

IMPROVING QUALITY OF HOSPITAL CARE FOR MATERNAL AND NEONATAL HEALTH

Participant Handout

Case scenario part 1:

You work at a district hospital in which around 2000 babies are born annually. Nurses provide 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. Mothers and babies are kept together after a birth and are typically discharged after 24-48 hours.

*Information on care at birth is collected from the records as shown in the **data sheet (attachment 1)**.*

STEP 1: IDENTIFYING THE PROBLEM, FORMING A TEAM AND WRITING AN AIM STATEMENT

Step 1: Learning objectives:

- 1) How to use existing data to identify a problem to be fixed
- 2) How to form the right team to work on fixing the problem
- 3) How to write a clear aim statement

Discussion 1: Identifying the problem

What are the different processes of care and outcomes of care listed on the data sheet?

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 identifies a number of problems with the care that they are providing. They realize that they are not giving all women a uterotonic 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. 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 2:

Fill out the **prioritization matrix**. Based on your experience in your facility assign points from 1-5 for each factor:

- Important to patients – how important is each aspect of care for better patient outcomes?
- Affordable in terms of time and resources – how easy do you think it will be to fix this problem?
- Easy to measure – how easy will it be to measure the problem you are trying to fix?
- Under the control of team members – will people in the unit be able to fix this themselves?

Possible aim	Important to patients (1-5)	Affordable in terms of time and resources (1-5)	Easy to measure (1-5)	Under the control of team members (1-5)	Total score (4-20)
Uterotonic					
PPH management					
Immediate drying					
Delayed cord clamping					
Low temperature					
Low birth weight					

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

Discussion 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.

<u>Team members</u>	<u>Roles</u>
<u>Team leader</u>	<u>Characteristics of a good team leader?</u>

Discussion 4: Writing an aim statement “SMART aim”

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 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: ANALYZING AND MEASURING QUALITY OF CARE

Learning objectives:

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

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.*

Reducing neonatal hypothermia:

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

Discussion 5: Analyzing a flow chart

Based on the **flow chart (attachment 2)**, what do you think could be some of the problems contributing to babies getting cold?

Improving uterotonic administration:

*The team develops a flowchart of the delivery process (**attachment 3**) and decides to focus on ensuring that all women receive a uterotonic 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.*

Discussion 6: Analyzing a fishbone diagram

Based on the attached fishbone diagram (**attachment 4**) what do you think could be some of the problems contributing to women not receiving uterotonic after delivery?

Case scenario part 4:

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

Discussion 7: Developing indicators

What would you advise?

Write an outcome measure for the project to reduce neonatal hypothermia and a process and 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	
Frequency	

Improving uterotonic administration:

Process measure:

Numerator	
Denominator	
Data source	
Person responsible	
Frequency	

Outcome measure:

Numerator	
Denominator	
Data source	
Person responsible	
Frequency	

Case scenario part 5:

The team looks at the data on the percentage of women who received uterotonic within one minute of delivery and the percentage of women who had a post-partum hemorrhage each month for the past 12 months. They then plot the data on a graph to make it easier to review.

Discussion 8: Plotting data over time:

		Jan	Feb	Mar	Apr	May	Jun
Uterotonic (process)	Numerator	13	11	9	14	16	15
	Denominator	91	108	97	106	97	116
	Percent	14%	10%	9%	13%	16%	13%
PPH (outcome)	Numerator	7	11	6	10	8	8
	Denominator	91	108	97	106	97	116
	Percent	8%	10%	6%	9%	8%	7%

Use the flipchart or the next page to draw a time-series graph of the above data.

STEP 3: DEVELOPING AND TESTING CHANGES

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

Case scenario part 6:

After the team has used flowcharts and fishbone diagrams, they have a better understanding of what was causing them to deliver sub-optimal care. This helps them to come up with some ideas about changes to make that could help them to provide better care.

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. Part of the reason for that is that some nurses are not aware of the importance of skin-to-skin care. Another issue 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 9: Developing changes

What changes in care do you think 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?

Improving uterotonic administration:

Change	Why do you think this will improve care?

Case scenario part 7:

One of the team members who is conversant with the literature bring evidence that skin-to-skin contact is beneficial for both mother and baby and 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)
- 3) cut the cord after 1-3 minutes
- 4) encourage breast feeding as soon as possible
- 5) leave the vitamin K and weighing until after breast feeding 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 % 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 the baby put 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 people will forget to do them later

Discussion 10: 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	Who will test the change?	
	Where will the test take place?	
	How will they test the change	
	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 on 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 over 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 11: What to do as you learn from testing

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 12: Testing changes

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

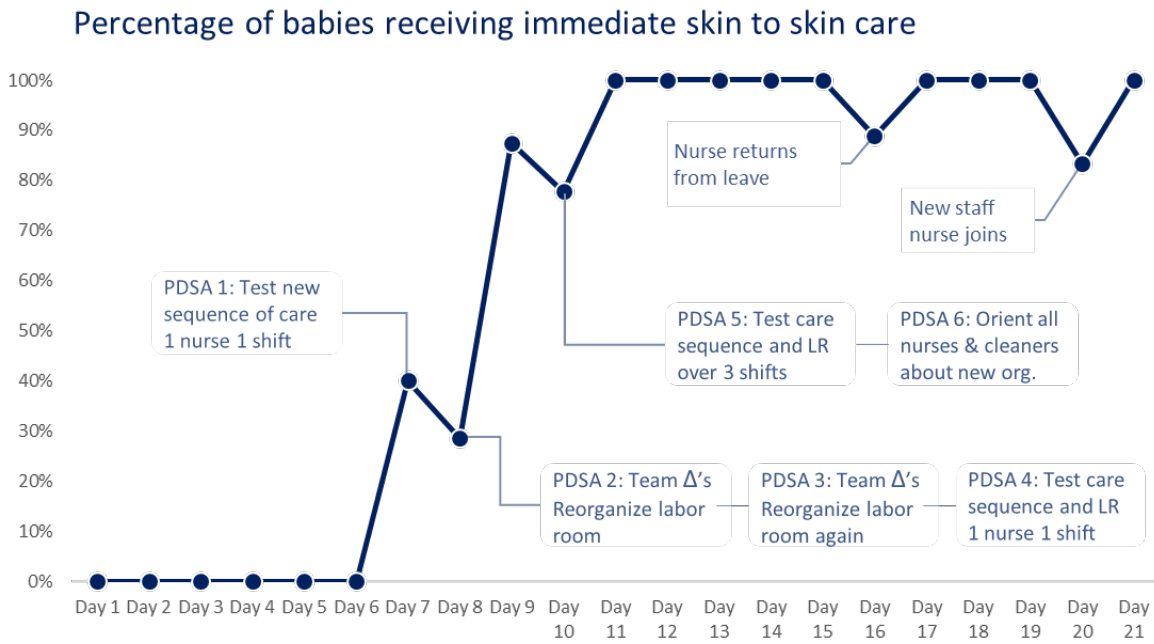
The team decided to ask the nurses on duty for the next three shifts to get their feedback on the new room set-up and get their suggestions for improvement. At the end of the three shifts they have made a few more small changes in the room set up and also involved the cleaning and maintenance staff so 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.

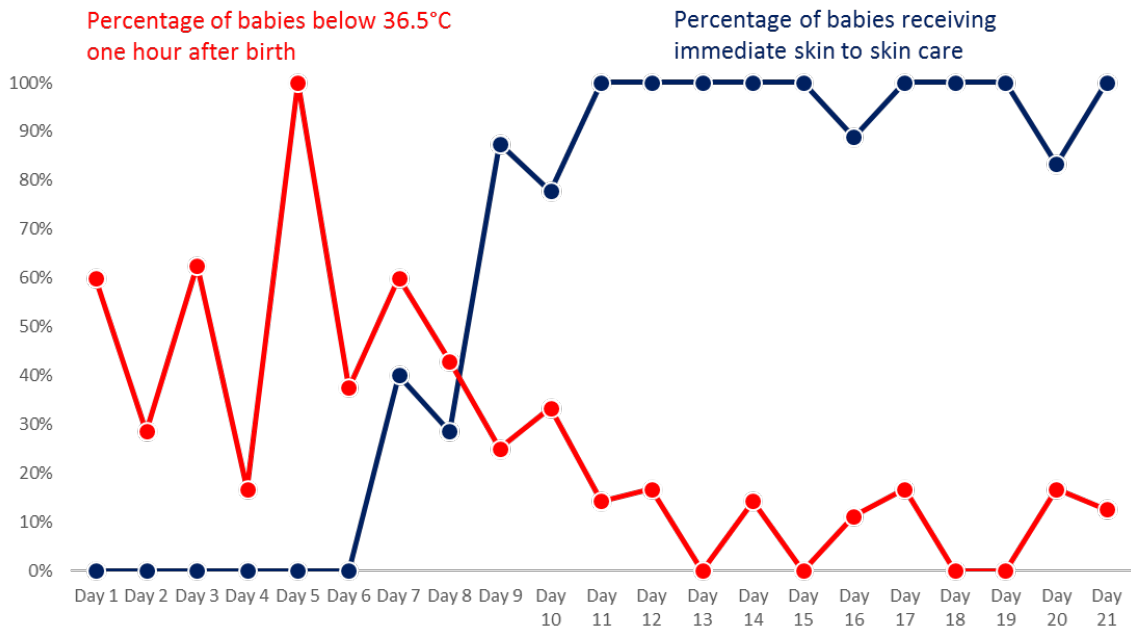
They then hold a series of meetings for other labour room staff who have not been involved in the project to discuss the new way of working, showing them how to care for babies on the mother’s chest and sharing the data showing improvement. Other staff start delivering babies in this way as well.

Case scenario summary

Staff in this hospital decided they wanted to improve care for mothers and babies. They reviewed their data and used a **prioritization matrix** to pick two specific aims: reducing neonatal hypothermia and increasing the use of uterotonics within one minute of delivery. They then formed a team to work on these aims (step 1). The team used a **flowchart** and **fishbone** diagram to identify key issues that they needed to solve to reach these aims. They realized that their main problems were that the order of care after delivery means that babies are not receiving skin-to-skin care early which leads to hypothermia and that the procedure of trying to draw up oxytocin after delivery means that most women do not get the drug in time (step 2). Based on their analysis, the team decides to change the order of work after delivery so that skin-to-skin care can start immediately. They test it in one shift and learn that it is feasible but the way the room is set up makes some things challenging. They use a series of PDSA to identify the best way to set up the room and make sure that the new way of providing care works for different nurses working in different times of different days. (step 3). They also used involved all the

other nurses and cleaners so that they understood the new way of working (step 4). The below figure shows the progress of the team.





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 bassinets to bedside; supplies closer to labor table

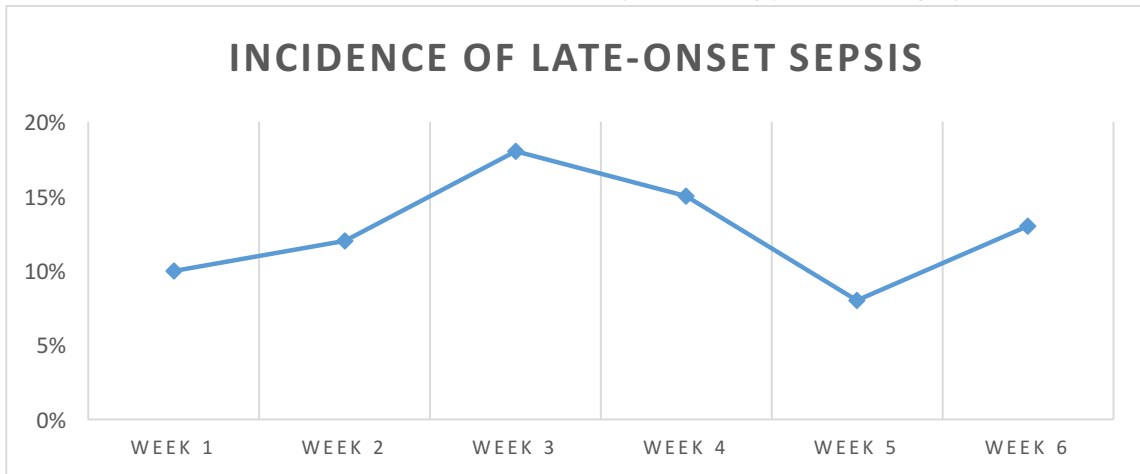
Pre /Post Assessment of knowledge about Quality Improvement

1. In a healthcare setting there is always scope for improvement. Yet not many efforts are made for improvement. Which of the following is NOT the reason for this?
 - a. People are busy in what they do routinely and do not actively work to do carry out improvement efforts
 - b. It may be difficult to identify changes which can be made and which will lead to improvement
 - c. There is already shortage of resources and doing better requires more resources like beds, equipment, supplies and manpower
 - d. It requires soft skill to motivate people to participate in improvement activities and satisfy their diverse opinions and expectations
2. In a Special newborn care unit (SNCU)/Neonatal intensive Care unit (NICU) change ideas should be tested
 - a. In response to a problem
 - b. To do more of whatever good is being done
 - c. For continuous improvement
 - d. All of above
3. How can one find out what should one target for quality improvement?
 - a. By looking at a set of indicators (dashboard indicators)
 - b. To meet targets of health ministry or National Rural health mission (NRHM)
 - c. Based on viewpoint of doctor-in-charge
 - d. Based on complaints received from parents/patients
4. Which of the following is **NOT** criteria for assessing quality of healthcare?
 - a. Safe
 - b. Equitable
 - c. Timely
 - d. State-of-art
5. A team of nurses and doctors have found in a SNCU of Rajasthan that mothers of preterm babies can provide more expressed breast milk if they are encouraged to come to SNCU within first day of birth of baby and handle the baby. As a doctor-in-charge of your SNCU after hearing this success story what should you do?
 - a. Implement this practice in your SNCU
 - b. Cannot implement or test in your SNCU as mothers do not maintain hygiene and it can result in increased incidence of sepsis
 - c. Test this idea in your SNCU by doing it for a small number of babies over next few days and see what nurses think
 - d. Test this idea in your SNCU by doing it for a small number of babies over next few days and collect data how it effects feeding practices and sepsis
6. During a meeting of doctors of SNCUs at Bhopal a doctor expresses his feelings that since his unit has got better quality soap nurses are washing hands with soap more frequently. This is:
 - a. Observation
 - b. Data
 - c. Analysis
 - d. Interpretation

7. A SNCU doctor wants to decrease the time it takes to get X-ray done in a baby with respiratory distress. How can he think of what changes will lead to achieving this objective?
 - a. By buying and placing an X-ray machine within SNCU
 - b. By recruiting and placing an X-ray technician within SNCU
 - c. By outsourcing X-ray services
 - d. By understanding various steps (processes) which are needed to get X-ray done
8. Over last few years lesser and lesser users are now forgetting their ATM card in the Automated teller machine (ATM) machine. What is possible reason of this?
 - a. ATMs now have posters reminding people not to leave behind their ATM card
 - b. Banks send them SMS immediately after money withdrawal which reminds them to collect ATM card
 - c. Steps in money withdrawal from ATM have been revised to ensure that users get their card back
 - d. Average bank balance have improved over last few years which makes people more alert
9. People are attracted to a novel change which has improved things in another place. However, while they want to use the same change idea in their place what is **MOST COMMON** mistake they make?
 - a. Implement the change without testing it
 - b. Are afraid to commit to change
 - c. Think they do not have resources to make changes
 - d. Do not educate people at their place
10. SNCUs in three districts surrounding Indore are reporting high rate of deaths due to sepsis. The state child coordinator passes an order that all doctors and nurses should wash hands as per guidelines. Will this order lead to reduction in incidence of sepsis?
 - a. Yes, orders work best in a country like India and at least for short term doctors and nurses will start washing hands
 - b. No, because orders have been passed without looking at root cause of sepsis
 - c. Yes, no-compliance to hand washing is the most commonly recognized cause of sepsis and doing handwashing will prevent sepsis
 - d. No, because healthcare workers do not have knowledge and skill of how to do hand washing
11. Keeping in view the above said order doctor-in-charge of a SNCU starts to monitor rates of late onset sepsis. What type of outcome measure is incidence of late-onset sepsis?
 - a. Outcome measure
 - b. Process measure
 - c. Balance measure
 - d. Ranking measure
12. Doctor is also recording proportion of healthcare workers washing hands. What type of outcome measure is compliance to hand-washing?
 - a. Outcome measure
 - b. Process measure
 - c. Balance measure
 - d. Ranking measure
13. The AIM statement written by doctor for this improvement exercise is “To reduce the incidence of sepsis in my SNCU” What are deficiencies in this statement?
 - a. Does not specify how much reduction
 - b. Does not specify the timeline by when sepsis will be reduced
 - c. Does not specify in which babies

- d. All of the above

14. The data collected for the incidence of late onset sepsis is being plotted in a graph shown below.



This type of chart is called?

- a. Run chart
 - b. Frequency polygon
 - c. Incidence chart
 - d. Histogram
15. It has been noted that despite recommendation of routine administration of vitamin K to all neonates at birth, 20% neonates do not get the dose. What is **MOST LIKELY** to succeed measure to decrease the chance of missed vitamin K?
- a. Filling a syringe and keeping it as a part of resuscitation tray
 - b. Hanging a poster near the resuscitation trolley
 - c. Recording in the bed head ticket before handover of the baby
 - d. Cannot decide without doing root cause analysis
16. For improving quality of care in SNCUs of MP, NHM director decides to constitute a quality improvement team in SNCU. Whose presence is least likely to be beneficial in the QI team of SNCU?
- a. Nurses
 - b. Medical officer in-charge
 - c. Hospital administrator (SMO)
 - d. Mentor from tertiary health care facility
17. We judge ourselves by our intentions and context in which we work. On the other hand, we judge other people by their actions ignoring the context in which they work. This is called?
- a. Fundamental attribution error
 - b. Central law of improvement
 - c. Blame game
 - d. Shifting of responsibility
18. Healthcare quality is
- a. Providing safe, timely , effective and efficient care
 - b. Satisfying the patient needs and outcomes judged to be important by patients
 - c. Providing equal type of care to everyone irrespective of caste, economic status, gender or other personal-social characteristics
 - d. All of above

19. Which of following is a method to find root cause of problems?

- a. Fish bone analysis
- b. Force field analysis
- c. Control chart
- d. Organogram

20 . A patient decides to loose weight over six months by 20% which he achieves the goal but simultaneously realizes that while loosing weight , he gets tired and falls asleep during day time . He is also happy that he saves now 15% of expenditure on grocery .

- a. Name positive balancing outcome
- b. Name negative balancing outcome
- c. Is this a Smart Aim - Loosing weight by 20% over six monthsYes/No
- d. If No , write SMART Aim statement

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