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

POCQI: Point of Care Quality Improvement

Learner Manual

Four simple steps to practice quality improvement at health facility level

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Regional Office for South-East Asia

unicef
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FROM THE AMERICAN PEOPLE

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WHO Collaborating Centre for Training & Research in Newborn Care
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- USAID Applying Science to Strengthen and Improve Systems (ASSIST) Project. Bethesda, MD: University Research Co., LLC (URC): (1) 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;* (2) 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); (3) Singh R, Singh M, Jha R, Sharma P, Livesley N. 2016. Improving Quality in Healthcare: A practical guide for health care providers. Technical Report. Published by the USAID ASSIST Project.
- 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. http://internationalresources.aap.org/Resource/ShowFile?documentName=Improving%20Care%20of%20Mothers%20and%20Babies_Asia%20Version_Eng.%202016.pdf
- Materials developed by the Institute for Healthcare Improvement (http://www.ihi.org/Pages/default.aspx)
- Evidence based practice for improving quality (http://www.epiq.ca)

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Learner Manual

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SECTION 1
Participant Handout

Case Scenario Part 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 labour room and newborn register to identify some problems that they can fix.

The registers have 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 (Figure 1).***

Figure 1: Hospital Birth Register

	Name B/O	Date of birth (DD/MM)	Time of birth (24 hr)	Delivery route	Uterotonic given in 1st minute	Apgar 1 min, 5 min	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	Vag	√	8,9	3400	35.4	√	√	16.06	Home
2	Meenu	15.06	06.30	C/S		7,8	2460	34.5		√	17.06	Home
3	Geeta	15.06	14.30	Vag		8,9	2350	35.2			16.06	Home
4	Ranchu	16.06	09.20	Vag	√	6,8	3310	36.8	√	√	17.06	Home
5	Tina	16.06	17.50	Vag		6,8	2670	37.1	√	√	17.06	Home
6	Puja	17.06	02.42	Vag		5,7	2740	34.9		√	18.06	Referred, PPH
7	Kiran	18.06	08.16	Vag	√	8,9	2851	36.8	√		19.06	Home
8	Meera	18.06	12.25	Vag	√	8,9	2780	37.1	√	√	19.06	Home
9	Saroj	19.06	18.20	Vag		8,9	2618	35.8	√	√	23.06	Referred, PPH
10	Kirti	19.06	22.10	Vag	√	9,9	2651	37.4	√	√	24.06	Home

Note: Vag: vaginal, C/S: Lower segment caesarean section, PPH: postpartum haemorrhage.

STEP: 1

Identifying the problem, forming a team and writing an aim statement

Step 1: Learning objectives:

1) How to review data to identify problems
2) How to prioritize which problem to work on
3) How to form a team to work on that problem
4) How to write a clear aim statement

Discussion 1: Identifying the problem

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

Processes of care	Outcomes of care

Calculate the percent performance of three processes of care

Process of care	Performance
1.	
2.	
3.	

Calculate the percent performance of two outcomes of care

Outcome of care	Performance
1.	
2.	

Case Scenario Part 2

The staff in the facility identify a number of problems with the care that they are providing.

They realize that they are not giving all women a 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 the problems

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 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? 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.

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					
Decrease in low temperature at 1 hr <36.5 degree C					
Decrease in low birth weight <2500 grams					

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

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

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

from to

by

STEP: 2

Analysing the problem and measuring quality of care

Step 2: Learning objectives:

1) Tools for understanding processes and systems and how to use them
2) How using these tools can help identify possible solutions to reach your aim
3) How to choose indicators for process and outcome
4) How to use these indicators to track progress of improvement

Case Scenario Part 3:

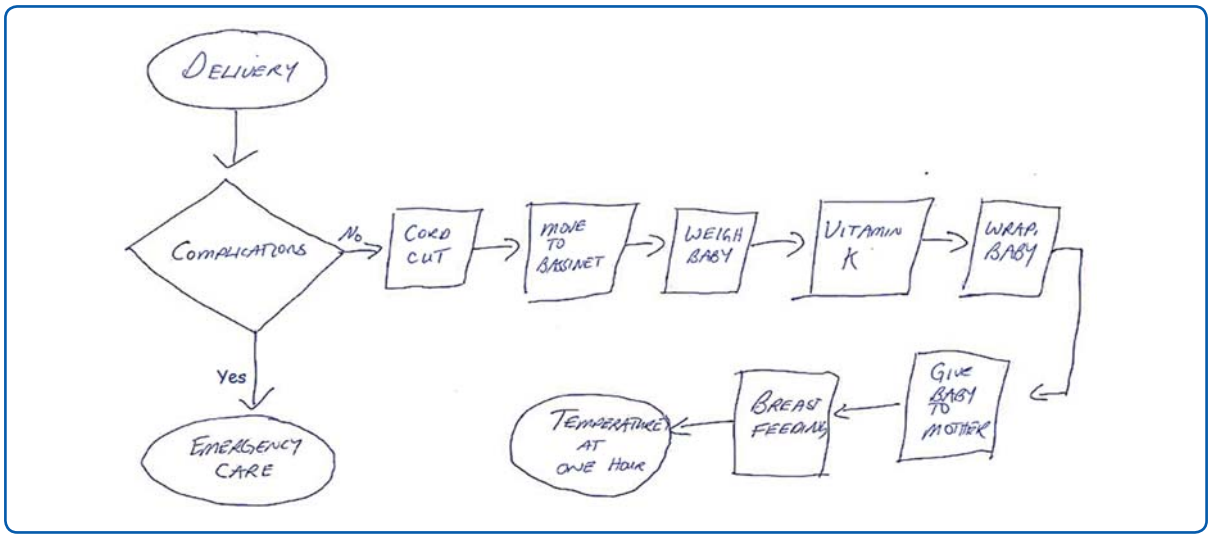
The team decides that they want to fix two problems and develop two aim statements.

- *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.*
- *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.*

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 2: Newborn Care Flowchart



Discussion 2.1: Analysing a flowchart

Based on the **Newborn Care Flowchart** (**Figure 2**), what do you think could be some of the problems contributing to babies getting cold?

Analysis - Improving uterotonic administration:

*The team also develops a process flowchart for **maternal care** at the time of delivery (**Figure 3**) and decides to focus on ensuring that all women receive auterotonic within one minute of delivery to prevent post-partum hemorrhage. They then use a fishbone diagram to identify problems with providing a uterotonic in the first minute after delivery.*

Figure 3: Maternal Care Flowchart

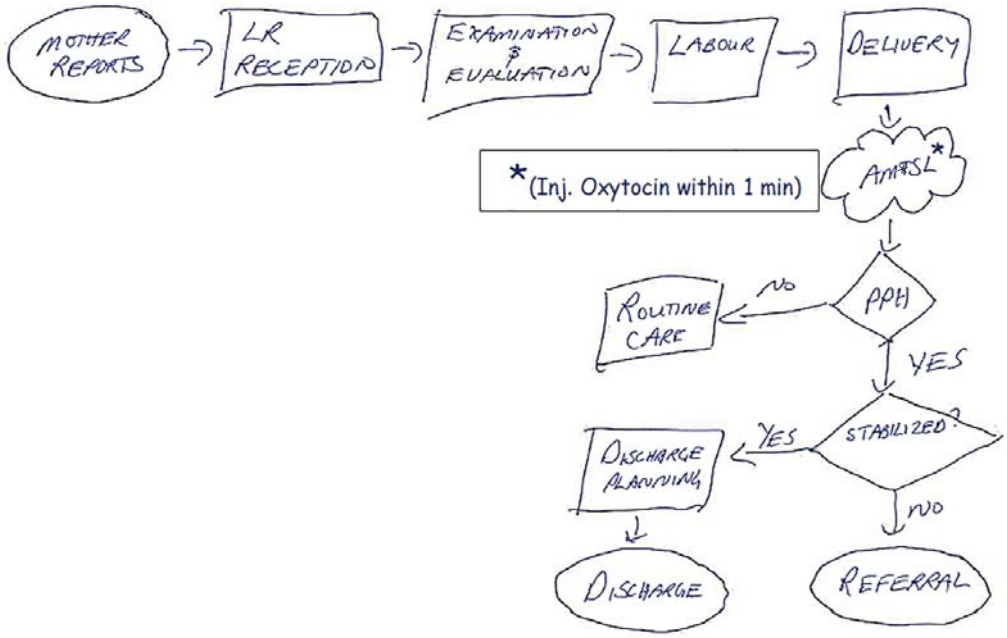
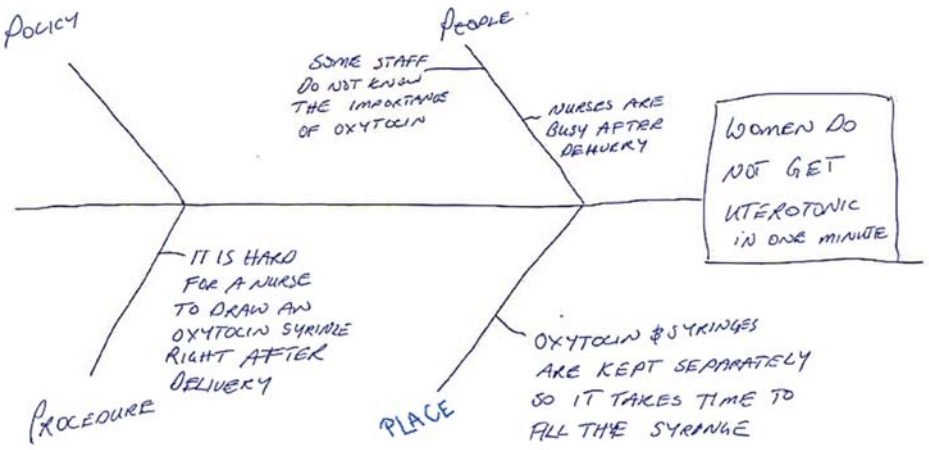


Figure 4: Maternal Care Fishbone



Discussion 2.2: Analysing a fishbone diagram

Based on the **Maternal Fishbone Diagram** (**Figure 4**) what do you think could be some of the problems contributing to women not receiving a uterotonic after delivery?

Case Scenario Part 4:

The team to discuss what indicators they will use to measure their progress.

Discussion 2.3: Developing indicators

What would you advise about the indicators to monitor progress?

Write an outcome measure for the project to reduce neonatal hypothermia and one process and one outcome measure for the project to improve administration of a uterotonic in the first minute after delivery.

Reducing neonatal hypothermia:

Outcome measure:	
Numerator	
Denominator	
Data source	
Person responsible	
How frequently	

Improving uterotonic administration:

Process measure:	
Numerator	
Denominator	
Data source	
Person responsible	
How frequently	

Outcome measure:	
Numerator	
Denominator	
Data source	
Person responsible	
How frequently	

Case Scenario Part 5:

The team looks at the data on the percentage of women who received a uterotonic within one minute of delivery and the percentage of women who had a post-partum hemorrhage each month for the past 16 weeks. 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 two time-series charts from the **Maternal Health Data** (**Figure 5**).

Figure 5: 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	40	32	34	40	41	36	34
	Denominator	34	42	47	37	42	40	50	41	36	45	33	36	43	42	37	35
	Percent	12%	7%	13%	14%	19%	38%	68%	88%	92%	89%	97%	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%

STEP: 3

Developing and testing changes

Step 3: Learning objectives:

1) How to develop ideas about what to change to reach your aim

2) How to test these changes using Plan-Do-Study-Act (PDSA) cycles

Step 3 has two sections – one for maternal health (Section A) and one for newborn health (Section B). Each group should choose which scenario they want to focus on. If time permits, the group can do the other one as well.

Section A: Maternal Health Scenario

Case Scenario Part 6:

Review the flowcharts and fishbone diagrams to have a better understanding of what was causing them to deliver suboptimal care. This helps to come up with some ideas about changes to make that could help to provide uterotonic in time.

Discussion 3.1: Improving uterotonic administration - change ideas.

Change	Why do you think this will improve care?

Case Scenario Part 7:

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 thinks it will be easiest to prepare the syringe when a new woman comes in labour to the labour room and the other one 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*

Discussion 3.2: Testing changes to see if they are practical

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

Plan	What change will you make?	
	Who will make the change?	
	Where will this take place?	
	For how long will the change be tested?	
Do		
Study	What do you want to learn from this test?	
Act		

Case Scenario Part 8:

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

- *Whether there is enough time to do this when a woman comes into the delivery room.*
- *If they preload at the start of a shift, do they run out 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 this test, the team learned that:

- Preloading 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.
- Preloading multiple syringes at the start of the shift
  - The nurse who wanted to try this method remembered that the most 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.
  - At the end of the shift, she told the next nurse about the three pre-loaded syringes and suggested use the same method and preload two more syringes (to keep five available). The other nurse did not want to because there were no more cold packs.

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

What should the team do next?

Case Scenario Part 9:

The team agrees that preloading 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 preload 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 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 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.

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 preloaded syringes*

Discussion 3.4: Testing changes

How many changes has the team tested so far?

How many PDSA cycles have they done?

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

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

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.

They then 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 sharing the data showing improvement.

Other staff start administering oxytocin in a timely manner as well.

Section B: Newborn Health Scenario

Case Scenario Part 6:

Reducing neonatal hypothermia

The team 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 on Flowchart 1 because that is the easiest way to provide care given the current way the room is set up and how supplies are kept.

Discussion 3.1: Developing changes

What changes in care do you think that the team could make to see if that improves care?

Reducing neonatal hypothermia at one hour:

Change	Why do you think this will improve care?

Case Scenario Part 7:

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 possible*
5) *leave the vitamin K and weighing until after breastfeeding has started*

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

Discussion 3.2: Testing changes to see if they are practical

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 change will you make?	
	Who will test the change?	
	Where will the test take place?	
	When will the test start and for how long will the change be tested?	
Do		
Study	What do you want to learn from this test?	
Act		

Case Scenario Part 8:

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 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 recorded on the medical record which she had to fill out before transferring the baby to the ward*

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

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

What should the team do next?

Case Scenario Part 9:

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 3.4: Testing changes

How many changes has the team in the scenario tested so far?

How many changes has the team in the scenario tested so far?
How many PDSA cycles have they done?

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.

They then 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 and sharing the data showing improvement.

Other staff members start delivering babies in this way as well.

Case Scenario Summary

Staff team 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 1).

The team used **flowchart** and **fishbone** diagram to **analyze** the problem and identify key issues that they needed to address to reach these aims. They realized that their main problems were that the flow of care after delivery led to the situation 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 2).

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. 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 3).

They also involved all the other staff, nurses and cleaners so that they all understood the **new way of working** (STEP 4). The figures below show the progress of the team.

Figure 6: Percentage of women receiving a uterotonic within one minute and women with post-partum hemorrhage

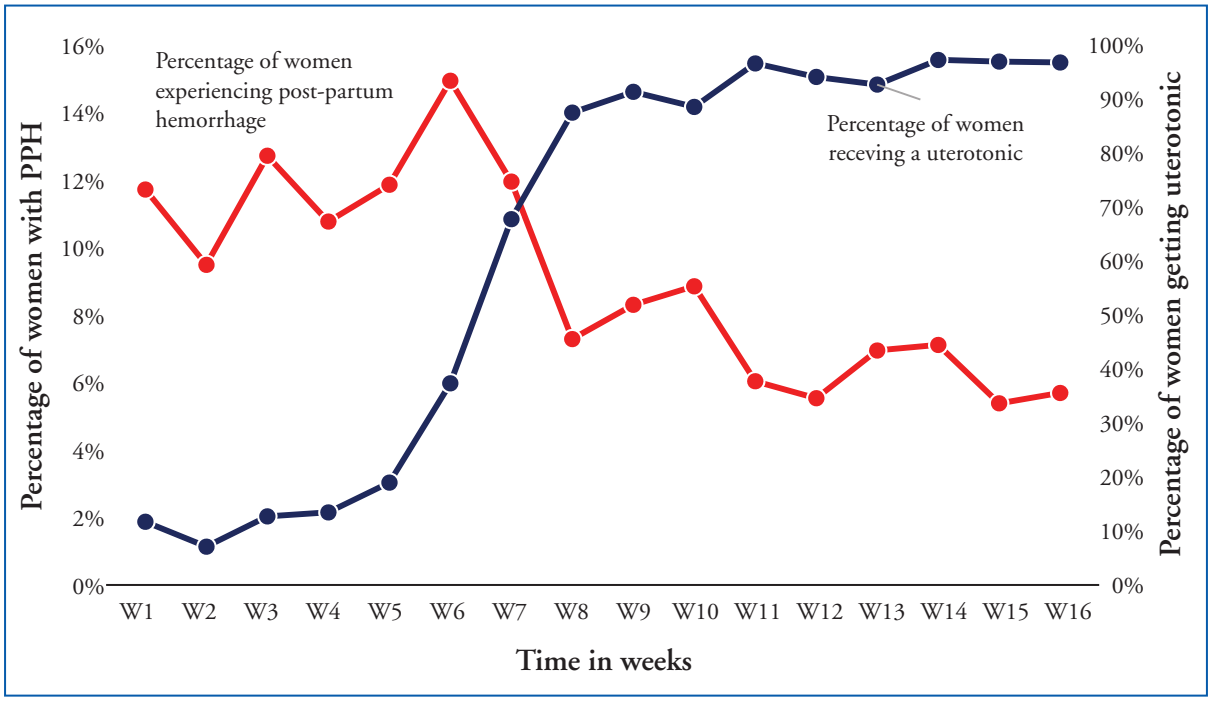


Figure 7: Annotations show the relationship between various PDSA cycles and improvement in the indicator

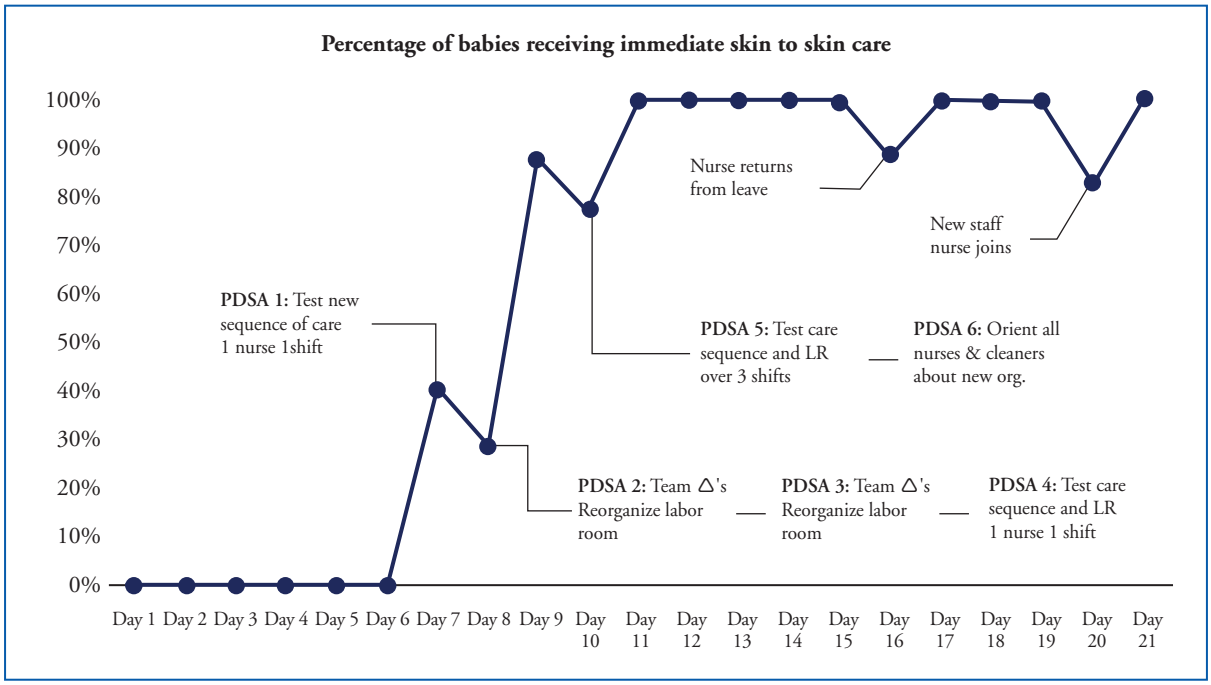
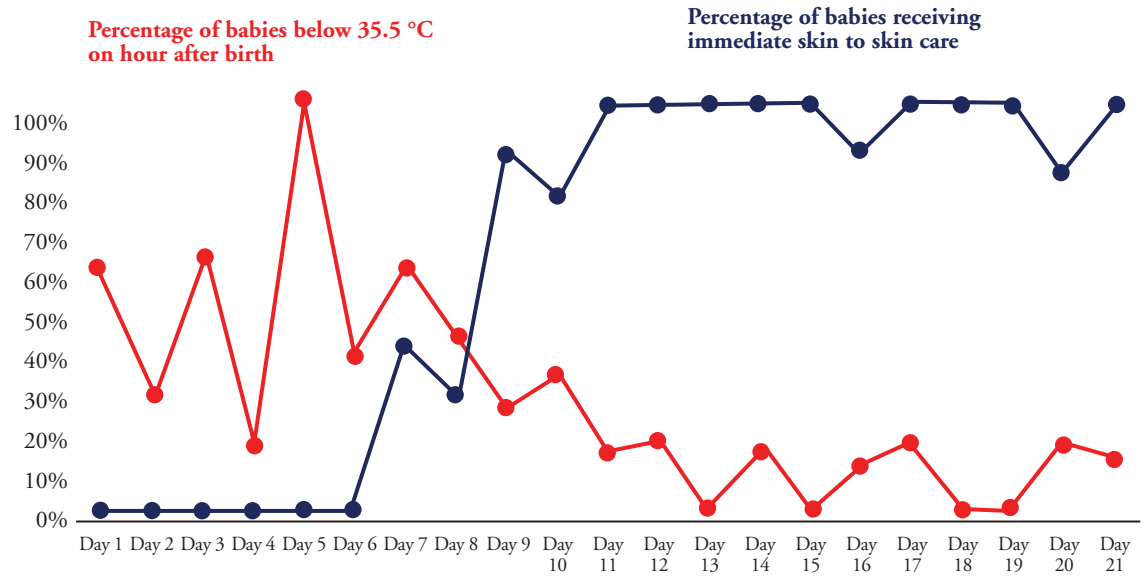


Figure 8: Percentage of babies with hypothermia and percentage of babies receiving skin-to-skin care



Key changes

△

Change 1: New sequence of care: 1) Baby on mother's chest 2) dry and clean 3) cut cord 4) encourage breast feeding

Change 2: Reorganize labor room: supply table from bassinet to bedside; supplies closer to labor table

STEP: 4

Sustaining improvement

Step 4: Learning objectives

1) How to embed/incorporate successful changes into your system to sustain the improvement in quality of care?

2) How to engage and motivate team to view QI as an important tool improving work culture across the health facility for providing better care?

Implementation:

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

It is also important to **build more enthusiasm** among health-care teams for quality improvement. Useful strategies for doing this include:

- Manager of the health facility should continuously encourage the health-care team to incrementally improve quality of care
- Rewarding people who are involved in QI efforts
- Give opportunities for them to share their successful work within the health facility and beyond
- Build multiple teams in the health facility so that they can learn and support each other
- 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.

SECTION 2
Participant Slide Notes

01

Improving the quality of care for mothers and newborns in health facilities
POCQI LEARNER MANUAL

Steps in QI

- **Step 1: Identifying a problem, forming a team and writing an aim statement**
- Step 2: Analyzing and measuring quality of care
- Step 3: Developing and testing changes
- Step 4: Sustaining improvement

Step 1 | Group Work | Step 2A | Step 2B | Group Work | Step 3 | Group Work | Step 4

02

Improving the quality of care for mothers and newborns in health facilities
POCQI LEARNER MANUAL

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 2A | Step 2B | Group Work | Step 3 | Group Work | Step 4

03

Improving the quality of care for mothers and newborns in health facilities
POCQI LEARNER MANUAL

Identifying a problem to solve

- **Data-based decision:** Review local health facility data and identify gaps related to quality of care
- **Simple**, easy to fix & amenable to change
- **Value** for patient outcomes
- Does not need many **new resources**
- **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 2A | Step 2B | Group Work | Step 3 | Group Work | Step 4

04

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POCQI LEARNER MANUAL

Select your team

SLook for volunteers who are:

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

Step 1 | Group Work | Step 2A | Step 2B | Group Work | Step 3 | Group Work | Step 4

05

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POCQI LEARNER MANUAL

Select your team

Identify who should be in the team

- Need people from every level
  - From all involved departments
  - from administrators to cleaners
- Assign some key roles
  - Leader
  - Recorder
  - Communicator

Step 1 | Group Work | Step 2A | Step 2B | Group Work | Step 3 | Group Work | Step 4

06

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POCQI LEARNER MANUAL

Why is teamwork important for improvement?

- Healthcare is provided by 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 2A | Step 2B | Group Work | Step 3 | Group Work | Step 4

07

Improving the quality of care for mothers and newborns in health facilities
POCQI LEARNER MANUAL

Aim statement

Characteristics of a good aim statement

- States a clear, specific aim
- Linked to specific patient population
- Should include a goal:
  - Neither too difficult nor too long to achieve
- Includes a solution
  - Do not include possible, yet unproven solutions

Step 1 | Group Work | Step 2A | Step 2B | Group Work | Step 3 | Group Work | Step 4

08

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POCQI LEARNER MANUAL

SMART Aim

- Specific
- Measurable
- Achievable (but challenging)
- Relevant and recorded
- Timely

Step 1 | Group Work | Step 2A | Step 2B | Group Work | Step 3 | Group Work | Step 4

09

Improving the quality of care for mothers and newborns in health facilities
POCQI LEARNER MANUAL

Aim statement

Problem: All babies are not dried immediately after birth

We will implement standard practice of immediate drying at birth in all 100% of births from current 60% within 4 weeks.

- Who (which patients)- Newborn
- What (the process)- Immediate drying using dried clean towel
- How much (the amount of desired improvement)-from baseline rate of 60 % to 100%
- By when (time over which change will occur)- within 4 weeks

Step 1 | Group Work | Step 2A | Step 2B | Group Work | Step 3 | Group Work | Step 4

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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 50% to <10% within 6 weeks

- Who (which patients)- Newborn
- What (the outcome)-Hypothermia
- How much (the amount of desired improvement)-from baseline rate of 53 % to <10%
- By when (time over which change will occur)- within 6 weeks

Step 1 | Group Work | Step 2A | Step 2B | Group Work | Step 3 | Group Work | Step 4

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Is this a good aim statement

To establish skin to skin contact after delivery in low risk mothers admitted in Labour Room, AIIMS New Delhi

To establish skin to skin contact immediately after delivery for at least one hour to an extent of 25% in two weeks in low risk mothers admitted in Labour Room, AIIMS New Delhi

Step 1 | Group Work | Step 2A | Step 2B | Group Work | Step 3 | Group Work | Step 4

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Step 1 | **Group Work** | Step 2A | Step 2B | Group Work | Step 3 | Group Work | Step 4

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Steps in QI

- Step 1: Identifying a problem, forming a team and writing an aim statement
- **Step 2: Analyzing and measuring quality of care**
- Step 3: Developing and testing changes
- Step 4: Sustaining improvement

Step 1 | Group Work | **Step 2A** | Step 2B | Group Work | Step 3 | Group Work | Step 4

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POCQI LEARNER MANUAL

Step 2

Learning objectives

You will learn

- Tools for understanding processes and systems and how to use them
- How these tools can help identify possible solutions to reach your aim
- How to choose indicators for process or outcome
- How to use indicators to track progress of improvement

Step 1 | Group Work | **Step 2A** | Step 2B | Group Work | Step 3 | Group Work | Step 4

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Step 2: Analyzing and measuring quality of care
Cause & effect

Why might a problem be happening?

Get to the root cause of the quality issue (4P's)

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

Step 1 | Group Work | **Step 2A** | Step 2B | Group Work | Step 3 | Group Work | Step 4

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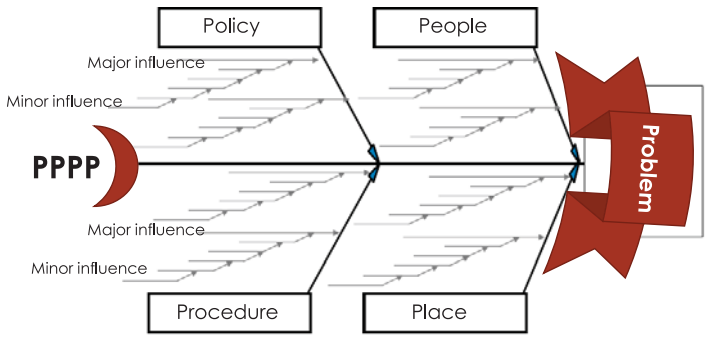
1.Fishbone

Get to the root cause of the quality issue(4P's)



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2. "Five whys"

- 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 breast feed ,so they feel exposed . Why they have this type gown?
- That is what store keeper orders .Why doesn't the store keeper order better gowns appropriate for breast feeding ?
- No one has requested him to do that

Step 1 | Group Work | **Step 2A** | Step 2B | Group Work | Step 3 | Group Work | Step 4

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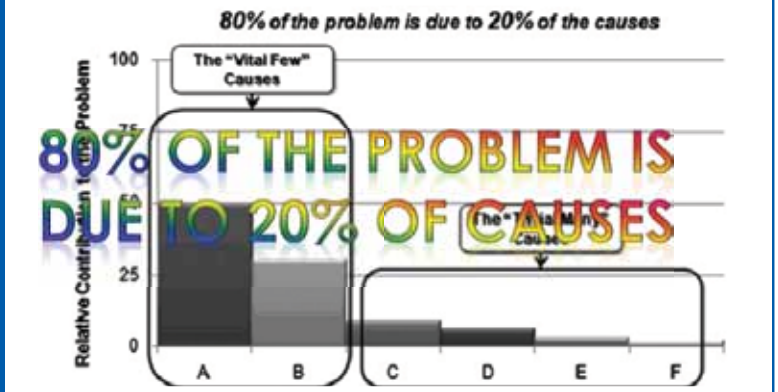
3.Pareto charts

Learning objectives



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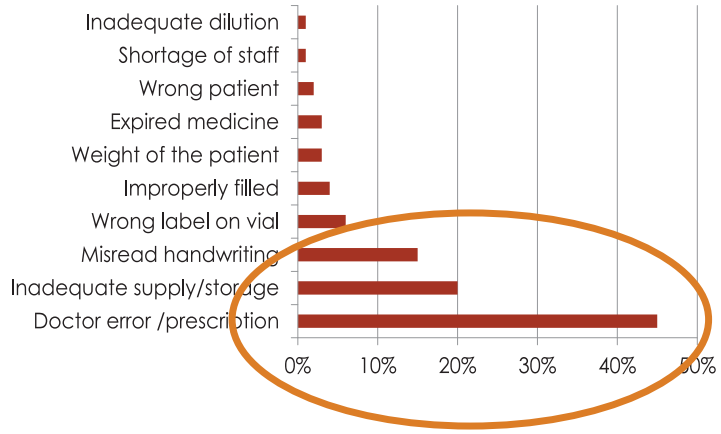
Example: Medication error



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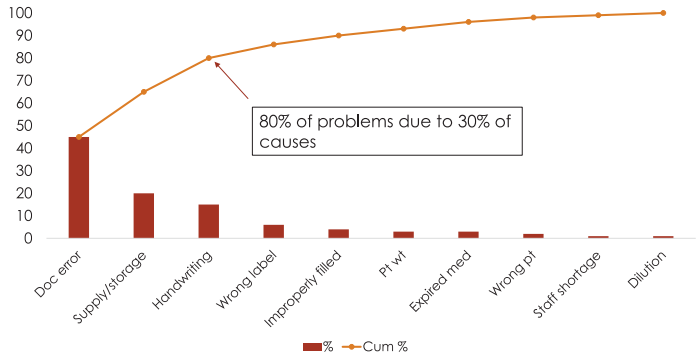
Example: Medication error



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4. Process flow chart

➔ **How to develop a process flow chart**

1. Decide the ***beginning*** and ***end*** points of the process to be flow charted
2. Identify the ***steps*** of the process as these are practiced at present
3. Link the steps with ***arrows*** showing direction
4. ***Review*** the chart to see whether the steps are in their logical order to achieve the end point efficiently: Is the order wrong, are some steps unnecessary?

Step 1 | Group Work | **Step 2A** | Step 2B | Group Work | Step 3 | Group Work | Step 4

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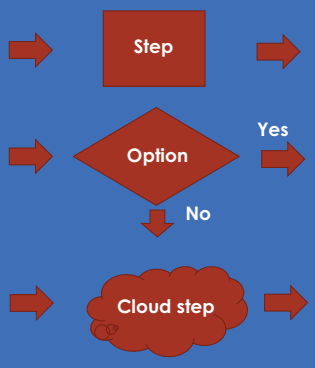
How to create a process Flow chart

➔ One flow line out of step

➔ Two flow lines out of steps that lead to different options

➔ One flow line out of cloud steps that are not clear



Step 1 | Group Work | **Step 2A** | Step 2B | Group Work | Step 3 | Group Work | Step 4

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Key tips

- Analysis helps to find out the root cause of problems
- Try to find few barriers that account for most of the problem
- Help the teams think about how re-organization can help with fixing the problem
- Video on Pareto chart

Step 1 | Group Work | **Step 2A** | Step 2B | Group Work | Step 3 | Group Work | Step 4

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Step 2: Analyzing and measuring quality of care

Measurement

- Determine the indicators which enable us to know whether we have made improvement
- Look at baseline data and information

Step 1 | Group Work | Step 2A | **Step 2B** | Group Work | Step 3 | Group Work | Step 4

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What is an indicator?

- A measurement tool
  - defines a rate/ratio or an event
- Used as guide to monitor and evaluate the quality of healthcare – Is it improving?
- A tool to make continuous improvement in quality of care

Step 1 | Group Work | Step 2A | **Step 2B** | Group Work | Step 3 | Group Work | Step 4

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Process and outcome indicators?

- Measure of Process – actions that are taken in delivery of care
  - Washing hands to prevent infections
- Outcome ("in the population…")
  - Incidence of infection in the patients

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Process and outcome indicators?

- If you don't measure process, how will you know
- If you don't measure outcome, how will you know

What led to improvement?

If improvement has occurred?

Step 1 | Group Work | Step 2A | **Step 2B** | Group Work | Step 3 | Group Work | Step 4

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Why do we need indicators?

- To measure the specific processes and outcomes
- The quantitative data can be used by teams and organizations for assessment and analysis of trend over time
- They allow us to make comparisons with other health care facilities

Step 1 | Group Work | Step 2A | **Step 2B** | 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)
- Identifies a clear numerator and denominator

Also important to decide

- Source of data and who is collecting it
- Frequency at which data would be collected

Step 1 | Group Work | Step 2A | **Step 2B** | Group Work | Step 3 | Group Work | Step 4

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Key elements for putting indicators to use

- Indicators should be linked to aims
- Should be used to test change and guide improvement
- Should be integrated into team's daily routine
- Important to select a few key measures – don't overburden with endless data collection

Step 1 | Group Work | Step 2A | **Step 2B** | Group Work | Step 3 | Group Work | Step 4

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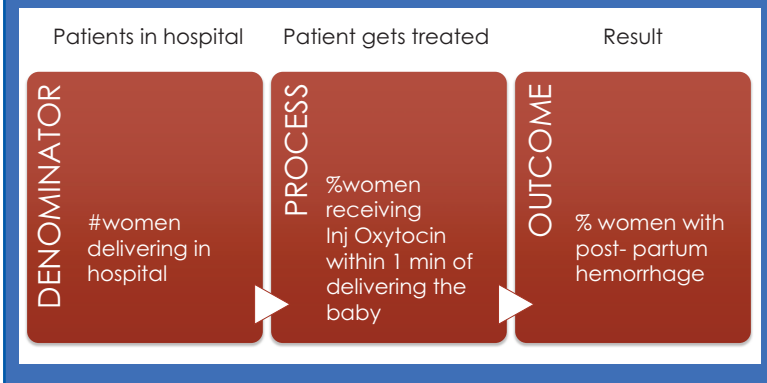
Developing indicators



Step 1 · Group Work · Step 2A · **Step 2B** · Group Work · Step 3 · Group Work · Step 4

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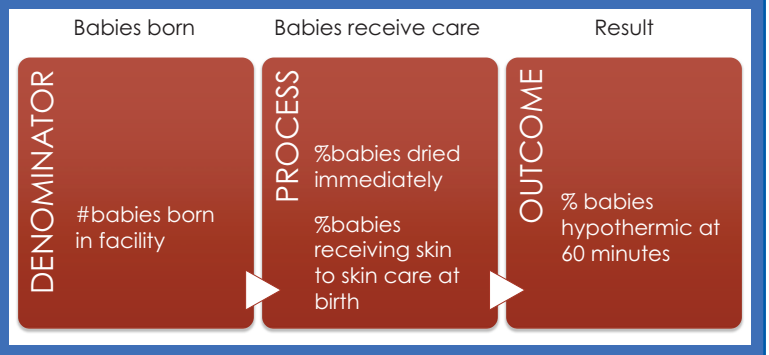
Developing indicators



Step 1 · Group Work · Step 2A · **Step 2B** · 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 2A | **Step 2B** | Group Work | Step 3 | Group Work | Step 4

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Plotting a time series chart

- Title: Clear and well defined title that includes what and when
- X and Y axis have clear scale and include indicator label
  - X axis: Time period - days/weeks/months
  - Y axis: measurement in %, proportion
- Annotation of variables
- Numerator and denominator values are shown

Step 1 | Group Work | Step 2A | **Step 2B** | Group Work | Step 3 | Group Work | Step 4

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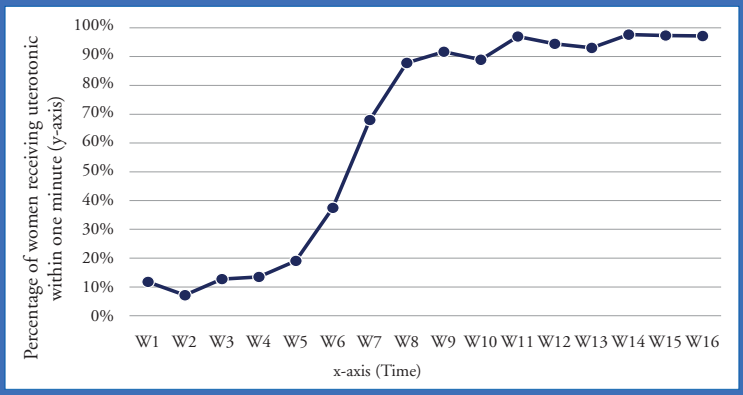
Time-series chart:

Percentage of women receiving uterotonic within one minute



Step 1 | Group Work | Step 2A | **Step 2B** | Group Work | Step 3 | Group Work | Step 4

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Key tips

- Looking at data overtime is crucial and more frequent measurement (daily or weekly) is better than less frequent(monthly)
- Only collect data what you are going to use
- If possible, try to use data that is already recorded in your health facility or that will be easy to collect

Step 1 | Group Work | Step 2A | **Step 2B** | Group Work | Step 3 | Group Work | Step 4

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Step 1 | Group Work | Step 2A | Step 2B | **Group Work** | Step 3 | Group Work | Step 4

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Steps in QI

- Step 1: Identifying a problem, forming a team and writing an aim statement
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- Step 4: Sustaining improvement

Step 1 | Group Work | Step 2A | Step 2B | Group Work | **Step 3** | Group Work | Step 4

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Improving the quality of care for mothers and newborns in health facilities
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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 test these changes at small scale using Plan-Do-Study-Act (PDSA) cycles

Step 1 | Group Work | Step 2A | Step 2B | Group Work | **Step 3** | Group Work | Step 4

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Develop changes

- Determine possible changes (interventions) that may lead to improvement
- Organize changes according to importance and practicality
- Test one change at one time

Step 1 | Group Work | Step 2A | Step 2B | Group Work | **Step 3** | Group Work | Step 4

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Developing changes-Ask your Team

- What changes will we make ?
- Why will this change result in an improvement?
- How will it work?
- What improvement will we expect to see as a result of this change ?

Step 1 | Group Work | Step 2A | Step 2B | Group Work | **Step 3** | Group Work | Step 4

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Some categories of changes

Category	Meaning
Improve knowledge or skills	Training or standards
Eliminate waste	Stop doing harmful or useless 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 2A | Step 2B | 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 when they deliver
Reduce variation	Triage new admissions in LR

Step 1 · Group Work · Step 2A · Step 2B · Group Work · **Step 3** · Group Work · Step 4

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Plan the change

What will your team do ?

- Ask and document the details for:
  - what needs to be done?
  - who will do it?
  - who will measure indicator?
  - when will it be started
  - when will result be reviewed ?

Step 1 · Group Work · Step 2A · Step 2B · Group Work · **Step 3** · Group Work · Step 4

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Testing the change

- 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 2A | Step 2B | Group Work | **Step 3** | Group Work | Step 4

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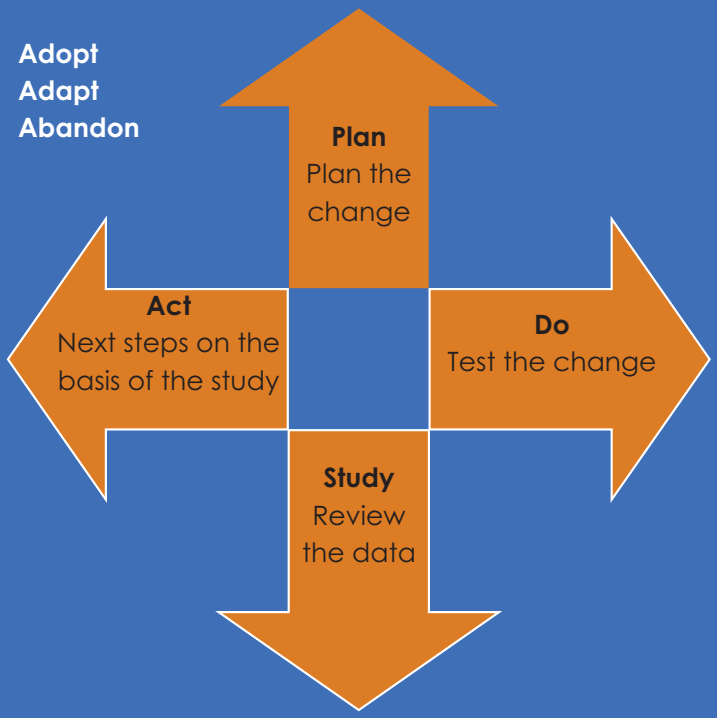
Test Changes

Adopt
Adapt
Abandon



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Planning

- Describe:
  - What change will you test
  - Who will make the change
  - Where they will do it
  - How long they will test

Step 1 | Group Work | Step 2A | Step 2B | 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
How long will they test?	They will test it on their next shift
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 on the ward to make it easier to follow the protocol?

Step 1 | Group Work | Step 2A | Step 2B | Group Work | **Step 3** | Group Work | Step 4

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Study and act

- After testing the change you need to think about:
  - Is this feasible in our setting
  - What else needs to be done so this change can happen
  - Do we think it will solve the problem
- After answering these questions the team will decide if they should:
  - Adopt
  - Adapt
  - Abandon

Step 1 | Group Work | Step 2A | Step 2B | Group Work | **Step 3** | Group Work | Step 4

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PDSA cycles – what next ?

Pilot phase

- Few workers are involved
  - less resistance
- Rapid cycles
  - take shorter time
- Support needed low
  - Testers do not yet intend changes to be permanent
- Tolerance high: A failed test is taken an opportunity to learn

Implementation phase

- Implement at scale changes that have shown definite improvement in pilot phase
- Large number of workers involved – expect more resistance
- Higher support needed
- More time, people, resources needed.

Step 1 | Group Work | Step 2A | Step 2B | Group Work | **Step 3** | Group Work | Step 4

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Implementation

- Making the change in the new standard process across the health facilities (unit/department)
- Specific steps taken to prevent from slipping back to the old ways of working. (Hardwiring through job descriptions, protocols etc.)
- System to keep an eye on key indicators to ensure improvement is sustained
- Making the successful change permanent and consistent

Step 1 | Group Work | Step 2A | Step 2B | Group Work | **Step 3** | Group Work | Step 4

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Key tips

- Change ideas will improve care

1. They are right idea
2. Putting change in action
3. Adapting it to the local context

- Testing changes as small PDSA cycles

Step 1 | Group Work | Step 2A | Step 2B | Group Work | **Step 3** | Group Work | Step 4

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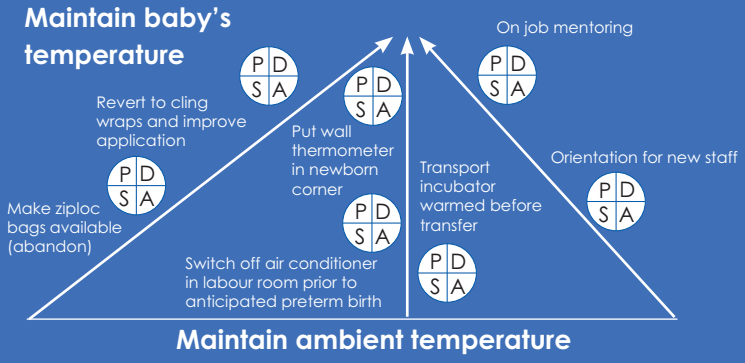
Multiple ramps of changes towards a single aim

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



Adapted from the Institute of Healthcare Improvement (IHI)

Step 1 | Group Work | Step 2A | Step 2B | Group Work | **Step 3** | Group Work | Step 4

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Improving the quality of care for mothers and newborns in health facilities
POCQI LEARNER MANUAL

Step 1 | Group Work | Step 2A | Step 2B | Group Work | Step 3 | **Group Work** | Step 4

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Improving the quality of care for mothers and newborns in health facilities
POCQI LEARNER MANUAL

Steps in QI

- Step 1: Identifying a problem, forming a team and writing an aim statement
- Step 2: Analyzing and measuring quality of care
- Step 3: Developing and testing changes
- **Step 4: Sustaining improvement**

Step 1 | Group Work | Step 2A | Step 2B | Group Work | Step 3 | Group Work | **Step 4**

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Improving the quality of care for mothers and newborns in health facilities
POCQI LEARNER MANUAL

Step 4

Learning objectives

You will learn

- how to embed successful changes into health system to sustain the improvement in quality of care
- engage and motivate team to view QI as culture for improvement thus improving work culture across the health facility for providing better care

Step 1 | Group Work | Step 2A | Step 2B | Group Work | Step 3 | Group Work | **Step 4**

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Improving the quality of care for mothers and newborns in health facilities
POCQI LEARNER MANUAL

Implementing changes

Sustenance is key

- Embed successful ideas into system - requires concrete actions e.g. framing guidelines, standard operating procedures or job responsibilities
- Continuous process with eye on improvement
- QI is contextual but learnings can be shared and adapted at other places after testing

Step 1 | Group Work | Step 2A | Step 2B | Group Work | Step 3 | Group Work | **Step 4**

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Improving the quality of care for mothers and newborns in health facilities
POCQI LEARNER MANUAL

Hardwiring of QI project

- Documenting the flow of the new process — the new way of doing things
- Providing training on the new process
- Teaching people new skills that might be required of them
- Making changes to job descriptions, policies, procedures
- Addressing supply and equipment issues
- Assigning day-to-day ownership for the improvement and maintenance of the new process
- Having senior leaders remove any barriers that might allow slippage back to the old process

Step 1 | Group Work | Step 2A | Step 2B | Group Work | Step 3 | Group Work | **Step 4**

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Improving the quality of care for mothers and newborns in health facilities
POCQI LEARNER MANUAL

Tinkering vs System Change

Problem	Tinkering	System change
Physicians orders are illegible, causing medication errors	Chastise physicians, tell them to work harder	Computerize order entry or use standardized order sets to minimize need for hand writing
Oximeter alarms not set as ordered	Penalize nurses/ Sanction nurses who are non compliant	Modify alarm defaults
Breast milk low for premature babies	Suggest hospital to hire lactation consultants	Create process to improve efficient use of breast pumps

Step 1 · Group Work · Step 2A · Step 2B · Group Work · Step 3 · Group Work · **Step 4**

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Improving the quality of care for mothers and newborns in health facilities
POCQI LEARNER MANUAL

Useful tips to sustain…spread..

- Successful team involves new members in hospital to join; help forms multiple teams
- Spread best practices among colleagues in the hospital
- Keep higher ups informed: Hospital team informs MS/ Director and they inform the district/state
- System rewards successful teams – Certificates, QI jewel of month
- System provides opportunities to successful teams to disseminate and share their success widely

Step 1 · Group Work · Step 2A · Step 2B · Group Work · Step 3 · Group Work · **Step 4**

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Improving the quality of care for mothers and newborns in health facilities
POCQI LEARNER MANUAL

Key to success

- **Local champion:** A team leader who respects others, is a keen listener, uses collective wisdom of the team rather than being directive, identifies & harnesses key strengthens of members, sets example
- **Personal aspirations:** Remember most of us entered medical profession with aim to alleviate sufferings and help society
- **Positive attitude:** Being positive and prepared to address barriers, challenges which prevent us achieving this aim

Step 1 | Group Work | Step 2A | Step 2B | Group Work | Step 3 | Group Work | **Step 4**

SECTION 3

QI Project Template and Review Sheet

Quality Improvement Project Template

STEP: 1

Problem, team and 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: 2

Analysing the problem and measuring 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?

Process Measure:
Numerator:
Denominator:

Outcome Measure:
Numerator:
Denominator:

How will you collect the data?

Process measure:	
Person responsible for data collection:	
What data sources will you use?	
What baseline data will you collect?	
How frequently will you collect and review data?	

Outcome measure:	
Person responsible for data collection:	
What data sources will you use?	
What baseline data will you collect?	
How frequently will you collect and review data?	

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

STEP: 3

Developing and testing changes

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	Change to be tested	
	Who will test? (if this person is not on the QI team, he/she should be added)	
	Over how much time will the test be done?	
	When will it take place?	
	What will you measure?	
	What do you predict will happen?	
Do		
Study	When will the team meet to review?	
Act		

Test changes: Planning initial PDSA cycles

PDSA cycle 2		
Plan	Change to be tested	
	Who will test? (if this person is not on the QI team, he/she should be added)	
	Over how much time will the test be done?	
	When will it take place?	
	What will you measure?	
	What do you predict will happen?	
Do		
Study	When will the team meet to review?	
Act		

STEP: 4

Sustaining Improvement

Quality Improvement Project Review Sheet

STEP: 1

Identifying a problem, forming a team and writing an aim statement

Why is this a good aim?

Can you get results quickly?	
What extra resources do you think will be required?	
How important is the aim to the QI team - has the team used the prioritization matrix?	
Who else will think the aim is important?	
How can you motivate others to support this initiative?	

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

Analysing the problem and measuring quality of care

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?	
Easy to measure valid data?	
Are these new data variables?	
Can you review these data frequently?	
What will be the plan to share and analyse the data?	

STEP: 3

Developing and testing changes

Will these changes address the root cause of the problem?

How do the changes you are planning address what you found in your analysis?	
If all of your changes are related to education or 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

Sustaining Improvement

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

SECTION 4

Plan of Action

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 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 (15 minutes).

Date of Planning	Activity	Why are we doing this/what output is expected?	Responsible Person	By when will this be done?	Status (Not started, In progress, Completed)	Comments; Extra resources needed

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.**

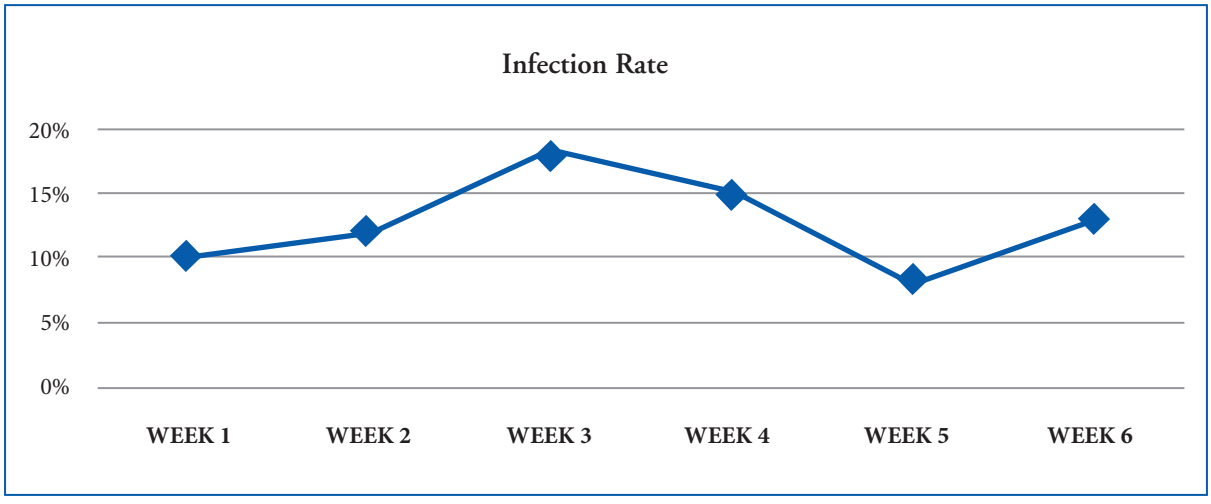
    What is this type of chart called?

    a. Time series chart

    b. Frequency polygon

    c. Incidence chart

    d. Histogram



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

Further Reading

Websites:

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/

Publications:

Every Mother Every Newborn (EMEN) Quality Improvement Guide for Health Facility Staff

http://www.healthynewbornnetwork.org/resource/every-mother-every-newborn-emen-quality-improvement-guide-health-facility-staff-guide-appendices/

Langley, Moen, Nolan, Nolan, Norman, Provost. The Improvement Guide: A Practical Approach to Enhancing Organizational Performance. 2nd edition, Jossey-Bass Pub., San Francisco, 2009

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).

E-Learning QI course:

https://www.usaidassist.org/resources/improving-health-care-quality-elearning-course

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

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

_____

_____

_____

_____

_____

_____

SECTION 5

Successful case studies on QI

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"

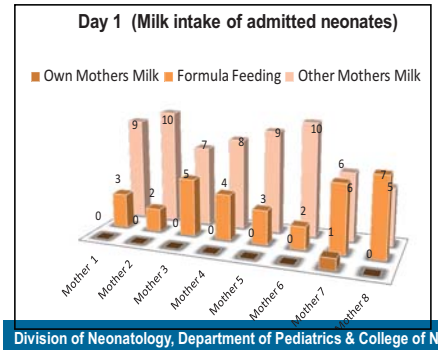
Aim

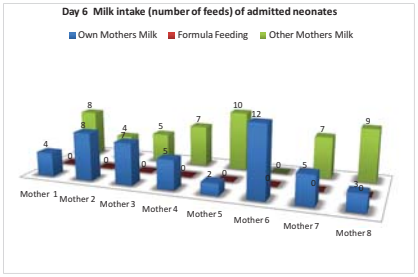
- To increase the amount of breast milk intake in admitted neonates from 5% to 30% over six weeks

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

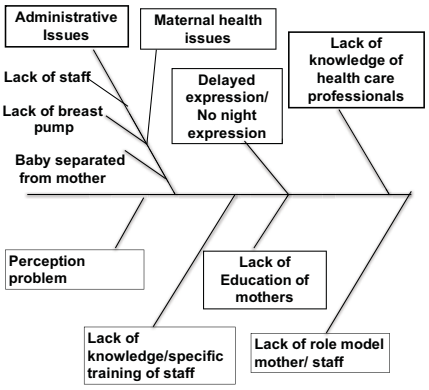




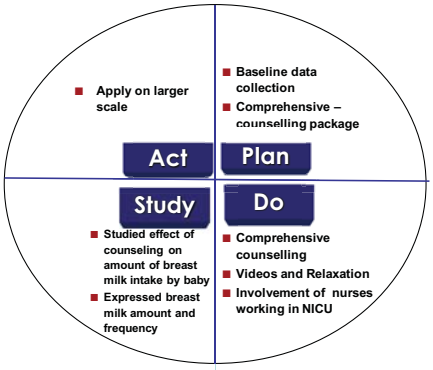
Postnatal - feeding counseling

- 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)



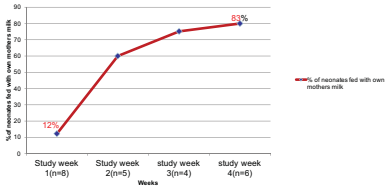
PDSA Cycle



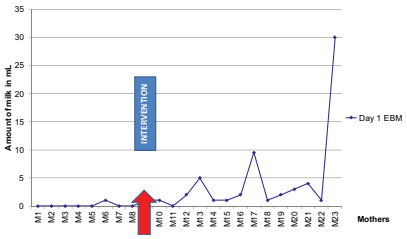
Results

- 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%).

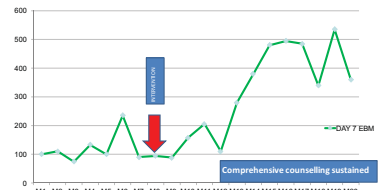
Proportion of neonates fed with own mothers milk



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

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

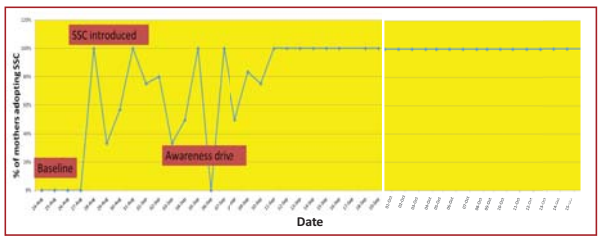
To establish mother to child skin to skin contact immediately after delivery and before clamping the cord as a standard procedure for low risk mothers admitted to the Labour Room at AIIMS, New Delhi

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

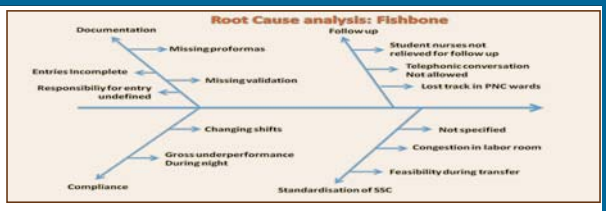
- Counsel in labor regarding SSC
- To encourage mother to perform SSC
- To assist the SSC on delivery table
- To maintain SSC in post partum room
- To document the SSC

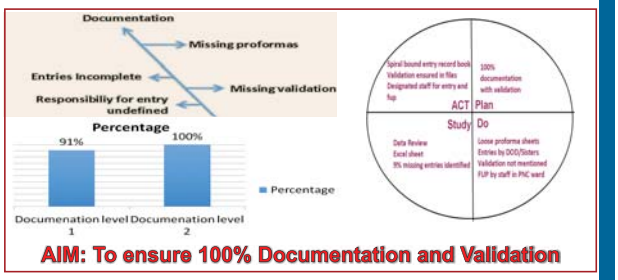
Student Nurses:

- Follow up of mothers in PNC

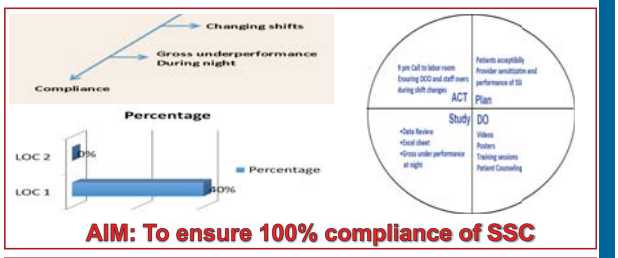
Administrator:

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

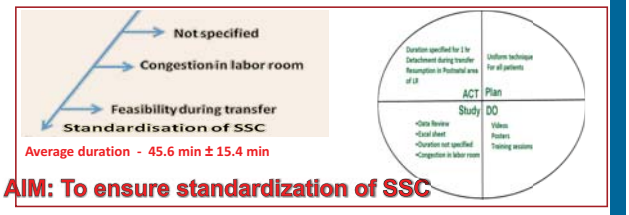




AIM: To ensure 100% Documentation and Validation



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

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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

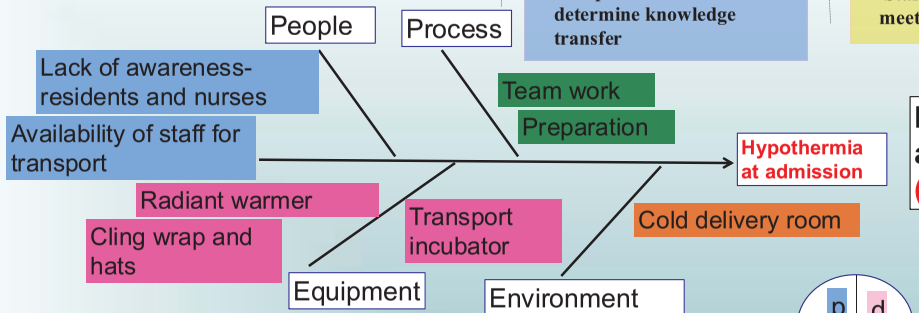
To achieve an admission temperature of 36.5-37.5 C in ≥ 80 % of babies < 32 weeks gestation born at AIIMS over a period of 6 months by implementing a "golden hour bundle" through staff education and multiple PDSA cycles

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

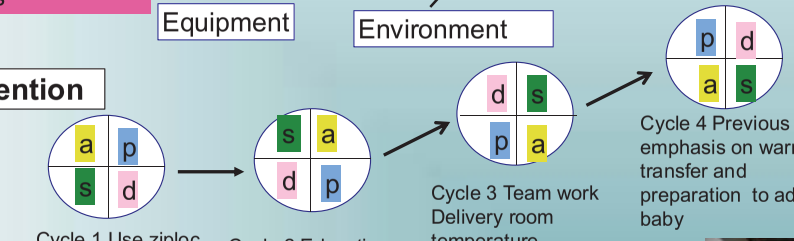
Study flow

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)



Intervention



71 eligible neonates were admitted to NICU during study period

Admission temperature

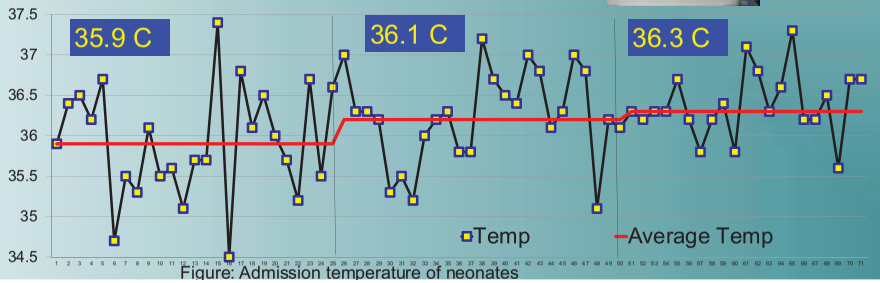


Figure: Admission temperature of neonates

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.

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

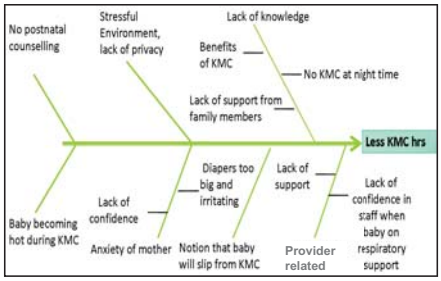
Aim

- 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

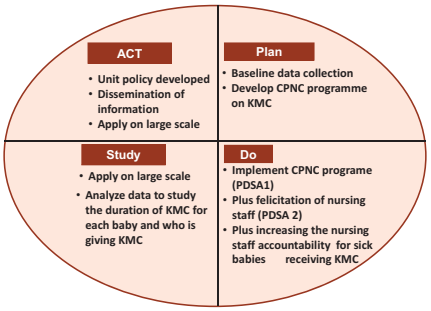
Problem analysis



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



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

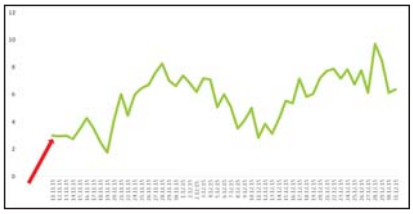
This is to certify that _____ has been awarded "Champion of the Month Award" for the month of _____, for achieving maximum hours of Kangaroo Mother Care at NICU, AIIMS, New Delhi., as a part of Quality Improvement Initiative.

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

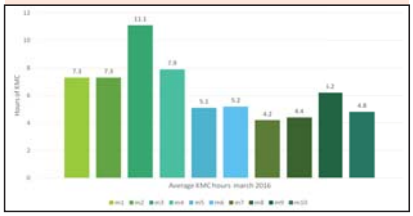
PDSA cycle week 3

- 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

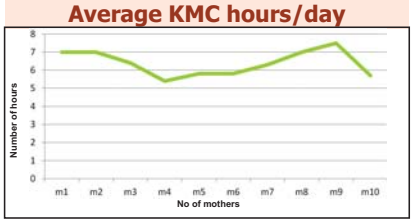
Average KMC hours/day



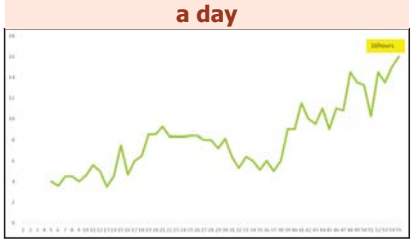
70% of our mothers are doing KMC for more than 5 hours



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

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

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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"

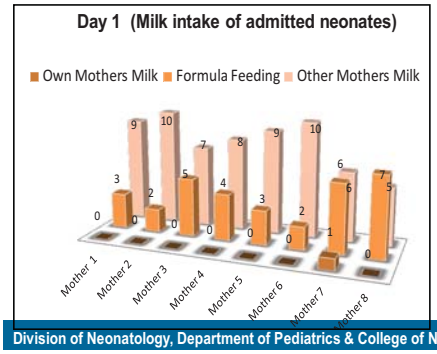
Aim

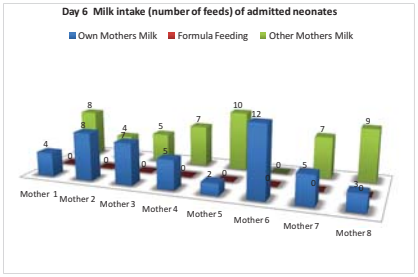
- To increase the amount of breast milk intake in admitted neonates from 5% to 30% over six weeks

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

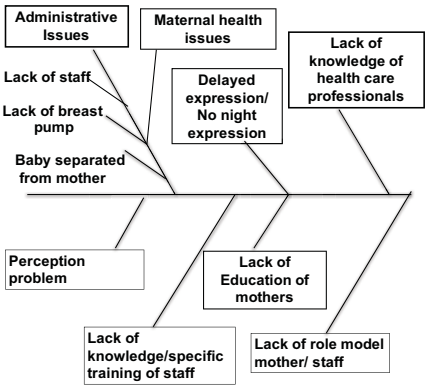




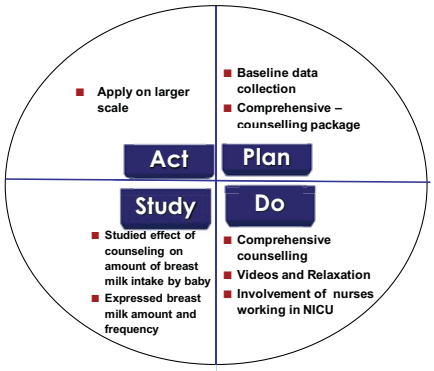
Postnatal - feeding counseling

- 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)



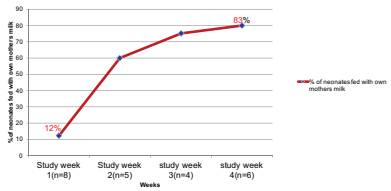
PDSA Cycle



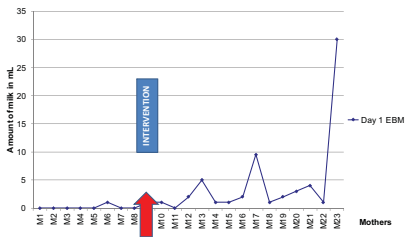
Results

- 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%).

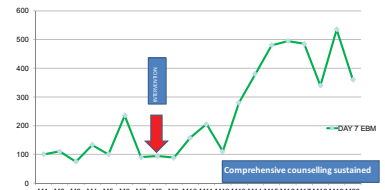
Proportion of neonates fed with own mothers milk



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

A Quality Improvement Initiative in NICU

Improving the life of radiant warmer temperature probe Involving mothers

All India Institute of Medical Sciences, New Delhi

Background

Radiant warmer (open care system)

- Provides warm micro-environment to maintain stable body temperature
- Especially essential in very low birth weight babies using servo or manual mode of heating
- Application of temperature probe on the skin of the baby helpful in number of ways
  - Servo mode : Temperature probe plays a crucial role in controlling heater output as per baby's temperature
  - Manual mode : Helps in monitoring baby's temperature
- Temperature probe is delicate, likely to break if not handled carefully and a costly accessory (INR 3000)
- Dislodgment of probe was reported as a balancing outcome while promoting Kangaroo mother care

Problem Identified

The frequent breakage of radiant warmer temperature probe in NICU for babies undergoing KMC.

Baseline life of the probe was reported to be 10 days.

Frequent breakage of probe was adding to the cost factor involved in newborn care.

Team Members for QI

Nurse Educator, 2 nurses, Resident doctor and mothers

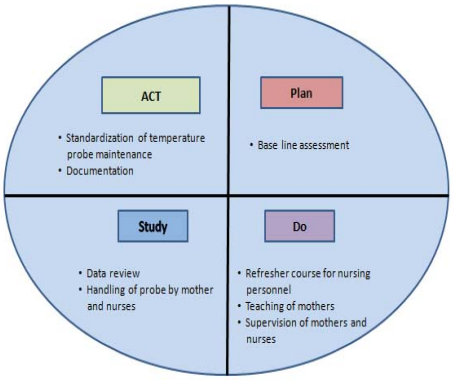
Aim

To increase the life of the temperature probe by 50% in 8 weeks by reducing the breakage of the temperature probe in NICU.

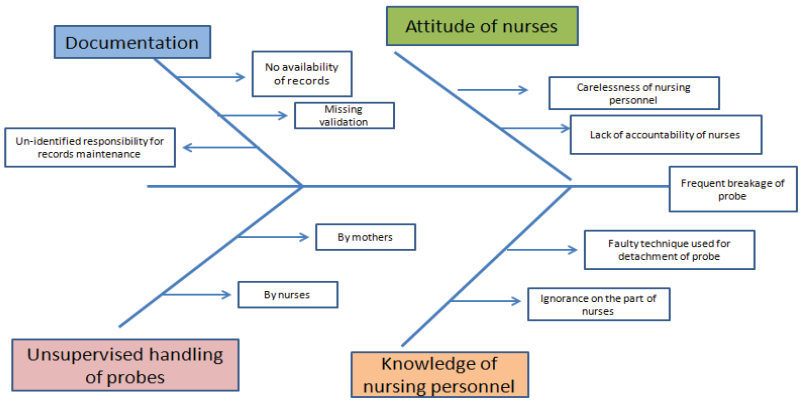
Baseline Data Collection

Data collection related to breakage of the probe in 3 radiant warmers over 2 weeks time revealed the average life of the probe to be 9+_5 days.

PDSA Cycles



Root cause analysis (Fish bone)



Identified causes

- Unsupervised handling of baby and the temperature probe by mothers and nurses
- Lack of knowledge of nursing personnel
  Faulty technique used for removing the temperature probe (pulling out the delicate portion of the probe).
- Attitude
  a. Carelessness on the part of nursing personnel.
  b. Unsupervised handling of the probe by the mothers.
- No documentation
  a. Non-availability of register/ records.
  b. Undefined responsibility for record maintenance.
  c. Missing validation.
  d. Lack of accountability of nurses.

PDSA Cycle 1

- Sensitization of nurses through a refreshers' course
- Supervisory check of probe handling of nurses, by the sister in-charge of NICU.
- Documentation of the temperature probe breakage in temperature probe maintenance register by the nurse educator and Sister in-charge (date of issue of probe, date of breakage and the number of days probe remained functional).
- Responsibility and accountability among the nursing personnel

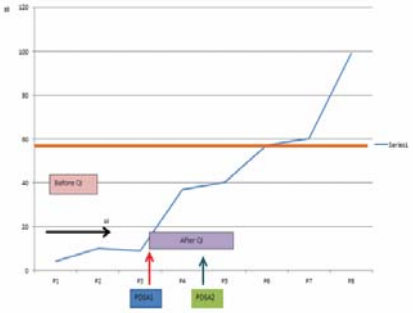
PDSA Cycle 2

- Mothers' teaching promoted by the assigned nurse at least 3 times during the baby's stay in NICU about the handling of probe and detaching it from the side panel of radiant warmer.
- Supervised handling of mother by the assigned nurse.

Sensitisation of mothers by nursing staff

Careful handling of the probe by the nursing staff

Life of temperature probe (days) before and after QI



conclusions

This QI initiative involving mothers as team member improved the life span of probes nearly ten times. Parents involvement in adding value to context specific care in NICU need further evaluation.

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

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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.

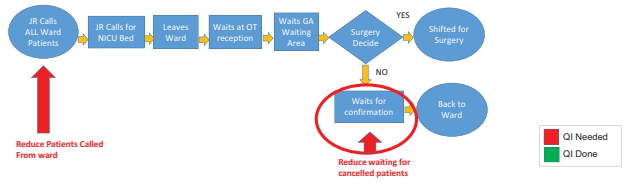
AIM

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

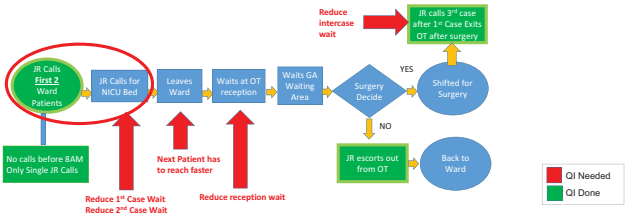
- Time Junior Resident (JR) calls to ward
- Time patient moves out of ward
- Time patient reports to OT reception
- Time patient seated in GA waiting area
- Time patient shifted for surgery
- Time patient shifted out after surgery

BASELINE FLOWCHART & QUALITY ISSUES



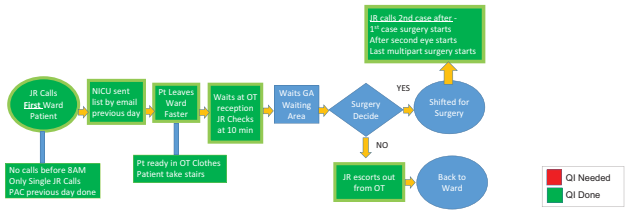
- All 8/8 patients called before 8:30 AM
- Of these 6/8 patients called before 8 AM !! – OT team comes at 8:30 AM
- 2 patients cancelled after 5 hours of waiting in OT
- For a 5 min intravitreal injection, an infected case waited 6.30 hrs
- Average Waiting Time: 221 min (~3½ hrs)
- Maximum Waiting Time: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

QUALITY IMPROVEMENT (QI) PHASE I



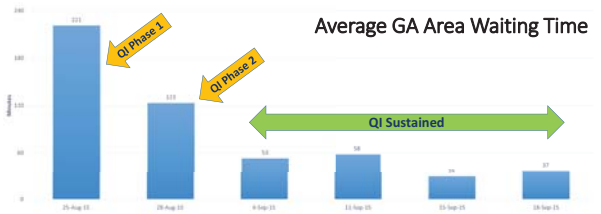
- Only single JR will call ward – prevents multiple calls
- Do not call patient from ward before 8AM, as OT does not start till 8:30
- Call ward for 1st & 2nd case at 8AM to shift to OT [In case 1st case cancelled, 2nd should be ready]
- 3rd case call when 1st case comes out after surgery and so on …
- 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 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
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World Health Organization
Regional Office for South-East Asia

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