioritization.

Based on prioritization, choose a gap in quality that you think the staff should focus on.

Important note

Teams should avoid selecting reducing congenital malformations and prematurity/LBW as these are out of their control

- Also as the newborn unit staff is not usually involved in care in the labour room it will be difficult for them to decrease asphyxia unless they include staff from the obstetrics team in their work.

Delay in management is very important to patient outcomes as it also impacts co-morbid conditions like hypothermia,hypoglycemia, worsens sepsis and respiratory distress thus increases mortality.

Case scenario 1.3

The staff has now figured out which of the problems in the care of newborns they should prioritize and tackle first. They now need to form a team to address these gaps.

Discussion 1.3: Forming a team

Discuss how you would organize a team to improve care of mothers and babies in this facility. Determine how many people should be on the team, and who the members might be. Consider the roles of members on the team. Choose and describe an ideal team leader.

Team members	Team Roles
Team leader	**Characteristics of a good team leader?**

Case scenario 1.4

Now that a team is in place to address the problem they all need to develop a clear aim statement. This is important to do so that all of them have the same common understanding of what needs to be achieved.

Discussion 1.4: Writing an aim statement

The aim statement should follow the structure:

We aim to (what do you want to achieve) in (which patient group) **from** (what is the current performance) **to** (what is the desired level of performance) by (how long).

Write an aim statement related to the quality gap that you think is most important.

We aim to:
In:
From:
By:

STEP: 2 ✓

Analyze the problem and measure quality of care

Learning objectives

You will learn:

1. Know the tools for understanding processes and systems of healthcare

2. How using these tools can help identify the causes of and possible solutions to reach your aim

3. How to develop indicators for process and outcome of care

4. How to use indicators to track progress of improvement

Case scenario 2.1

The team decides on the problem they want to fix and develop the following aim statement

"We aim to initiate emergency management of sick newborns with in 30 minutes of being received at newborn unit triage,within 8 weeks from current of 20% to 80 %"

The current Emergency Triage and Treatment protocol is to do the following assessment on arrival to determine whether the baby needs emergency management. The following things are checked to exclude the main emergencies in all neonates reporting to the newborn unit reception.

- *breathing rate*

- *heart rate*

- *temperature*

- *blood sugar*

- *oxygen saturation*

- *bleeding from any site*

- *abnormal movement*

Based on above assessment the newborn unit team decides to admit the baby and start management.

The admitting nurse also records the time at which the baby reached the newborn unit triage and also the time at which the emergency management and decision to admit /discharge is done is recorded.

Discussion 2.1 – Selecting tools for analysis

What tools can the team use for analyzing this problem?

Any or all of the above options are correct. This exercise merely serves to help participants recall the tools for analysis.

Case scenario 2.2

To gain a better understanding of what is happening at the newborn unit triage the team uses the following analysis tools:

- The team develops a process flowchart in order to understand what happens when the baby comes to the newborn unit

- They also use a fishbone diagram to identify the reasons for late treatment

Figure 1: Fishbone diagram to identify various causes for late treatment
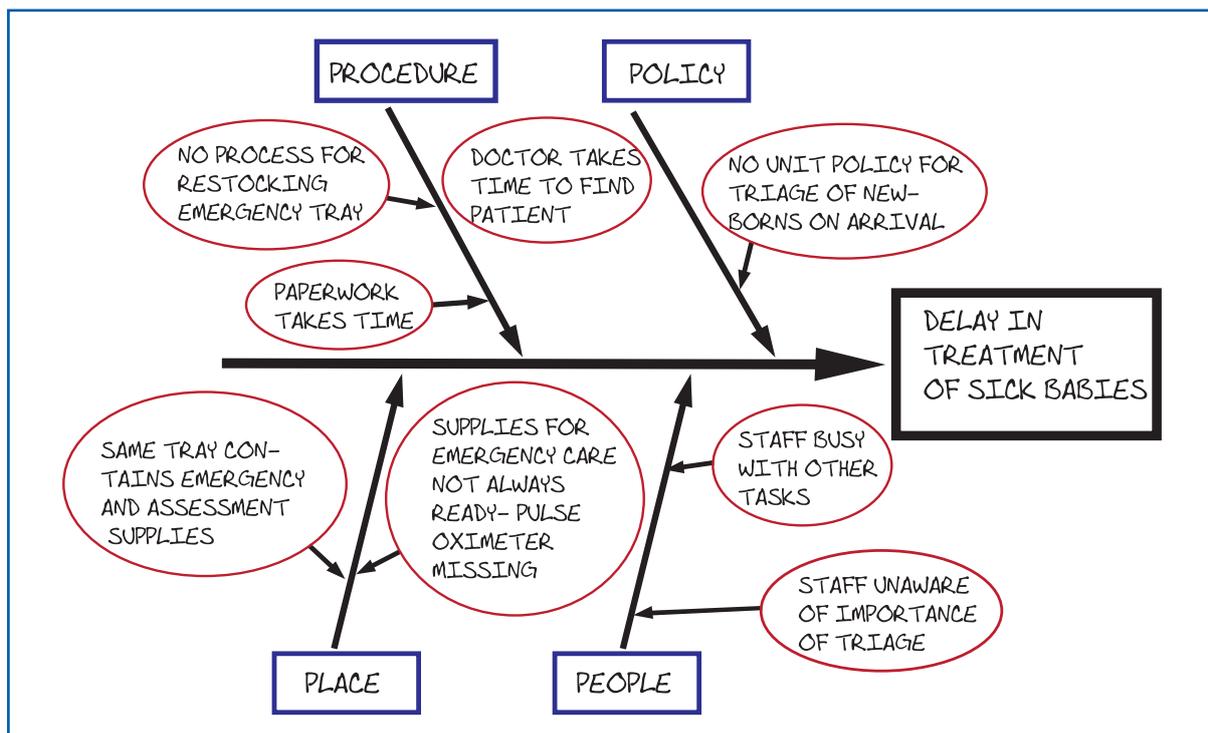
Figure 2: Process flowchart of steps that take place at the newborn unit triage area
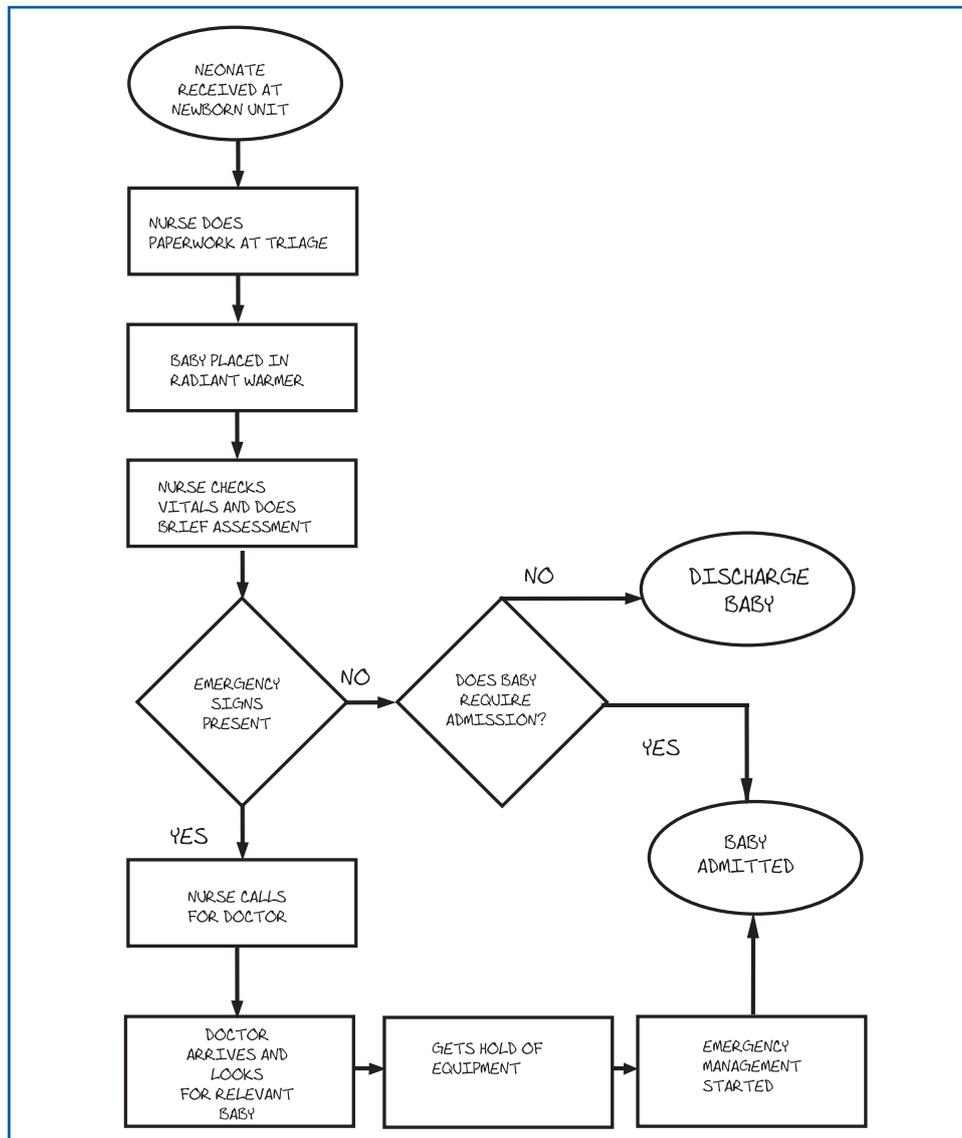
Discussion 2.2: Identifying causes based on analysis

Based on the **flowchart and fish bone diagram,** what do you think could be some of the problems contributing to delays in triage?

Procedure:

Place:

Important note

Encourage participants to move away from the 'People' component of the fishbone. If the participants are only focused on identifying people related causes such as training, attitude and motivation - tell them that the purpose of the fishbone is to make them think more broadly and about issues other than these. **Encourage them to think about place and procedure because these are usually within the control of the team members and can be fixed.**

....

Case scenario 2.3

The team now discusses what indicators to use to measure progress.

....

Discussion 2.3: Developing indicators

Define indicators to monitor progress in achieving the aims.

Teams might come up with either of the options below. Either one is correct.

A)

Who will you count? (numerator)	
Out of whom will you count? (denominator)	

Therefore your measure is:

$$\frac{\text{Who will you count (numerator)}}{\text{Out of whom will you count (denominator)}} \times 100 = \boxed{}$$

Where will you get this information from? (data source)	
Who will collect/collate this information? (Person responsible)	
How often will you need to count this?	

OR

B)

What will you count? (numerator)	
Out of what will you count? (denominator)	

Therefore your measure is:

$$\frac{\text{What will you count (numerator)}}{\text{Out of what will you count (denominator)}} = \boxed{}$$

Where will you get this information from? (data source)	
Who will collect/collate this information? (Person responsible)	
How often will you need to count this?	

Case scenario 2.4

The team decides to use the following indicator

% of sick neonates in which emergency management was initiated within 30 mins of being received at newborn unit

The team looks at their data for this indicator for the past 6 days from the register.

Discussion 2.4: Plotting data over time

A) Calculate the indicator for each day

	Number of sick babies in which emergency management started within 30 mins	Total number of neonates who received emergency care	% of sick babies getting emergency management within 30 mins
Day 1	3	10	
Day 2	2	10	
Day 3	2	13	
Day 4	2	10	
Day 5	4	16	
Day 6	6	15	

B) Draw a time series chart using above data:

STEP: 3 ✓

Develop changes and test these to learn what works

Learning objectives

You will learn:

1. How to come up with ideas about what to change to reach your aim

2. How to plan a plan-do-study-act (PDSA) cycle to test change ideas

3. What to do as you learn from a PDSA cycle

4. How to test multiple change ideas to achieve your aim

Case scenario 3.1

The facility team reviews the flowcharts and fishbone diagrams to gain a better understanding of what was causing them to deliver suboptimal care.

This helps them to come up with some ideas about changes to make that could help to provide the emergency management to the sick newborn in a timely manner.

Discussion 3.1: Developing change ideas

Based on the analysis using the fishbone and the flowchart, list some ideas that might help improve triage. Use the suggestions in the first column of the table to come up with ideas.

Possible ideas:

Type of change idea	Change idea	Why do you think this will improve care?
Eliminating wastage of time		
Reorganization of supplies		

Rearranging the process steps		
Rearranging the workplace		
Improving the environment to make it easier to work		
Other ideas		

Important note

Remind the participants that these are only ideas, **we don't know yet whether these are useful ideas or not.**

In order to know whether an idea will actually lead to reduction in triage time we have to test it with a few patients or for a short time to see the impact. Often ideas may seem very logical but when you try to test time during actual work, various challenges come up.

On the other hand sometimes an idea may not seem appropriate to some members of the QI team but if it is tested for a short time, it might end up being feasible and also improve care. The only way to know which of the ideas the team has come up are useful, the team will now test them one by one.

Case scenario 3.2

The team members have a lot of ideas for improving the triage time.

- *Assigning responsibility for ensuring that all equipment (including glucometer, thermometer, pulse oximeter) is available at triage*

- *Making a separate emergency management tray*

- *Inform doctor and then do paperwork*

- *Fix place for emergency management of sick babies*

- *Make it easier to identify beds with sick babies*

The team decides that the first thing they are going to try is to ensure that the triage equipment is readily available. The team discusses that they should separate the contents required for assessment of babies at triage from those that are required for emergency management and put in different trays.

The nurses on the team say that they can ensure that the tray is ready. One of them (nurse A) thinks it will be easiest to ready the tray in the morning when the shift starts and she says she will try this idea out and see whether it helps reduce triage time or not in her next shift.

Discussion 3.2: Planning a PDSA cycle to test a change idea

Plan	What is the change idea and how will you try it (give details)?	
	Who will try out this change?	
	Where will this change be tried?	
	When and for how long will this change be tried?	
	What do you want to learn from testing this change idea?	
Do		
Study	What will the QI team ask the person(s) who tried this change idea?	
Act		

This PDSA can be done for one or two shifts. In one shift we come to know whether it helps or not. If we do this for two or three consecutive shifts then we can come to know whether refilling / rechecking at the start of a new shift works or not.

Case scenario 3.3

A separate emergency management tray is prepared for the next shift. Three sick newborns are seen during this shift. When the first baby comes it still takes time to find the tray as it was not marked clearly and was placed inside the main newborn unit hall and not in the triage area.

Discussion 3.3: What to do as you learn from a PDSA

What should the team do next?

Case scenario 3.4

After the first baby is assessed, the nurse on the shift relocates the emergency management tray and places it in the triage area for faster access.

In the next baby requiring emergency management, the doctor is able to start treatment within 30 minutes because she does not waste time looking for equipment. One of the nurses suggests marking the triage assessment tray with red tape to make it more visible. The team decides that this change idea was successful and adopts it.

The doctor still had problems identifying which bed the baby was on. The team then decides that they will assign specific beds in the newborn unit for management of sick babies so that the staff does not have to waste time looking for these babies. So they block two beds for emergency management of sick babies. They try this for one shift. They realize that this does not work as it leads to overcrowding in the triage area while the reserved beds remain empty.

Discussion 3.4: What to do as you learn from a PDSA

The team tried to reserve two beds for emergency management of babies at triage to reduce the time it takes doctors to find the sick babies.

Based on the learning from this PDSA cycle should they adopt, adapt or abandon this idea?

Some participants might suggest adapting the idea and changing the number of reserved beds to one bed only. This option is also acceptable and the staff can do another PDSA on the same change idea to see if reserving only one bed helps or not.

Case scenario 3.5

The team decides that it is impractical to block beds for neonates requiring emergency management as their number varies. This leads to unnecessarily empty beds and overcrowding at triage so they abandon this idea

It is then decided that they will mark the beds with babies requiring emergency management with red triage stickers. They try out this idea for one shift and two sick babies are seen in this shift. This idea is approved by everyone as the doctors and nurses are quickly able to get the baby's bedside.

They then do the next change idea. They decide that they will first evaluate the baby for emergency signs, call the doctor if required and then do paperwork. One nurse objects to this saying that there will be babies who will not be admitted to newborn unit and their paperwork will get forgotten if paperwork is done after assessment. The other nurse on the team volunteers to try doing this on her shift and they can assess whether such a process will cause them to forget paperwork for non-emergency cases.

In the next morning shift the nurse tests doing assessment before paperwork. Four babies come to triage during the shift. The nurse does not miss any paperwork even for babies who are not admitted because she still had to write the patient notes in the patient file for all patients.

Discussion 3.5: Testing multiple changes

List the changes tested by the team and the PDSA cycles carried out for each change.

Change idea	PDSA

Case scenario 3.6

The team members hold a series of meetings for other newborn unit staff who have not been involved in the project to discuss the new way of working, showing them how this new way of working leads to faster assessment of babies.

The remaining staff is willing to support the work to reduce triage time and starts working in the new way. All the staff starts working in the new way – by ensuring a separate triage assessment tray is checked at the start of each shift, by calling for the doctor before doing paperwork and placing a sticker on beds with babies requiring emergency management.

Data continues to be monitored and it shows that almost all sick newborns are getting emergency management in a timely manner now (Figure 3). This is very satisfying to all the staff.

Figure 3: **Time series graph showing how more babies are now getting emergency management within 30 minutes of reporting to the newborn unit**

% of sick babies getting emergency management within 30 mins of reporting to newborn unit
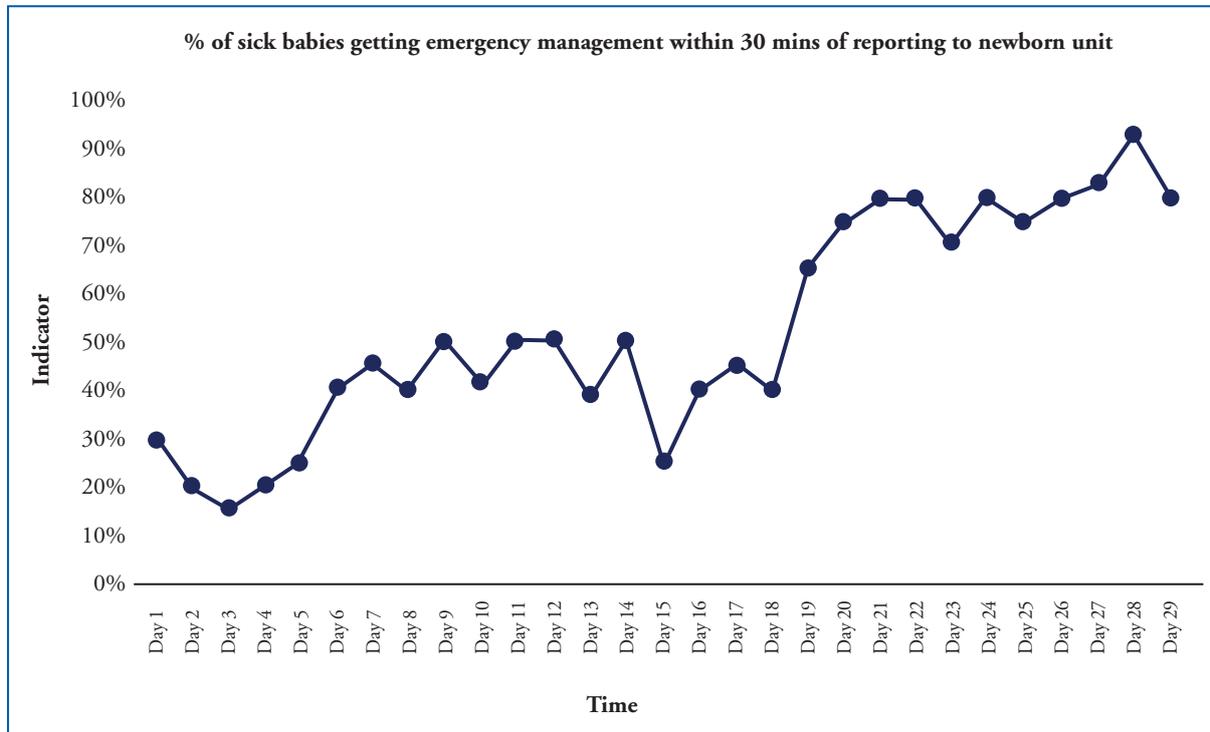
Note: Day 1 – 6 was the data prior to the improvement work. Day 7 onwards is the data being collected while changes were being tested and implemented to improve care.

STEP: 4 ✅

Sustain improvement

Learning objectives

You will learn:

1. How to take specific actions to sustain improvement to hardwire the gains – changing the way we work

2. How to embed the new process in the hospital policy / system – not just tinkering

3. How to work with the system and involve the health workers from beginning

4. How to build enthusiasm, motivate team, recognition by certificates and celebration

Discussion 4.1 – Sustaining successful changes

After testing ideas and finding ones that work, you will want to ensure that these changes become permanent and consistently applied in all situations.

Examples of actions the team can take to prevent them from slipping back into old ways of working

Discussion 4.2 – Building enthusiasm for quality improvement

It very important to build more enthusiasm among health-care teams for quality improvement

Some ways to build enthusiasm for quality improvement at a facility or region:

It is also important to build **structures and systems to support quality improvement**. More guidance on this is given in Appendix 2 of this manual. This information is relevant for managers and leaders at district, state or national levels.

SECTION 7
Pediatrics unit case scenario

STEP: 1 ✓

Identify a problem, form a team and write an aim statement

Learning objectives

You will learn:

1. How to review data to identify problems

2. How to prioritize which problems to work on

3. How to form a team to work on that problem

4. How to write a clear aim statement

🔍 Case scenario 1.1

- *You work in the 50-bed paediatric indoor unit of a children hospital.*

- *The unit admits sick children in need of inpatient (indoor) care. There are two paediatricians and three medical officers posted in this unit along with eight staff nurses.*

- *A nurse In-charge oversees the day-to-day functioning of this unit, supervises record-keeping and manages supplies. There is also a security guard posted in every shift, who sits at the entrance of the ward.*

- *In the last monthly review meeting, management board of the hospital pointed out several issues with the care provided in the unit.*

  - o *In the last six months, there have been increasing number of complaints by parents of admitted children about delay in admitting to the inpatient ward and further delay in starting of treatment.*

  - o *There are several children admitted with severe malnutrition.*

- *The unit staff participating in the meeting, in response, shared some concerns with the management.*

  - o *Some children are refused admission in hospital because of non-availability of beds.*

  - o *Parents and families of admitted children do not have a place to stay in the hospital during their child's admission as the Guest house is under renovation.*

  - o *Payments to outsourced services contractors are often delayed.*

- *The staff of the unit agree that all newly admitted patients should receive first dose of prescribed treatment within 45 minutes of admission to the unit.*

- *The staff from unit attending the review meeting are upset about being pointed at for so many issues in front of their peers. They think they are overburdened and do their best to provide optimal care to children admitted in their unit within the limited resources. While they share management's concern about the healthcare issues, they feel helpless in solving all of them at once.*

- *The unit head, who recently attended a training on point of care quality improvement suggests that they prioritise the identified problems and pick one problem to address first. The management and staff both agree to his idea.*

Discussion 1.1: Prioritizing a problem

Fill out the Prioritization Matrix. Based on your understanding about this facility (described above), assign points from 1 to 5 for each of the below four parameters to each of these identified problems (quality gaps):

Important to patient outcomes – how important is each aspect of care for better patient outcomes? 1 is not important (lowest score), 5 is vitally important (highest score).

Affordable in terms of time and resources – how easy do you think it will be to fix this problem? 1 is not affordable (it will take a lot of time or resources), 5 is very affordable.

Easy to measure – how easy will it be to measure the problem you are trying to fix? 1 is very difficult, 5 is very easy.

Under the control of team members – will people in the unit be able to fix this themselves? 1 is not at all under the control of the team members, 5 is entirely under the control of the team members.

Prioritization matrix					
Identified problems (Quality gaps)	**Important to patient outcomes**	**Affordable in terms of time & resources**	**Easy to measure**	**Under control of team member**	**Total Score**
	(1-5)	**(1-5)**	**(1-5)**	**(1-5)**	**(4-20)**
Delay in starting of treatment in newly admitted patients					
Severe malnutrition among admitted children					
Admission refusal due to non-availability of bed					
No accommodation arrangement for admitted children's attendants					
Delay in payment for outsourced services					

Problem prioritised using the matrix:

Delay in starting of treatment in newly admitted patients

Case scenario 1.2

- *The staff has prioritized which of the problems they should address first. They chose to address the issue of delay in starting treatment in newly admitted patients.*

- *They now need to proceed to the next step - forming a team to address this problem (quality gap).*

Discussion 1.2: Forming a team

- Discuss how you would organize a team in this unit to improve care for admitted paediatric patients by addressing the identified problem.
- Determine how many people should be on the team and who should be its members.
- Consider the roles of members on the team.
- Choose and describe an ideal team leader for this team.

Team members	Roles

Team leader	Characteristics of a good team leader?

Case scenario 1.3

- *The newly formed improvement team meets to discuss how to go ahead to address the problem of delays in starting treatment for newly admitted children in the unit.*

- *They plan to collect data on these delays. They decide to record time of specific steps of care (activity) when a child is admitted to the inpatient ward in their routine admission register for one day and calculate time taken for each activity.*

- *The nurses agree to put a note of time during morning and evening shift for all admissions in the unit on that day.*

- *The nurse-in-charge takes responsibility of looking at the register next day and calculating time taken between various steps of admission process. This is presented in the Table 1.*

| A | C | D | E | F | G | H | I | J | K | L | M | N | O | P |
S.no.	Time of admission*	Name of the patient	Age(yrs.) / Sex	Weight at admission (kg)*	Diagnosis (Provisional / Final) *	Time of writing treatment order*	Time taken to writing treatment order from time of admission	Time when diagnostic sampling done after admission*	Time taken between treatment order and sampling	Time when bed allotted*	Time taken between sampling done and bed allotted	Time when first dose given*	Time between bed allotted and first dose given	Total time taken to start treatment from time of admission
1	11.15 am	Gini	11 / F	35 kg	Meningitis	12.00 pm	45 min	12.10 pm	10 min	12.20 pm	10 min	12.30 pm	10 min	75 min
2	11.52 am	Shanno	5 / F	11 kg	SAM	12.40 pm	48 min	12.55 pm	15 min	1.10 pm	15 min	1.15 pm	5 min	83 min
3	12.02 pm	Rohit	10 / M	33 kg	Pneumonia	12.45 pm	43 min	12.50 pm	5 min	1.15 pm	25 min	1.20 pm	5 min	78 min
4	12.20 pm	Pooja	5 / F	20 kg	Acute Gastroenteritis	1.30 pm	70 min	1.40 pm	10 min	1.50 pm	10 min	1.55 pm	5 min	95 min
5	1.10 pm	Piyush	6 / M	18 kg	Acute Gastroenteritis	2.00 pm	50 min	2.20 pm	20 min	2.30 pm	10 min	2.40 pm	10 min	90 min
6	1.55 pm	Kiran	3 / M	8 kg	Septicaemia? with SAM	2.40 pm	45 min	3.15 pm	35 min	3.25 pm	10 min	3.30 pm	5 min	90 min
7	2.30 pm	Sunil	9 / M	25 kg	TBM	3.35 pm	65 min	4.00 pm	25 min	4.15 pm	15 min	4.30 pm	15 min	120 min
8	2.47 pm	Saroj	10 / F	40 kg	Pneumonia?	3.45 pm	58 min	4.10 pm	25 min	4.20 pm	10 min	4.35 pm	15 min	108 min
9	3.08 pm	Poonam	8 / F	22 kg	Enteric fever?	4.05 pm	57 min	4.30 pm	25 min	4.40 pm	10 min	4.50 pm	10 min	102 min
10	8.46 pm	Javed	3 / M	16 kg	Septicaemia?	9.10 pm	24 min	9.30 pm	20 min	9.40 pm	10 min	9.50 pm	10 min	64 min

Note: This facility in the case study made these noting (entries) in the ward register for a short period of time to understand delays. In many hospitals this may not be the practice. In such a case, the team would have to prepare such a register and start recording these timings in the beginning of the QI project.

Discussion 1.3: How to collect and review data to identify problems

Average time taken between		Average time in minutes
a.	Time taken to writing treatment order from time of admission	
b.	Time taken between treatment order and sampling	
c.	Time taken between sampling done and bed allotted	
d.	Time between bed allotted and first dose given	
e.	Total time taken to start treatment from time of admission	

Calculate the percentage of admitted children whose treatment started within 45 minutes of admission to the unit.

Indicator	Value
Percentage of children admitted to paediatric indoor unit whose treatment started within 45 minutes of admission	

Case scenario 1.4

- *Now that a team is in place to address the problem, they all need to develop a clear aim statement. This is important to do so that all of them have the same common understanding of what needs to be achieved.*

Discussion 1.4: Writing an aim statement

- SMART stands for: Specific, Measurable, Achievable, Relevant, & Timely

Aim statements answer the questions what, whom, how much and by when:
- **"What"** describes the outcome or process that needs improvement
- **"In Whom"** describes the patient group that will be benefitted / affected
- **"How much"** describes the change from baseline to the desired result (goal)
- **"By when"** describes by when you plan to achieve your desired goal

The aim statement should follow the structure:

We aim to (what do you want to achieve) _____ **in** (which patient group)

_____ **from** (current performance level) _____ **to** (what is the desired

performance level) _____ **by** (when) _____.

Write an aim statement related to the identified problem from the prioritization matrix:

We aim to (what do you want to achieve)

In (which patient group)

From (current performance level)   **To** (desired performance level)

By (when)

STEP: 2 ✓

Analyze the problem and measure quality of care

Learning objectives

You will learn:

1. Know the tools for understanding processes and systems of healthcare

2. How using these tools can help identify the causes of and possible solutions to reach your aim

3. How to develop indicators for process and outcome of care

4. How to use indicators to track progress of improvement

Case scenario 2.1

The team decides that they want to fix the problem of delay in initiation of treatment ordered for paediatric patients admitted to the paediatric ward. The team accordingly developed their aim statement:

- *To increase the percentage of newly admitted patients in paediatric ward whose treatment starts within 45 min. of inpatient admission ticket generation from existing 0% to > 50% over a period of 12 weeks.*

Discussion 2.1 – Selecting tools for analysis

List the tools that can be used for analysing the problems:

⊜ Case scenario 2.2

The team decided to look at the problem more closely by recording the steps taken after arrival of the patient in the ward (process flow) for starting treatment.

To achieve this aim, the team uses the following analysis tools:

- *Process flow chart: starting from admission of patient to paediatric ward from OPD to subsequent initiation of treatment (Figure 1).*
- *Fishbone analysis (Figure 2) to identify the root cause (problems/challenges) that lead to delay in initiation of treatment in newly admitted patients.*

**Figure 1: Process flow diagram**
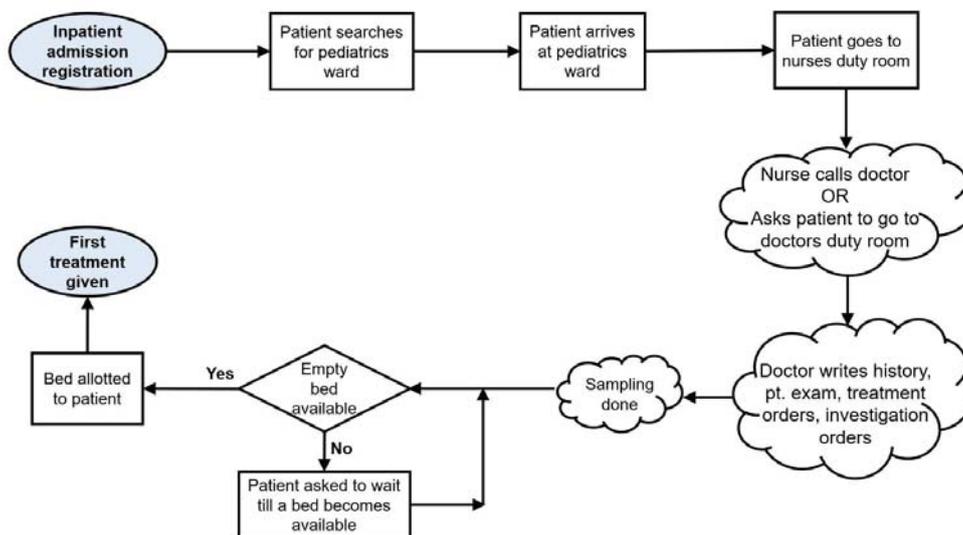
Figure 2: Fishbone analysis

To understand more details on the steps that were not clear in the process flow chart (clouds), the team uses a fish bone diagram to list identified root causes under four categories:
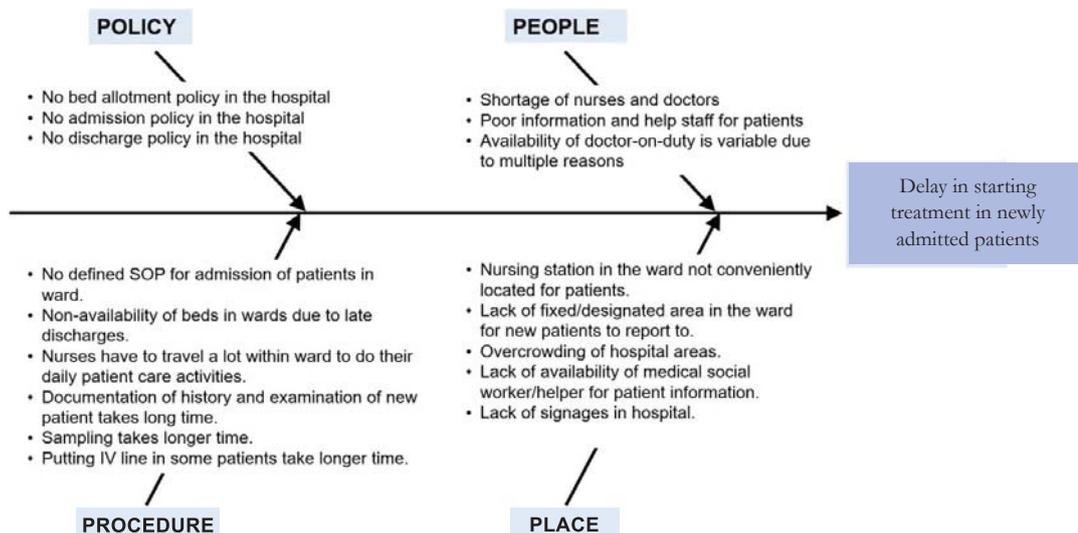
Discussion 2.2: Use a fishbone diagram to analyse the problem

Based on the above given Fishbone Diagram (Figure 2) what do you think could be some of the main causes contributing to delay in initiation of treatment?

Case scenario 2.3

- *The team now discusses what indicators to use to measure progress. They want to measure and track data on their selected aim. (% of admitted children for whom treatment started within 45 minutes of admission)*

- *They also want to measure data on the main delay they have seen in their process (% of admitted children whose order was written within 30 minutes of admission)*

Discussion 2.3: Developing indicators

Use the following table to define **indicators** to monitor progress:

How should the team measure progress towards achieving their defined aim?

Who will you count? (numerator)	
Out of whom will you count? (denominator)	

Therefore your measure for progress towards achieving the defined aim is:

$$\frac{\text{Who will you count (numerator)}}{\text{Out of whom will you count (denominator)}} \times 100 =$$

Where will you get this information from? (data source)	
Who will collect/collate this information? (Person responsible)	
How often will you need to count this?	

How should the team measure progress towards reducing the major delay in their process?

Who will you count? (numerator)	
Out of whom will you count? (denominator)	

Therefore, your measure for progress towards reducing the major delay in the process is:

$$\frac{\text{Who will you count (numerator)}}{\text{Out of whom will you count (denominator)}} \times 100 =$$

Where will you get this information from? (data source)	
Who will collect/collate this information? (Person responsible)	
How often will you need to count this?	

Case scenario 2.4

The team decides to use the following indicators for tracking the delay in initiation of treatment in newly admitted patients:

- *% of Newly admitted patients whose treatment started < 45 min. from time of their admission (Process measure 1)*

- *% of Newly admitted patients whose treatment order was written in < 30 min. from time of their admission (Process measure 2) .*

The team looks at their data for these indicators and starts plotting the data on a graph to make it easier to review.

Discussion 2.4: Plotting data over time

Use the flipchart or space below to draw time-series charts for **selected indicators** from the data given in Table 4. Use separate graphs for these indicators.

Table 4: Patient waiting time

Time (weeks)	1	2	3	4	5	6	7	8	9	10	11	12
% of Newly admitted patients whose treatment order was written in < 30 min. from the time of their admission.	10%	46%	30%	63%	67%	60%	87%	78%	72%	74%	71%	73%
% of Newly admitted patients whose treatment started < 45 min. from time of their admission.	0%	33%	27%	58%	62%	58%	83%	76%	70%	72%	68%	70%

STEP: 3 ✅

Develop changes and test these to learn what works

Learning objectives

You will learn:

1. How to come up with ideas about what to change to reach your aim

2. How to plan a plan-do-study-act (PDSA) cycle to test change ideas

3. What to do as you learn from a PDSA cycle

4. How to test multiple change ideas to achieve your aim

Case scenario 3.1

- *The facility QI team reviews the analysis to understand the root causes that were leading to the delay in starting treatment and suboptimal quality of care.*

- *This helps them to come up with change ideas that address the root causes and could help in reducing the time required to give first dose of treatment to the newly admitted patient.*

Discussion 3.1: Developing change ideas

Based on the analysis of the problem (Process flow chart and fish bone analysis), list some ideas that might help in *improving the percentage of patients whose treatment started < 45 min. from time of their admission.*

Change Idea	Why do you think it will improve care?

Case scenario 3.2

- On analysing the process flow, the team realised that significant time was needed for patient to locate the nursing station and contact the nurse or doctor on duty. This delay was further worsened in waiting for getting the sampling done for investigations and subsequently start of the treatment.

- On analysing the **"cloud areas"** (see Fig.1) - the steps in care that were not clear - of the process flow, the team utilised "fishbone diagram" as a tool to understand the various factors that resulted in lack of clarity in these **"cloud areas"**.

- Based on their analysis, the team realised that:
    - The location of nursing station was inconvenient for both the patient and the nurses themselves.
    - In addition, both the nurses and doctors on duty were busy in other patient care activities for already admitted patients in the ward.

- One of the nurses on team suggested that, if the nursing station was located more centrally then it would make it easier for them to attend the new patients and send them to doctor on duty earlier.

- They further discussed that nursing station should be located in such a manner that it is visible from the entrance of the ward when a new patient comes to the ward.

- The team also realised that newly admitted patients had to wait for about 50 min. before the treatment orders were written in their case sheets, as doctor on duty was busy with patient care activities of already admitted patients.

- The team decided to take up these challenges one-by-one and develop their PDSAs accordingly.

- They discuss some of the challenges with the **first** change idea:
    - Who should test this change?
    - How will they test this change?
    - How long should this change be tested?
    - Where this change will be tested?

- The team decided to test this change idea in their next shifts by relocating their desk and chair of the nursing station to the new location.

- However, some team members are not sure of the advantage and raise doubts.

- The team decides to discuss the pros and cons of this change idea:

	Change Idea
Pros	As the new nursing station is easily visible from the ward entrance, it will prevent wastage of time in attending to new patient compared to before.
Cons	This change might increase nurse's workload. Nurses might have difficulty in attending to already admitted patients in the ward.

Discussion 3.2: Planning a PDSA cycle to test a change idea

How would you advise the team to test the discussed change idea? Describe below:

Plan	What is the change idea and how will you try it (give details)?	
	Who will try out this change?	
	Where will try out this change?	
	When and for how long will this change will be tried?	
	What do you want to learn from testing this change idea?	
Do	Carry out the test	
Study	What will the QI team ask the person(s) who tried this change idea?	
Act	Based on what you learn from trying this change idea - discuss whether to adapt, adopt or abandon the idea. And then move on to planning and testing the next change idea.	

Since this PDSA requires physical movement of existing furniture, the team decided that it would be better to test this change continuously for one full day i.e. 3 shifts of Morning (M), Evening (E) and Night (N) to find out if this change did help the team in addressing the treatment delay and achieving their aim statement goal.

Case scenario 3.3

- *The three nurses who worked in different shifts and tested this change idea in their respective shifts for one day.*

- *Sister in-charge recorded the admission time and time of giving the first dose of treatment to the patient from the Ward's admission register and nurse treatment book, respectively.*

- *The team noted queries and questions whose answers they want to find out from testing this change idea:*

  - *Did the nurse on duty find it difficult to do her other routine activities while testing the change idea?*

  - *In case of increased patient admission load, did the nurse forgot to carry her other tasks?*

  - *Any unforeseen adverse effect that arose due to testing of the change idea?*

- *They decided to meet to discuss the findings from these tests the next day.*

- *There were total of 10 admissions in the three shifts (Morning: 05, Evening: 03 & Night: 02).*

- *Nurses noted that there was wide variation in the percentage of patients they were able to provide first dose of treatment in time and this was dependent on the shift of the day.*

- *In the morning shift they were able to achieve their aim in 3 out of 5 patients, evening shift 1 out of 3 and in the night shift they were able to provide treatment to the 2 of the 2 newly admitted patients within the 45 minutes, as mentioned in their aim statement.*

- *Thus, the team found that they were able to meet their aim in only 6 out of the 10 patients admitted to the ward.*

- *The nurses who tested this change idea noted that the this did not increase their workload as they had earlier suspected. On the contrary, looking after the already admitted patients became easier for the nurses on duty as they had to walk less from bed to bed compared to before.*

- *The nurses noticed that there was still significant wastage of time for new patients while waiting for history/examination to be done by doctor and sampling to be completed.*

- *The team discussed the learnings from this PDSA.*

Discussion 3.3: What did you learn from this PDSA cycle?

How would you advise the team to test the discussed change idea? Describe below:

> What would you do with the change idea – **adopt**, **adapt**, or **abandon** it and reasons for doing so:

Case scenario 3.4

- *Upon analysis of the results of first PDSA, the team concluded that there was still some delay in starting of the treatment of newly admitted patients.*

- *To understand the root cause of this problem, they decided to use the 5-Why's tool and came up with the following points:*

  1. *Why there is delay in starting treatment in newly admitted patients?*

     a. *Because treatment and investigation orders are needed before treatment can be started.*

2. Why there is delay in writing treatment orders?

    a. Only doctor can write the treatment order after completing history and examination of the patient.

3. Why there is delay in taking history and examination of patient by the doctor?

    a. Because there is no fixed place for doctor to examine the patient and take history.

4. Why is there no fixed place for examining newly admitted patients in the ward?

    a. Because no one had thought about it.

Discussion 3.4: What should the team do next?

Case scenario 3.5

- *In the next meeting, the team discussed various ways in which they can reduce the delay in writing of treatment orders in new patients' case sheets.*

- *Various suggestions were discussed. The doctor suggested that there should be a convenient and central location in the ward where both nurses and doctor-on-duty are readily accessible to the newly admitted patient as well for the existing patients.*

- *The team decided to test this change idea by making their nursing station larger to accommodate the doctor on duty, who stays in the ward all the time ; such that the above-mentioned objective could be fulfilled.*

- *They plan to try this change idea for next 3 shifts.*

Discussion 3.5: Testing changes

- The team decides that they will test this idea in next 3 consecutive shifts and will meet the next day with a record of their observations.
- The record keeper of the team is told to continue to regularly collect, collate and analyse the outcome indicators irrespective of the ongoing PDSAs.

Plan	What is the change idea and how will you try it (give details)?	
	Who will try out this change?	
	Where will try out this change?	
	When and for how long will this change will be tried?	
	What do you want to learn from testing this change idea?	
Do	Carry out the test	
Study	What will the QI team ask the person(s) who tried this change idea?	
Act	Based on what you learn from trying this change idea - discuss whether to adapt, adopt or abandon the idea. And then move on to planning and testing the next change idea.	

Case scenario 3.6

- *The team met after completing the PDSA and discussed the findings.*

- *There were total of 9 admissions on the day of the testing. Of these, for 7 patients the first treatment was started in <30 min. In the remaining 2 it could not be done. In one of these 2 cases the doctor on duty was attending to an emergency call, and in the other the advised drug was out of stock and it needed to be procured from the store.*

- *The team was excited with these results and decided to adopt the change idea of combining the "new" nurse station and the doctor's station in the ward.*

- *There was no unintended adverse impact.*

- *They decided to continue these changes for another week and collect data pertaining to wait times in starting treatment in newly admitted patients.*

- *After testing this change for one week the team realised that combining the doctors and nurses' stations resulted in significant improvement in wait times and helped the team in achieving their aim statement.*

- *During their implementing these successful change ideas, they also found that placing patient trolley near the "new" common station further facilitated the overall aim of their Quality Improvement project.*

STEP: 4 ✔

Sustain improvement

Learning objectives

You will learn:

1. How to take specific actions to sustain improvement to hardwire the gains – changing the way we work

2. How to embed the new process in the hospital policy / system – not just tinkering

3. How to work with the system and involve the health workers from beginning

4. How to build enthusiasm, motivate team, recognition by certificates and celebration

💬 Discussion 4.1 – Sustaining successful changes

- After testing ideas and finding ones that work, you will want to implement them so that the changes are permanent and consistently applied in all situations.
- This involves:
  - Making the change the new standard process across the unit/department
  - Taking specific steps to prevent from slipping back to the old ways of working (hardwiring through job descriptions, protocols, etc.)
  - Keeping an eye on key indicators to ensure improvement is sustained

Examples of actions the team can take to prevent them from slipping back into old ways of working

💬 Discussion 4.2 – Building enthusiasm for quality improvement

Some ways to build enthusiasm for quality improvement at a facility.

1. Celebrate success

2. Share results of successful QI projects with others in the health facility and beyond

3. Publish case reports about their work

4. Manager of the health facility should continuously encourage the health-care team to improve quality of care

5. Rewarding people who are involved in QI efforts.

6. Build multiple teams in the health facility so that they can learn and support each other

7. The health-care team should keep higher-ups in the system informed, tell them about your success and build a case for additional resources, if required.

APPENDICES

Appendix 1 – Actions to take upon return to the facility

What to do when you go back to your facility?

In this workshop, you have been through a case study which describes the four steps of quality improvement and gives an example of how one facility used this method to improve care.

You have also used the QI project template to draft a QI project at your facility. However, what we draft during a workshop is not the final QI project. QI you will learn by actual practice in the facility.

This template is a starting point and you can modify it, when you go back to your facility.

Here is a suggested list of actions you will have to take when you go back to your facility. Depending on your aim, the context and your position in the facility you might decide to take different actions. Suggested timeline for these actions will vary.

	Actions	Details	Suggestions
	Schedule a meeting with the head of the hospital and department.	Brief them on what you learnt during the workshop • You attended a workshop on improving quality of care for mothers and newborns at health facilities • You have decided to work on this selected area • For this you would like the senior person's support and guidance	Sometimes the person you are briefing may not be familiar with QI and might ask why you have selected a particular aim. You may have to explain the criteria for selecting the particular aim – easy to fix, within control of the team, relevant to patient outcomes and measurable.
	Schedule a meeting with staff in your unit (the units/ departments directly affected by your QI project)	Discuss the workshop you attended • Briefly share the 4 steps of the POCQI model • Share a successful case study • Share a draft of the QI project you have started to design • Encourage discussion and feedback • Ask for people who would be interested in working together on this project.	Sometimes the selected project may not be ideal and you might have to design another one based on input from other staff. Be open to their suggestions. Although it is important to select an area of work that people on your team consider relevant you have to make sure you use the prioritization matrix and prevent the selection of aims that are outside the control of the team members or will take too much time or resources.

	Form a team	Form a team for your QI project. Make sure you include at least one representative from all the staff cadres who are involved in the various steps of the process you want to improve. You can also form a WhatsApp group or other means of communication for the team members.	Some facilities have a lot of staff changes. Try to include people in your team who will be at the facility/ unit for the next 2 – 3 months, and also include some permanent staff. Ideal team size should be 5-7. It can be challenging to recruit members to join a new QI team. Try to get your local ward leadership involved by seeking support from the nurse-in-charge or the medical officer leading the clinical unit.
	Review the indicators and data collection system	Try out the planned measurement system and check if it is feasible and simple to do. See if you have any baseline data already available in routine registers/case files.	You might realize collecting data is cumbersome and time consuming or the data doesn't actually exist. Don't collect extra data that you don't need for your QI project. Ensure that the people who are collecting the data know the purpose of your project and are on the QI team.
	Do proper analysis of the problem and also discuss any challenges which can affect this QI project	• Teach your team members the problem analysis methods - fishbone, flowchart, Pareto and 5 whys. • Do not explain all four methods at one go. Usually it is good to start with a fishbone and have everyone share their inputs on the reasons why a problem exists. • Openly discuss in the team what might be some of the challenges in carrying out the QI project and come up with ways to address them.	Remember often the process flow will need to be redrawn based on new inputs.
	Come up with change ideas with your team and test your first idea	• Using the analysis, come up with ideas to improve care • Choose the idea that is easiest to test and plan and carry out a small scale PDSA (just a few patients or just a few hours in a shift)	

	Continue with the QI project and keep higher-ups informed	• Continue to test change ideas and keep an eye on the data for improvement. • Continue collecting data until you have achieved your aim. • Keep your seniors informed of your activities. • Display your successes openly in the unit on the notice board or whiteboard, this will motivate your team.	This may involve drawing a run chart with annotation, displaying on a prominent place for everyone to see.

- Regularly inform your progress to the head of department and hospital.

- You can reach out to facilitators/coaches in your district/state/province/country for problem solving or consultation.

Appendix 2 – Building systems to support improvement

This training package aims to develop skills for quality improvement at the frontline level.

Development of quality improvement skills at the frontline and the ability to make real improvements in care is the cornerstone for QI. However, the sustainability and effectiveness of quality improvement work requires additional support systems and structures from the hospital management and higher levels of the healthcare system.

It is important for management and leadership at district, state and national levels to develop strategies and systems to provide support to facilities doing improvement work. Details on building systems and structures for supporting quality improvement are out of the scope of this package. However some basic guidelines are given below.

Teams usually need the following kinds of support:

1. **Support from QI coaches.** Quality improvement is a new way of working and most new facility teams require support and guidance from QI coaches in the beginning. QI coaches have prior experience in successfully carrying out QI projects and are able to mentor new teams and motivate them to do their QI projects. Coaches help build skills and troubleshoot problems faced by QI teams. Usually teams may need weekly or monthly support from coaches as they start their projects. Over time as the teams gain experience, they will need less frequent guidance. QI coaches can be from the district level staff, external consultants or from partner agencies. It is recommended that governments develop plans to build expertise in QI among their own staff so that they do not solely rely on external QI coaches.

2. **Leadership support from state and district level.** At the district level, it is ideal if there is staff with QI experience which can serve as coaches for the facilities in the district. District level leadership should also motivate facilities and create opportunities for documenting and sharing learning between facilities. District review meetings should include discussions about quality of care at facilities and progress of facilities in their improvement work. District leadership should help remove barriers for the QI teams and help address resource and skill gaps related to the improvement work. It is important in quality improvement that senior leadership does not use data for judgement and punish for poor performance but guides facility QI teams in problem-solving using quality improvement tools and methods.

With adequate frontline skills in carrying quality improvement, opportunities for mutual learning, leadership support and problem-solving guidance from higher levels of the system; we can deliver larger scale improvements in maternal, newborn and child health services at health facilities.

Appendix 3 – Frequently asked questions (FAQs)

Q1. What is meant by quality of care?

On the basis of several definitions in the literature, the WHO definition of quality of care is "the extent to which health care services provided to individuals and patient populations improve desired health outcomes. In order to achieve this, health care must be safe, effective, timely, efficient, equitable and people-centred".

Operational definitions of the characteristics of quality of care

- **Safe** – delivering health care that minimizes risks and harm to service users, including avoiding preventable injuries and reducing medical errors

- **Effective** – providing services based on scientific knowledge and evidence-based guidelines

- **Timely** – reducing delays in providing and receiving health care

- **Efficient** – delivering health care in a manner that maximizes resource use and avoids waste

- **Equitable** – delivering health care that does not differ in quality according to personal characteristics such as gender, race, ethnicity, geographical location or socioeconomic status

- **People-centred** – providing care that takes into account the preferences and aspirations of individual service users and the culture of their community

(Source: WHO: Standards for improving quality of maternal and newborn care in health facilities)

Q2. What is the difference between Quality improvement and Quality assurance?

Quality Assurance (QA) ensures basic functions of a healthcare delivery system. QA determines whether the healthcare being delivered is in compliance with predefined standards. Many of the interventions such as having policy, standards, guidelines, adequate human resource, equipment and infrastructure are important quality assurance parameters.

Quality Improvement (QI) is about changing behaviors, approaches and systems to maximize the quality of care that patients receive. Quality improvement moves beyond quality assurance and seeks to transform the culture within which healthcare is delivered. Quality improvement requires the systematic use of improvement models or tools, such as the Plan-Do-Study-Act (PDSA) cycle.

Here are some more features or QA vs. QI:

Quality assurance:	*Quality improvement*
Driven by regulatory and accrediting agencies	Internally driven, empowers all personnel to make improvements
Tends to focus on finding who is responsible for errors	Focuses on improving the system and processes of care; seeks to prevent errors
Relies on inspections to identify errors	Relies on improving processes
Periodically monitors quality	*Continuously* strives to improve quality
Management/leadership: Top down	Management/leadership: Shared responsibility with involvement of people at the point of care
Maintain a predefined level of quality	Continuously improving quality

Example: You want to make sure that everyone washes their hands on entry to a neonatal unit.

Some illustrative standards to enable hand washing would be:

- Instituting a hand washing policy
- Ensuring there is a sink near the unit entrance
- Ensuring availability of soap and running water

Quality assurance assessment / accreditation will be done by assessors periodically to check if all of these standards are in place. Having a policy and availability of soap, water and sink is necessary but it may not necessarily lead to the behaviour of consistent hand washing by the staff/visitors.

So the staff at the unit would need to use quality improvement methods to continuously strive to ensure that more and more people who enter the neonatal unit wash their hands. Staff would review if there are processes that make it difficult for people to wash their hands; make certain changes in the process; engage stakeholders in adopting those changes; and would measure the progress of hand washing rates to track progress towards achieving the aim.

Thus, maintaining the healthcare delivery system up to the pre-defined standards is quality assurance. Understanding the processes of care (how the healthcare is delivered) and making such processes better continuously is quality improvement. Hence, QA and QI are interlinked and both are important to ensure the good functioning of a health care system.

Q3. **Are quality improvement methods used to improve care only for maternal, newborn and child health?**

QI methods can be used to improve any system, including any healthcare delivery system. Same principles apply everywhere.

Q4. **Would quality improvement add to already overburdening data collection in our facility?**

If thoughtful data collection is undertaken, there is no additional burden. Data-based decision-making is at the core of quality improvement methodology. All decisions must be based on evidence and any data collection in the system should generate information for taking actions. It is advisable to start with existing data but if nothing exists data collection should be started soon as possible as data are the backbone for any improvement initiative.

Q5. **Why do we need to use quality improvement methods when our clinical interventions are already based on scientific evidence?**

While evidence-based medicine/public health tells us what interventions will work, quality improvement methods will tell us how to adapt the process of care to our own context to improve compliance to evidence-based guidelines and make such guidelines work in your setting.

Q6. **We have many problem areas in our facility. Should we start multiple projects for each one of those?**

It is wise to prioritize problem areas and start with only one or two projects initially. Start with a simple, feasible improvement activity with rapid turnaround time and take up more projects as the team builds their understanding of quality improvement methods by applying them and gain confidence.

Q7.   Our staff members just do not want to work. How will quality improvement approach help with that?

Quality improvement methods work by decreasing individual resistance to change, encouraging data-based decision-making, improving communication among staff and team building. All these, put together, increase motivation levels among staff. In any organization it is hard to get everyone to join improvement initiatives, but once you start others will get convinced and join the movement. Once other people see how things have become better (based on the data) using quality improvement approach they will get interested and curious to learn and adopt too.

Q8.   Will quality improvement help us in getting accreditation? How is quality improvement different from accreditation?

Quality improvement will not directly help in accreditation. Accreditation is a voluntary one time compliance to prescribed standards (Quality Assurance) while Quality Improvement aims at ongoing improvement in specific service areas. However continuously doing quality improvement at a facility can make it easier for the facility to meet and perhaps in some areas even surpass the accreditation requirements.

Q9.   Do we need to have a designated person for doing QI work in our facility?

Not necessarily. Quality as an embedded culture among all staff is preferable compared with having a designated person for quality. But often you need a local champion who can quick start the improvement projects and provide some extra support to frontline staff who are doing the quality improvement work.

Q10.   Do we need continuous trainings on quality improvement for facility staff?

Initial training and handholding support is required for facility staff, once they learn the basics of QI and have executed one or two projects on their own; no more formal trainings are required. There are several online resources from where anyone interested in quality improvement can continue to build their knowledge base. The main learning will come from actually doing projects on the ground.

Q11.   Do improvement initiatives create additional work for facility staff?

QI does not require much extra time; you can manage it during your routine work. QI helps to improve your routine work outcomes and in some cases you may in fact be able to reduce your workload. By applying quality improvement, you can bring efficiency into the system by reducing wastage of time and resources.

Q12.   I am working hard and trying my best, why should I use QI?

Quality improvement is a management approach that helps to solve system problems together in a team. Even if you are working at your individual best, the system where you work may not be working to its maximum potential. This is because very few people work to their best in a given system. QI will help to involve more people within the system to work together and will improve the performance of the system overall, which in turn will give benefit to all stakeholders. In other words quality improvement is a broader approach to improve the performance of the system as a whole and not just an individual.

Q13.   Does QI require extra resources?

To the best of our ability and creativity improvement should be done with the help of existing resources without any significant additional support from outside. Quality improvement helps us to realize that by reorganizing day-to-day work we can get better results within the same resources. However, commitment to learning and practicing quality improvement is a must.

Appendix 4 – Further reading

Websites:

Point of Care Quality Improvement: http://www.pocqi.org/
(*If you are interested to share your success story or a case study on this website, please contact by email.*)

All India Institute of Medical Sciences Quality Improvement: www.aiimsqi.org

USAID ASSIST Project: www.usaid-assist.org

Institute for Healthcare Improvement: www.ihi.org

The International Society for Quality in Health Care: http://www.isqua.org/

HealthQual International : http://www.healthqual.org/

NHS Scotland Quality Improvement Hub: http://www.qihub.scot.nhs.uk/

Global Learning Network: http://www.qualityofcarenetwork.org/

Publications:

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Provost, Murray. The Health Care Data Guide: Learning from Data for Improvement. 1st Edition. Jossey-Bass Pub., San Francisco, 2011.

Singh R, Singh M, Jha R, Sharma P, Livesley N. 2017. Improving Quality in Healthcare: A point of care case study. Technical Report. Published by the USAID ASSIST Project. Bethesda, MD: University Research Co., LLC (URC).

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Massoud MR, Ottosson A, Nsubuga-Nyombi T, Karamagi E, Stern A, Ismail A, Boguslavsky V, Livesley N, Faramand T, Holtemeyer J. 2016. Improving Health Care. Training Participant Guide

Massoud MR, Ottosson A, Nsubuga-Nyombi T, Karamagi- Nkolo E, Stern A, Ismail A.2015. Improving Health Care. Case Study: Nutrition Assessment Counseling and Support (NACS)

Bose C, Hermida J. Eds. 2016. Improving care of mothers and babies: a guide for improvement teams. 2016. American Academy of Pediatrics and University Research Co., LLC. https://www.usaidassist.org/resources/improving-care-of-mothers-and-babies

"NQC Game Guide - Interactive Exercises for Trainers to Teach Quality Improvement in HIV Care". This guide includes 21 games for teaching QI concepts and was developed by the New York State Department of Health AIDS Institute. The games are not specific to HIV Care and can be used for any type of quality improvement training program including one focused on maternal and child health. This guide is available online: http://nationalqualitycenter.org/files/nqc- game-guide/

E-Learning POCQI course:

http://workbook.pocqi.org

Videos:

A quality improvement initiative on breastfeeding practices among mothers of infants admitted to NICU. Available at: https://www.youtube.com/watch?v=XOEhoU2DJ6g

Quality improvement initiative in kangaroo mother care practices in NICU at AIIMS, New Delhi. Available at :https://www.Youtube.Com/watch?V=gondskp6mna

NICU quality initiative to improve admission temperature of preterm neonates < 32 weeks gestation. Available at :https://www.Youtube.Com/watch?V=knc9wokjnoo

A quality improvement initiative in NICU -improving the life of radiant warmer temperature probe involving mothers. Available at: https://www.Youtube.Com/watch?V=jumhywkrkl

Quality Improvement Initiatives in the Government of India's RMNCH+A Strategy: Lessons from Chamba, Himachal Pradesh. Available at: https://www.usaidassist.org/resources/quality-improvement-initiatives-government-india%E2%80%99s-rmncha-strategy-lessons-chamba-himachal

Common Pitfalls for New Improvement Teams: A Story from New Delhi, India. Available at: https://www.usaidassist.org/resources/common-pitfalls-new-improvement-teams-story-new-delhi-india

Appendix 5 – Feedback form

Thank you for your participation in this workshop!

Your feedback and suggestions will help us to improve future training sessions.

At the end of the workshop, please complete and return this form to one of the facilitators.

Sl. No		Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
		1	2	3	4	6
1.	This training is relevant to my practice					
2.	I feel confident about being able to carry out this QI Project					
3.	I will recommend this training to others					
4.	It was easy to understand					
5.	I would like continued support to carry out the QI project					

Comments and suggestions for improvement

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