GUIDEBOOK FOR IMPLEMENTING QUALITY IMPROVEMENT AT NEWBORN STABILIZATION UNITS

Prepared by Nationwide Quality of Care Network in collaboration with Nutrition International and Society for Welfare & Advancement of Rural Generations

ACKNOWLEDGMENT

This is a modified version of the Point of Care Quality Improvement (POCQI) guidebook incorporating elements from the MusQan initiative (MOHFW, Govt. of India) pertaining to the Newborn Stabilization Units (NBSUs), to help the frontline workers at these units achieve improvement in Quality of Care (QoC) provided by NBSUs.

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This guidebook provides a simplified approach to learning the basics of implementing QI at the point of care in NBSUs using a simplified method for quality improvement known as Point of Care Quality Improvement (POCQI). It describes in brief how the POCQI method can be used to identify local problems & gaps in delivering quality patient care, work as a team to develop a contextual solution to overcome these gaps, and in process how to achieve some of the requirements under the MusQan initiative.

Disclaimer: This guidebook is meant for use of NBSU staff & QI mentors supporting the capacity building initiative of NQOCN in collaboration with SWARG & with support of Nutrition International in the state of UP. The content has been developed by NQOCN utilizing the internally developed resources of NQOCN along with public resources of MOHFW, Govt. of India, WHO, other development partners – which have been acknowledged at respective places. This document cannot be reproduced in any form without express written permission from both NQOCN & Nutrition International. (NQOCN 2023)

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PART A: CONTEXT FOR DEVELOPMENT OF THIS GUIDEBOOK

Project Background

Nutrition International (NI), is working in UP since 2016 to improve maternal, newborn, child health outcomes. Under the Institutional Support Grant from FY 2020-2025, NI is supporting a package of maternal and essential newborn care and services interventions called as Birth Package (BP) program in eight districts namely Basti, Gorakhpur, Deoria, Kushinagar, Varanasi, Chandauli, Mainpuri, and Firozabad. The BP Program is strengthening the maternal and essential newborn care services and practices in facility and community settings. Through this program NI aims to improve identification, referral, and management of High Risk Pregnant (HRP) women, improve care during labor, improve facility and community-based care of pre-term and low birth newborns through Kangaroo Mother Care (KMC) and Essential New-Born Care (ENBC) services at health facilities by promoting "Zero Separation" of mother and her newborn. Strengthening Maternal Death Surveillance and Response (MDSR), Child Death Review (CDR) and still birth review are the newer components added to this program. This program is being implemented with SWARG as the implementation partner. One of the key objectives of this programme is to strengthen the identified new New-Born Stabilization Units (NBSUs) for providing quality sick new-born care across the identified districts and create a pool of staffs from high case load facilities in the identified four districts in the state.

Role of NQOCN

As the technical resource for strengthening the NBSU component of this initiative, NQOCN's National Experts developed the mentoring guidebook for the NBSU staff as a guidance document to help them operationalize implementation of high-impact essential newborn care practices aligned with MusQan rapid improvement events (RIEs), using a simplified quality improvement approach, known as, Point of Care Quality Improvement (POCQI). The key objectives of the guidebook are to help the NBSU staff to:

- Identify the high impact essential newborn care practices, as mentioned in the NBSU Guidelines of MOHFW (2020).
- Understand linkages between the high impact ENBC practices and MusQan guidelines/RIEs.
- Do root cause analysis of the bottlenecks hampering or impeding implementation of ENBC practices & MusQan RIEs and how to overcome them using the POCQI method.
- This guidebook integrates high impact interventions with implementation plan in a simplified manner.

Discussions during the State Consultative Meeting

The discussions between various stakeholders during this meeting and the guidance from the General Manager (Child Health), NHM UP have helped in molding the guidebook to become practical resource book for the NBSU staff to help them implement high-impact essential newborn care practices and develop contextually relevant solutions using a team-based approach to improve quality of care. Following were the key points of discussions from this meeting:

- State officials noted that there is a pressing need to enhance & regularly refresh the clinical skills of both staff nurses and medical officers deployed at the NBSUs, especially in high impact essential newborn care practices, as availability of pediatricians at these units is relatively poor.
- NQOCN officials further noted that besides enhancing the clinical core competencies of facility staff - a key skill that the facility staff should develop is the ability to conduct root cause analysis of identified problems and develop contextual solutions to them using a simplified quality improvement method - POCQI.
- Moreover, the NBSU staff should be involved in providing immediate ENBC in the labour rooms to create a convergence between labour rooms and NBSUs. (This will happen only with "team based" approach between labour room and NBSU staff)
- The amalgamation of QI & clinical skills is a core requirement for effective mentoring of NBSU staff and should be conducted at regular intervals to empower and help the staff develop confidence in not only providing these services to all deliveries but also to improvise and develop contextual evidence-based adaptations in their workflow leading to the improved utilization and quality of NBSUs services in their respective health facilities.
- It is with this context of above identified points, a conceptual layout of the mentoring guidebook was developed which would be used by NBSU staff. The NQOCN mentors would be using this guidebook during their onsite mentoring.

Comparison with NBSU and MusQan Guidelines

As noted above, the mentoring guidebook was developed specifically to help the NBSU staff focus and implement the high impact and essential clinical practices (mentioned in the NBSU Guidebook (2020) in line with the requirements of the MusQan guidelines) using a simplified QI method (POCQI). Moreover, the capacity building of NBSU staff in QI methods would be done using this guidebook as a reference and ready reckoner to bring uniformity: and the onsite

mentors would be helping the staff to use the QI methods described in the guidebook to improve quality of healthcare services in their units.

The guidebook utilizes a case-scenario based method to guide the discussion between the participants, facilitated by facilitators, regarding how to use the 4-steps of POCQI ("hands on approach"). Each of the 4 steps refers to the original case scenario mentioned at the start of step 1. The facilitator guides the participants (NBSU staff) to discuss what would the team at the fictional facility would have done as per requirements of each of the 4 steps of POCQI. The 4-steps of POCQI are:

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

PART B: QUALITY OF CARE AT NBSUs

NQOCN – Nutrition International & SWARG Collaboration

Nationwide Quality of Care Network (NQOCN) & SWARG with support of Nutrition International have collaborated to provide capacity building & mentoring support to NBSU staff of 8 facilities in identified 4 priority districts in UP. This initiative will help build capacity of NBSU staff to use a simple QI method to implement the various quality parameters of the MusQan initiative of MOHFW. The NBSU staff will be trained in using POCQI methodology and subsequently will be provided with mentoring support with onsite & online visits as part of this joint initiative in close collaboration & cooperation with State NHM. Some of the identified team members of NI & SWARG will undergo capacity building in POCQI methodology by NQOCN's National mentors.

This document has been developed by NQOCN India, as a guide to assist the NBSU staff & mentors in conduction of the mentoring visits to identified 8 NBSUs of 4 districts in eastern Utter Pradesh, viz. Basti, Gorakhpur, Chandauli & Varanasi.

About NBSUs & their linkage to Special Newborn Care Units

Newborn Stabilization Units (NBSU) are an important part of the facility based newborn care. They have been established at the sub district level (First Referral Unit/Community Health Centre) to provide facility based newborn care to babies delivered at the same health facility and to sick and small babies delivered at other health facilities closer to FRU/CHC[1].

Envisaged as intermediary care units nearer to the community, NBSUs can play a major role in improving newborn survival and decongesting Special Newborn Care Units (SNCUs) at district hospitals. Thus, a functional NBSU offer dual advantages viz., it adds to the total bed capacity available in the district for newborn care, thus, making provision for newborn care closer to home for many sick and small babies and helps to reduce the congestion at SNCUs, in process improving their efficiency as well.

[1] Child Health Division, MOHFW, Govt. of India. Newborn Stabilization Unit Training - Participants' Module. 2020

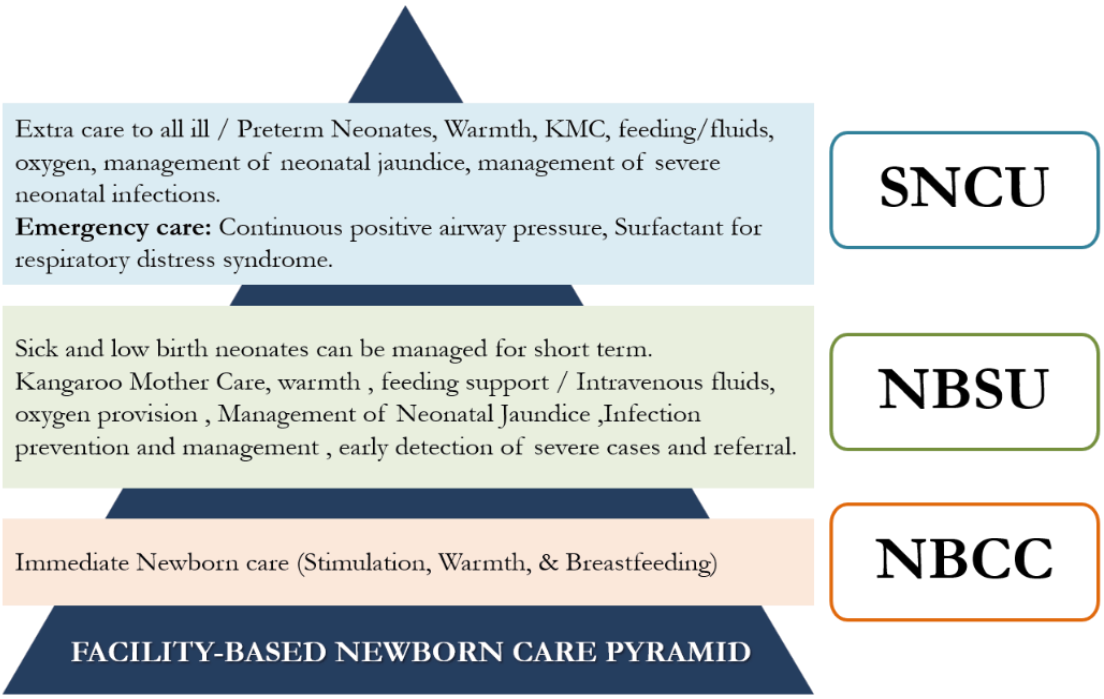


Fig.1: FBNC Care structure

(Source: Child Health Division, MOHFW, Govt. of India. Newborn Stabilization Unit Training - Participants' Module. 2020)

It has been seen that increasing awareness of newborn care has resulted in a rise in newborn hospitalization[1]. Often SNCUs are filled with sick but stable newborns who could be managed at NBSUs[1]. Thus, it is imperative that all NBSUs are fully functional in all the districts across the country to decongest SNCUs and ensure improved assessment, triage, and stabilization of newborns before referral, and thereby improving survival of newborns by helping improve the supply of limited SNCU beds for newborns who need advanced care.

Services provided at NBSU

- Identification of newborns presenting to NBSU with emergency signs
- Management of LBW newborns >= 1800 grams weight with no other complications.
- Phototherapy for newborns with hyperbilirubinemia.
- Newborns who cannot be transferred to SNCU or referral facility due to some reason
- Stabilization and referral of sick newborns and those with very LBW.
- Essential newborn care at birth – prevention of infections, provision of warmth through Kangaroo Mother Care (KMC), newborn resuscitation, early and exclusive breastfeeding, weighing of the newborn, identification of visible birth defects, along with infection control measures based on existing standard operating procedures
- Ensuring linkage between NBSU & SNCUs for both higher-up referrals (NBSU -> SNCU) and back-referrals (SNCU -> NBSU) i.e., follow ups at NBSU.

PART C: OVERVIEW OF MUSQAN AT NBSUs

MusQan initiative

Overview:

MusQan initiative was launched in 2021 to provide safe & high-quality child-friendly services in public health facilities with the aim to reduce the preventable new-born child mortality and morbidity. It makes the child-friendly services accessible and available for age group 0 (newborns) to 12-yr olds (pediatric age-group) and provide a respectful and dignified care to the mother/parent–attendant.

Goal:

- MusQan aims to ensure provision of quality child-friendly services in public health facilities to reduce preventable newborn and child morbidity and mortality.

Objectives:

- To reduce preventable mortality and morbidity among children below 12 years of age.
- To enhance Quality of Care (QoC) as per National Quality Assurance Standards (NQAS).
- To promote adherence to evidence-based practices and standard treatment guidelines & protocols.
- To provide child-friendly services to newborn and children in humane and supportive environment.
- To enhance satisfaction of mother and family, seeking healthcare for their child.

Following framework has been developed to highlight the 4 key strategies for rollout of 'MusQan' along with proposed actions for implementation (see fig 2).

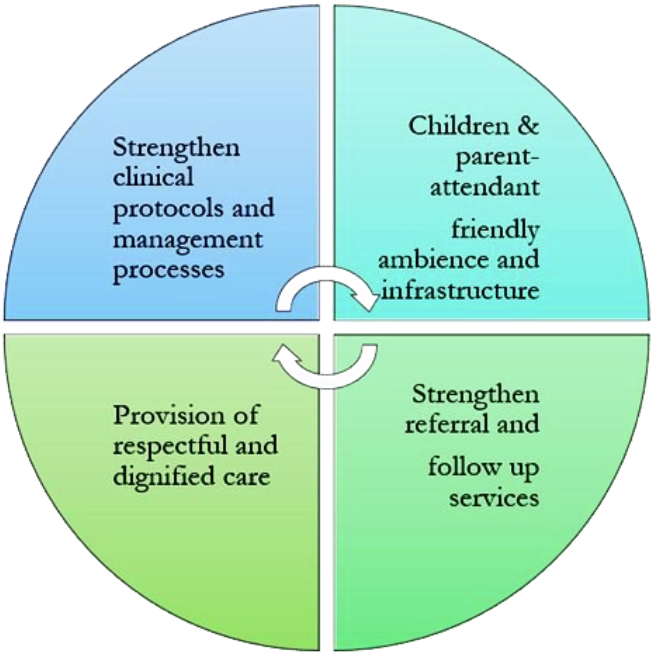


Fig. 2: Framework of MusQan Quality Initiative and Key Actions

Ensuring Child Friendly Services at NBSUs:

Following are the key aspects of care at NBSUs as per MusQan:

- Ensuring dedicated services for newborns by providing:
    - Essential newborn care at birth including but not limited to – prevention of infections, provision of warmth through KMC, newborn resuscitation, early and exclusive breastfeeding, weighing of the newborn, identification of visible birth defects, along with infection control measures based on existing standard operating procedures.
    - Management of LBW newborns >= 1800 grams with no other complications.
    - Phototherapy for newborns with hyperbilirubinemia.
    - Stabilization and referral of sick newborns and those with very LBW.
- Developing a newborn mother friendly ambience: Efforts would be undertaken to ensure that all newborn care areas are using soothing colors.
- Ensuring availability of identification tags for both baby & mother.
- Appropriate method of transferring baby from labour room/maternity OT to NBSU maintaining the warm chain.
- Essential newborn care drugs and formulations are readily available as per the norms of the Indian Public Health Standards (IPHS) Guidelines for community health centers (CHC) need to be ensured.
- Ensuring appropriate & timely referral services are present for sick & small newborns from NBSU to SNCU and follow up services for these referred newborns after their discharge from SNCU.
- Ensuring Provision of Respectful and Dignified Care to both the mother & the newborn.
- Ensuring mother & family members engaged in the care are trained on infection prevention, feeding (breastfeeding or assisted feeding), KMC, family -participatory care, etc. A regular training schedule & place for such trainings should be identified by the staff.
- Ensuring staff behavior is empathetic and courteous to newborns, mothers & family members.

Roles & responsibilities of NBSU staff for implementing MusQan

- Ensuring adherence to protocols and key clinical practices for newborn, KMC, IYCF, guidelines etc.
- Conduct regular assessments using NQAS checklists for MusQan. Collect and analyze indicators/targets as per rapid improvement events (see fig. 3).
- Prioritization and action planning for traversing the gaps as per current recommendations and best practices.
- Ensure achievement of indicators using rapid improvement events approaches.
- The quality circles shall undertake various rapid improvement events for improving outcome indicators leading to the achievement of defined targets.

Suggested list of Rapid Improvement Events (RIEs)

- Ensuring timely initiation of emergency treatment of sick newborns and children and making timely referrals.
- Improving breastfeeding, hypothermia (temperature maintenance), KMC practices in eligible neonates and developmental supportive care.
- Ensuring improvement in infection prevention practices and reduction in Hospital Acquired Infections (HAIs)
- Improving documentation and record management practices. This RI event must include timely recording and updating of records and data.
- Ensuring implementation of clinical protocols such as rational use of antibiotics, oxygen, fluids, etc.

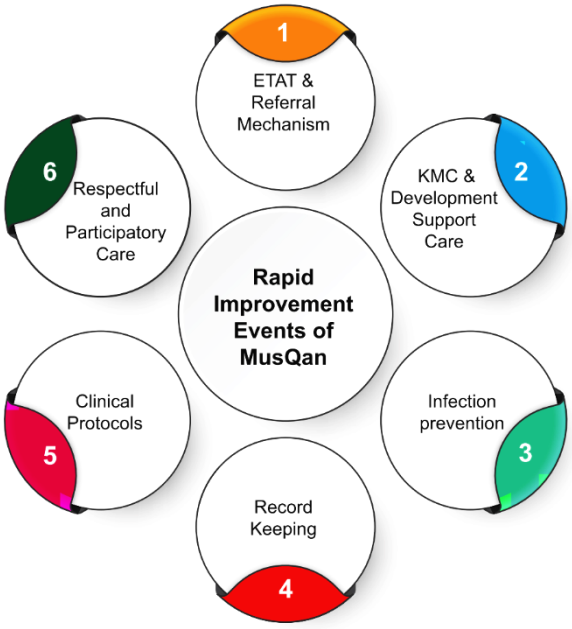


Fig. 3: MusQan Rapid Improvement Events

- Providing respectful care and improving engagement of mothers and families in newborn care and enhancing parents' and families' satisfaction with the care, given in the facilities.

Steps for Implementation of MusQan at Facility-level

- Constituting Quality Teams and Quality Circles at facility and department level, respectively (see fig. 4).
- Assessing Quality of Care using MusQan checklists for NBSUs.
- Using the above checklists, identifying critical gaps.
- Use POCQI method to plan improvement changes & implement them.
- Garner support from facility administrators and district officials where ever required.
- Conduct frequent interactions between healthcare providers and community to ensure sustenance of improvements and co-produce care with the community.

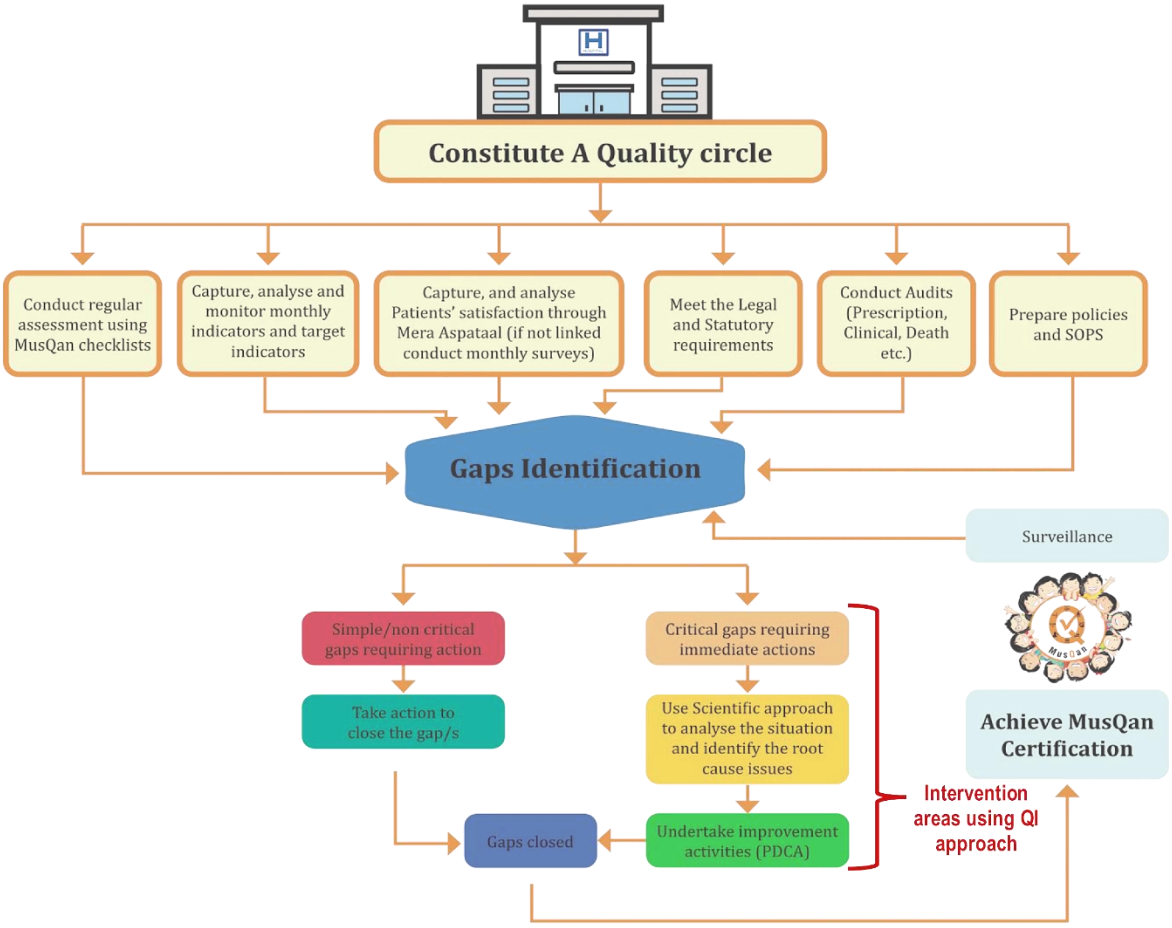


Fig. 4: Quality Circle for Achieving MusQan Certification

PART D: QUALITY IMPROVEMENT

What is Quality Improvement?

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

- Lack of resources in terms of physical infrastructure and basic facilities, appropriate staff, essential equipment, and supplies
- Health workers have insufficient clinical knowledge and skills or understanding of how to ensure good quality of care
- Lack of organization of services at health facilities so that staff are not able to easily provide care that they know is important

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

Point of Care Quality Improvement (POCQI) model

The POCQI model builds the capacity of healthcare workers in improving the quality of care in health facilities. These improvement efforts by frontline healthcare staff must be supported by the management and leadership of the health facility and the district availability of essential infrastructure for patient care is a pre-requisite for quality improvement. The unique feature and strength of the POCQI model is that it offers a simplified common-sense approach that has been used successfully in many settings to improve the quality of care within the available resources.

Need of POCQI module for Primary care health workers

The POCQI model offers a new paradigm, beyond the often-followed approach of providing clinical training/mentoring to health workers with the assumption that knowledge-deficit is the primary cause of poor performance and inadequate quality of care. The focus in this model is on team building among the health workers at the health facilities and build their capacity to collectively decide, based on local data, a target that involves problem solving and improving availability and efficient use of existing resources including time, essential medicines, and equipment to achieve standardization of care for improving quality of care and patient satisfaction. The underlying assumption for this approach is that healthcare workers want to ensure the best health outcomes for all their patients. The simplified approach of POCQI that looks for early success will immediately improve job-satisfaction among healthcare workers as

well as keep them motivated to work as a team at the health facility to provide safe and quality care.

Learning objectives of this POCQI module

This modified version of the POCQI module will aid in teaching the principles of a simple step-wise approach for quality improvement at the point of care in health facilities. It is designed to build the skills of Primary healthcare staff to identify and solve problems at their level without seeking significant additional resources. It does not discuss standards of care or external assessment.
It is expected that participants/Primary healthcare staff will learn to:

1) Identify a problem with quality of care, forming a team and writing an aim statement
    a. How to review data to identify problems
    b. How to prioritize what problem to work on
    c. How to form a team to work on that problem
    d. How to write a clear aim statement
2) Analyze and measure quality of care
    a. Tools for understanding processes and systems and how to use them
    b. How using these tools can help identify the causes and possible solutions to reach your aim
    c. How to develop indicators for process and outcome of care
    d. How to use indicators to track progress of improvement
3) Develop changes and test these to learn what works
    a. How to come up with ideas about what to change to reach your aim
    b. How to plan a Plan-Do-Study-Act (PDSA) cycle to test change ideas
    c. What to do as you learn from PDSA cycles
    d. How to test multiple change ideas to achieve your aim
4) Sustain improvements
    a. How to build enthusiasm, motivate team, recognition by certificates and celebration
    b. How to share the results and successful projects widely
    c. How to make policy with new ways to work
    d. How to hardwire the gains by making system change

Case Scenario:

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

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

- A nurse in-charge oversees operations, including ordering supplies. There is also a pharmacist on site.
- A doctor manages the labour ward and is available for emergencies but because they have no blood bank and limited facilities, most emergencies are referred.

Mothers and babies are kept together after birth and are typically discharged after 24-48 hours. The staff work hard but they think that the care they provide is not as good as it could be. They decide to look at the data in their hospital birth register to identify some problems that they can fix. The register has information about both processes of care and outcomes. Processes are activities that health workers carry out and outcomes are the result of those activities. The team looks at how well they are carrying out important processes of care and if they are getting the outcomes that they want for their patients. Information on care at birth is collected from the records as shown in the Hospital Birth Register (Table 1). Step 1: Identifying a problem, forming a team, and writing an aim statement:

Table 1: Selected data collected from hospital birth registers

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

PPH = postpartum hemorrhage

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

** Low birth weight <2500 grams

Step 1: Identifying a problem, forming a team, and writing an aim statement

Learning Objectives:

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

Identification of a problem

To identify a problem to solve, the following points must be considered:

1. The problem should be based on the data, **Use the local data (from your workplace)** to identify problems related to the quality of care. You may be able to identify several problems.
2. Since QI is a new skill for many people it is important to think of the first improvement project as an opportunity for learning.
3. Because of this, new teams should work on QI problems which:
    - Are easy to solve by themselves.
    - Do not need many additional resources to solve.
    - Have a fast turn-around time (so you can get results quickly).
    - Is crucial for good outcome of patient care.
    - You can leave more complex, long-term projects for later, when you have built stronger skills in using QI methods.
    - The problem should be Simple and easy to change.
    - The problem must add value for patient outcomes.

Prioritizing a problem

Based on your experience in your facility, fill out the prioritization matrix (Table 2) and assign points from to 1 to 5 for each factor (process or outcome):

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

- Important to patients – how important is each aspect of care for better patient outcomes? 1 is not important (lowest score), 5 is vitally important (highest score).
- Affordable in terms of time and resources – how easy do you think it will be to fix this problem? 1is not affordable (it will take a lot of time or resources), 5 is very affordable.
- Easy to measure – how easy will it be to measure the problem you are trying to fix? 1 is very difficult,5 is very easy.

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

Table 2: Prioritization Matrix

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
Prioritized Gap:					

Select your team

Once you have picked a QI problem to solve, you need to pick a team of people who can work on this together. Look for people who are:

- **Enthusiastic** – Try to get members who want to work on this aim and have ideas for how to reach it. Look for Volunteers– people who are interested in making changes and are self–motivated
- **Involved** – Make sure most of the people on the team are doing the hands-on work that needs to change. People do not like being told to change but they like changing and improving themselves. Having more workers rather than managers will make it easier to change practice.
- **Influential** – Look for team members who can involve and influence other people

You should have a diverse range of people on the team – staff such as cleaners and janitors can also contribute depending on the identified problem. Similarly, you may need to include community members (e.g. people accompanying the patients). Titles and hierarchy should not matter. You want people who understand the problem and can change how care is delivered. Healthcare is delivered by a range of people. Healthcare workers who will have to change how they work (their existing practices) should be in the team.

- ➢ Involving different cadres will lead to a wider range of ideas for how to fix problems, thus increasing the chances of success.
- ➢ Involving people in the process of change early reduces resistance to change.

- People do not like to be changed by others but are willing to change when they get to decide how to change.
- Accomplishing things together leads to increased team spirit and confidence to address bigger problems subsequently.
- There is no ideal size of a team. Generally, a good team comprises 6-9 members. Keeping too many or too few may be less effective, even harmful for the project

It is also good to assign different roles:

- **Leader** – lead meetings, listens to/takes input from all team members, direct activities to achieve goals, represent the team
- **Recorder** - Record meeting notes
- **Communicator**- communicates decision of team meetings amongst members.

Writing an aim statement:

Once your team is formed, jointly develop a precise aim statement that clearly states what needs to be achieved. Any aim you develop should be as per the SMART criteria:
S- Specific, M- Measurable, A- Achievable, R- Relevant, T- Timely

The characteristics of a good aim statement are:

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

Example of a SMART Aim Statement: Problem: Babies are cold at one hour following birth.

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

The above aim statement informs us about:

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

Thus, the aim statement should be able to tell the reader/healthcare provider the above details, whether they are from the same health facility or not.

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

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).

Step 2: Analyze the problem and measure quality of care

Learning Objectives:

1. Tools for understanding processes and systems of healthcare
2. How using these tools can help identify the causes of and possible solutions to reach your aim
3. How to develop indicators for process and outcome of care
4. How to use indicators to track progress of improvement

Why analysis is important in Quality Improvement?

When you see a patient, you are not interested in just treating the symptoms; you also want to identify the real cause of the symptoms so that you can treat them appropriately. The same applies when you are working on a problem in the health facility. The analysis helps in:

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

Selecting Tools for analysis

The four tools for problem analysis help in identifying possible causes of the problem that you have decided work on. By broadening the understanding of all underlying main causes, you will come up with appropriate solutions that are likely to succeed.

1. Process Flowchart
2. Fishbone
3. Five Why's

Process Flowchart

The process flow chart describes all the steps in a process. For example, how essential newborn care is provided immediately after the delivery. Flow charts can help identify problems in the process, e.g.

Steps that are being done in the wrong order:

- Unnecessary or repetitive steps
- Steps that are contributing the most to the problem

Creating a flow chart involves:

- Deciding on the beginning and end of the process you are trying to explain. For example, delivery of a baby (start) to baby leaving the labour room (end).
- All the steps between those points. For example, baby being dried, skin-to- skin care, starting breast- feeding etc.

- Linking the steps together with arrows
- Reviewing the whole sequence to check if this is really what happens.

Shapes used in Process flow chart

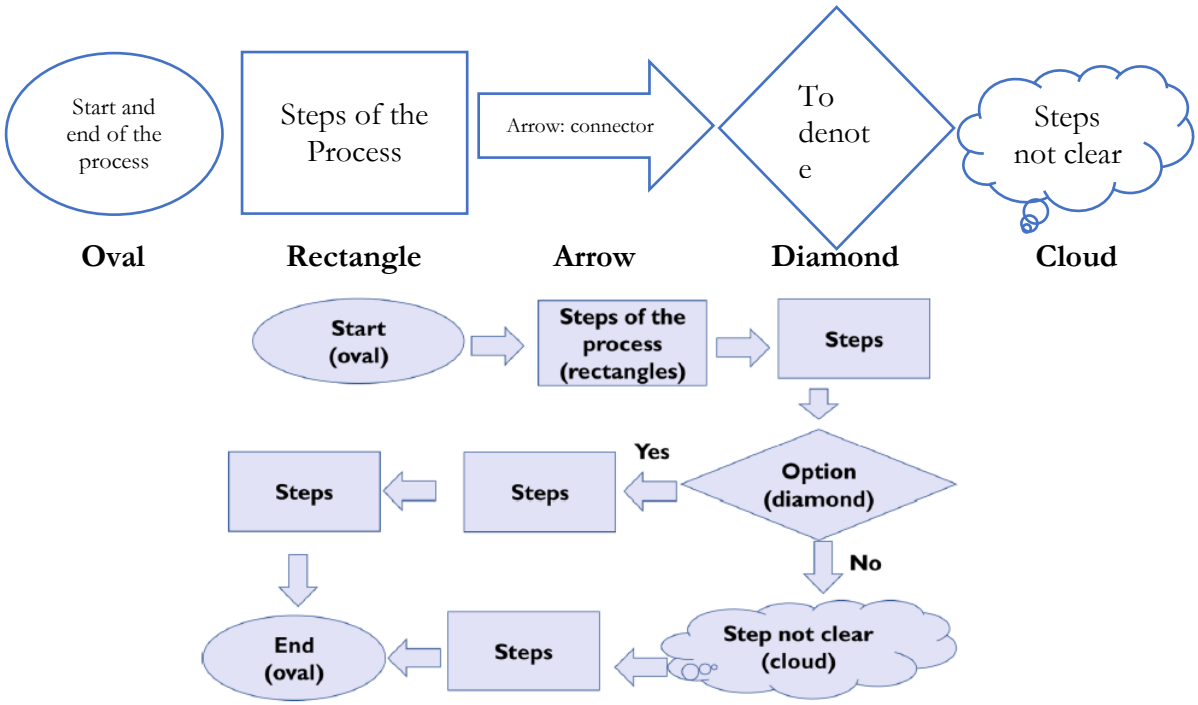


Figure 3: Sample Process flow chart

Fishbone Diagram

One way to determine the possible causes of the problem is to draw the Fishbone Diagram. (a completed diagram looks like the skeleton of a fish!).

In general, there are four broad categories of causes for any observed problem.

- **PEOPLE** – people may not know what to do or how to do it
- **PLACE** – the place you are doing the work may make it hard to do the work. For example, there may be no equipment or equipment is kept too far from where it is needed
- **PROCEDURE** – the way work is done may be contributing to the problem. For example, tasks are being done in the wrong order or at the wrong time
- **POLICY** – there may be no policies, or policies may be wrong or non-specific.

Steps to draw a fishbone with your team:

1. Write the problem in a box on the right-hand side of a large sheet of paper, and draw a line across the paper horizontally from the box so that it looks like the head and spine of a fish.
2. Next, draw a line off the "spine" of the fish and write down contributing factors. These may be different levels of the health systems, or building blocks of the system, such as people (staffing), place (equipment), procedure, policies (guidelines) etc.

3. Now, for each of the contributing factors, identify possible causes. Show these possible causes as shorter lines coming off the "bones" of the diagram.
4. Where a cause is large or complex, then it may be best to break it down into sub-causes. Show these as lines coming off each cause line.
5. By this stage, the fishbone should show several possible causes of the problem.

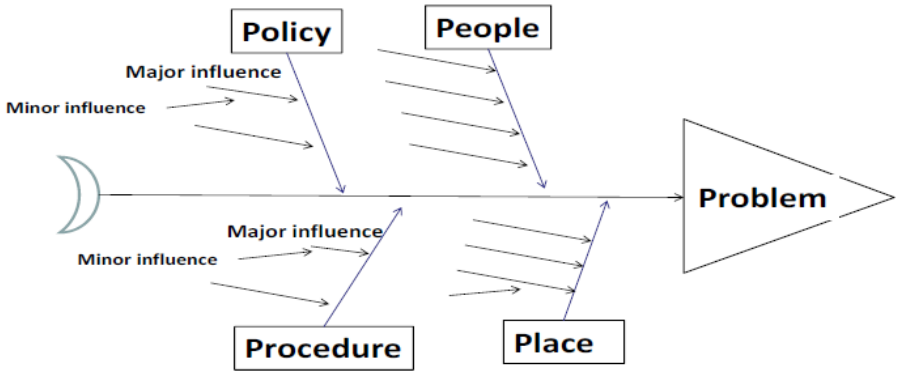


Figure 4: Fishbone Diagram

Five Why's

Another tool is the 'Five Why's" - this is used to identify the root cause. Doing five whys involves asking 'why' a problem exists and then continuing to ask 'why' after each answer until you identify a possible way of fixing the problem. For example: A hospital is trying to increase the number of women who start early breastfeeding within the first hour of birth. Using the five whys analysis the team was able to understand that the type of gowns that they are giving the women in labour makes it difficult for the women to breastfeed.

Continuing to ask 'why' helps the team identify why they have that type of gown (because no one had ever asked for a different type of gown) and to come up with a solution (ask the store keeper to order another type of gown for breastfeeding mothers).

Developing indicators:

Indicators help us to understand how we are currently doing in providing care and help us to plan what to do next. They also allow us to compare our performance with other health facilities that are working on similar problems. This can help to identify lessons that we can take from other facilities.

Process and outcome indicators

An indicator defines a rate/ratio or an event.
Process indicators measure actions that health workers or others carry out to achieve something. Process measures let you know if you are putting into practice the process or not. For example, the % of health workers washing their hands tells you how effective the team is at improving hand-washing behavior.

Outcome indicators measure what health workers are trying to achieve (clinical outcome). Outcome measures let you know if you are getting the result that you want. For example, the % of newborns with infection tells you if hand washing is working or not.

Qualities of a good indicator:

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

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

A) How to measure:

Who will you count? (numerator)	x 100	
Out of whom will you count? (denominator)		

Discuss and keep a record of the following:

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

Here is an example of a good indicator. It specifies the numerator, denominator, source, who is responsible for data collection and frequency of data for review.

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

Plotting data over time:

Time-series chart

A good way to review data is to plot it on a time series chart (or a run chart). Time-series charts allow you to see how the data are changing over time. A time-series chart has the following components:

- A clear title
- Well-labelled x and y axes
- The x or horizontal axis represents time. This is the time period that you are using to review your data.
- The y or vertical axis represents the percentage performance of the indicator. It is usually from 0 to 100%
- It is also important to annotate on the chart the time points when you introduced specific change ideas so that cause – effect relation is clear.

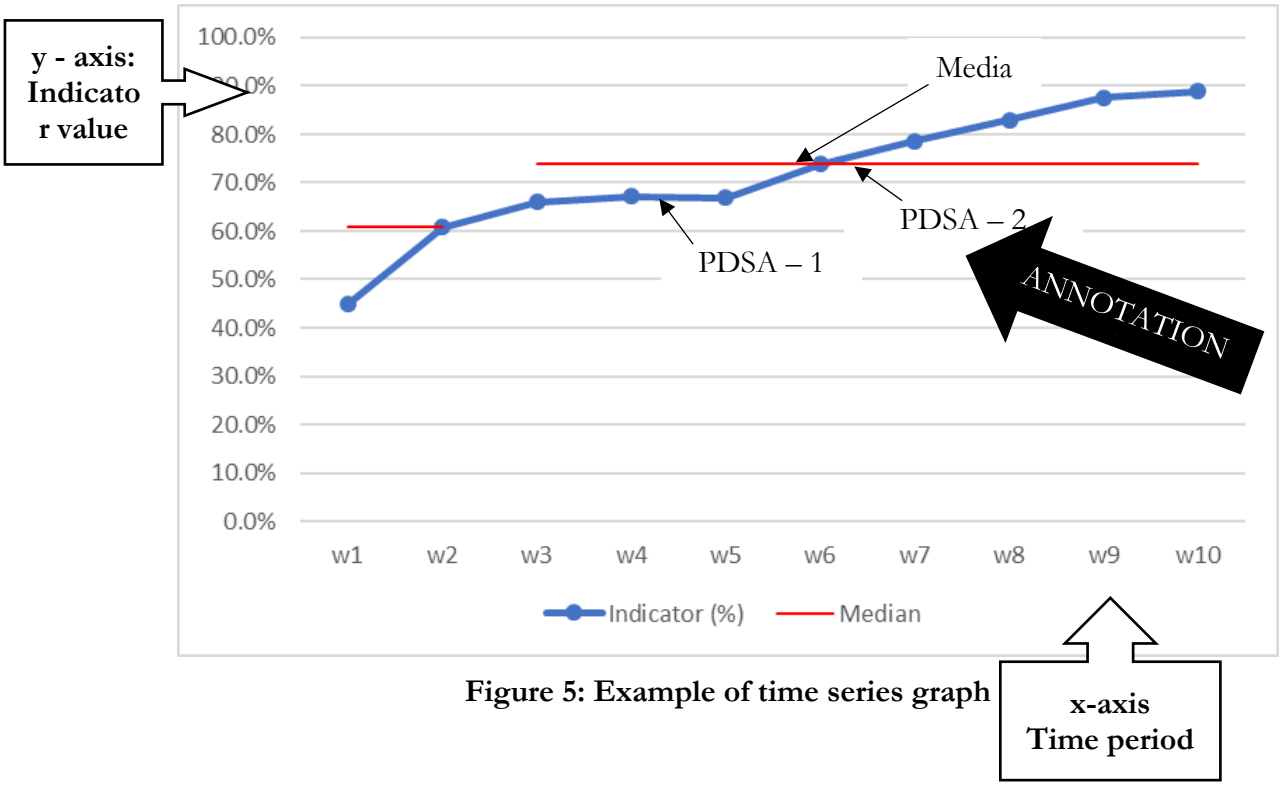


Figure 5: Example of time series graph

Start with documenting data as follows:

Table 3: Data recording for indicators

Day/Week →	1	2	3	4	5	6	7	8	9	10
Numerator										
Denominator										
%										

➢ **Record data and document findings from the graph:**

- Brief explanations for any notable trends in the graph:

- *Notes on the Graph:* Write down any additional comments you may have about the data
- *Notes on other observed effects:* Please write here any effects (positive or negative) you are currently observing because of the quality improvement effort such as comments from patients, changes in your performance or motivation, improved efficiency, or the survival story of a sick patient. You may use your notes to tell the complete story at the next learning session(s).

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

Learning Objectives:

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

Develop changes:

To find a solution for the identified problem the health facility team needs to:
Identify some changes (ideas) that they think will work in their situation

- Ask your **team**.
- **Based on the analysis** what changes can we make?
- **Why** will this change result in an improvement?
- **How** will it work?
- **What will we expect** to see because of this change

Review the possible change ideas if these are important for patient care and are likely to be effective and feasible at their workplace.

- Organize changes according to **importance and practicality**
- Test **one change at one** time
- Test the idea/s to learn if these work and to adapt them for your setting, as required

There may be many solutions that can be explored, but teams may choose to focus on solutions that are actionable within their sphere of influence in the short term, while advocating for more long-term systemic change. There are several types of changes that you can make in your health facility (Table 4).

Table 4: Some of the main categories include:

Category	Description	Examples
Improve knowledge or skills	Training or standards	Teach about the importance of skin-to-skin care to keep babies warm
Eliminate waste	Stop doing useless or harmful things	Have equipment closer to hand to reduce time getting it
Reassign tasks	Change who does what	Share work between staff members
Reorganize tasks	Do tasks in different order or different location	Start skin to skin and dry babies before cutting the cord

Improve patient relationship	Listen to what patients want	Learn from mothers how they would like care to be provided during delivery
Reduce variation	Do things to make work more standard	Triage new admissions in the labour room

Testing the change idea:

It is rare that any change will work perfectly the first time. It will usually need some adjustment to work in your setting. Because of this, it is important to test the new ideas to learn how they work and to adjust them.

The PDSA cycle is very useful for this. PDSA stands for: Plan, Do, Study, Act. These are steps to take when testing a new idea:

Plan –you decide how the change idea will be implemented.

Do – carry out the change

Study – the team reviews whether the desired change has been carried out as planned; what they learned from the test; whether it was a success or a failure based on the collected data

Act – the team decides what to do next depending on the experience and result of implementing the change idea.

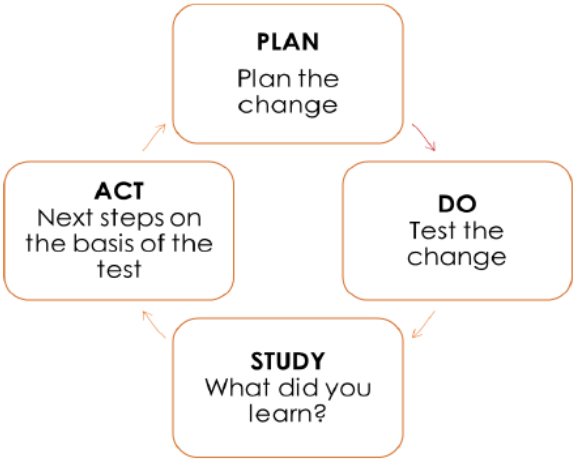


Figure 6: PDSA cycle

Planning a test:

It is important to emphasize that a team can do small scale PDSA cycles very quickly.
The team should discuss and document the details for:

- What change idea will you test
- Who will make the change
- Where will this test be done

- When will the test be started
- For how long will this test be done
- How will we know whether this test happened as planned
- What do we expect to learn from this test?

Do the test

In this step the assigned persons in the team tests the change as per the plan developed in the previous step. Often things do not happen as planned. It is important in the 'Do' step to document any challenges or deviations from the original plan. Ensure you document all the change ideas tested by your team at a single place like a QI Register or similar. Mention if some, or all changes were effective or not.

Listings can be made with following key headings (for reference).

Tested Changes: In the space below, list all the changes that you are testing leading to improvement aim.	**Start Date:** DD/MM/YY	**End Date** (if applicable) DD/MM/YY	**Effective? (Yes/No)** Was there any improvement registered?	**Comments:** Note here any potential reasons why the change was or was not effective; also indicate any change in indicator value observed related to this change

Study the learning from the test

After testing the change, you need to think about:

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

Act – Take action based on how the test went

After studying the results of implementation, the team will decide to:

- **Adapt the change** – if it has not fully succeeded, make some modifications, and implement again
- **Adopt the change** – if it works perfectly make sure everyone in the health facility uses this change
- **Abandon the change** – if it does not work at all or makes things worse so stop doing it

Testing Changes

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

No QI project will reach its aim with only one PDSA. You will need to do multiple PDSA's depending on your analysis and identified causes and change ideas.
Example:

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

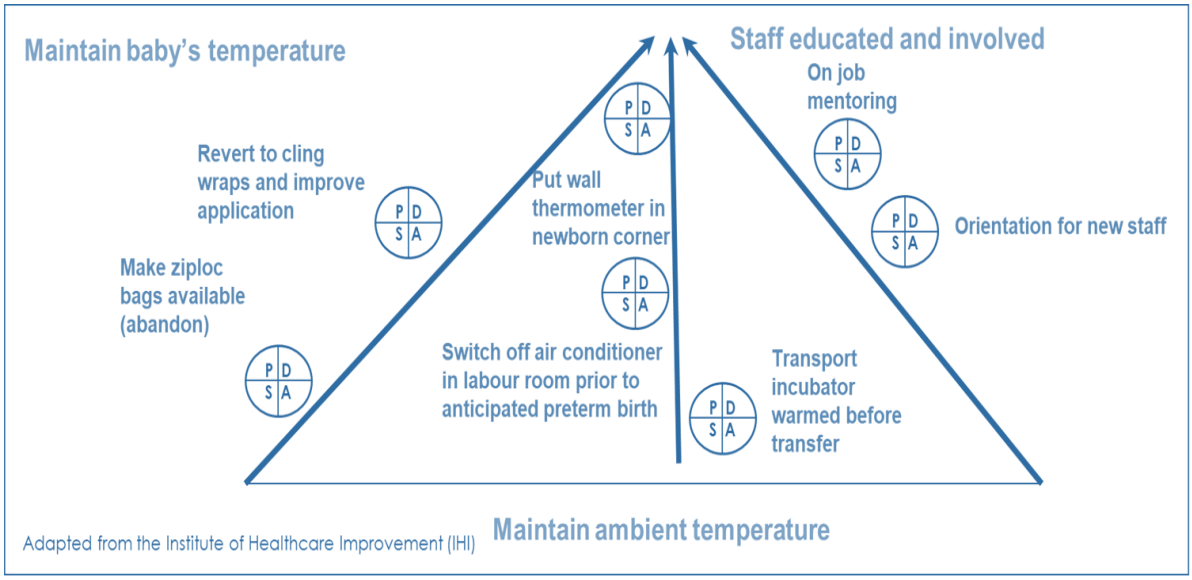


Figure 7: Example of different change ideas with aim statement: Reduce severe hypothermia in newborn babies by 50% in 3 months

In this example multiple change ideas were tested to reduce hypothermia in newborn babies. Some of these change ideas were abandoned (Ziploc bags), some were adapted or adopted. Try to test one change at a time. The changes in the illustration can happen at different times in the health facility.

Once you have identified a successful change idea by doing PDSAs you can then 'implement' the change across the unit or ward or health facility.

In quality improvement the term 'implement' refers to applying a successful change idea to a larger scale. You should only implement changes that have been shown to be successful in PDSA's.

While testing changes	While implementing changes
• Few people are involved → less resistance • Rapid cycles → take less time • Support needed low: Testers do not yet intend changes to be permanent • Tolerance for failure is high: A failed test is an opportunity to learn • Low certainty that the idea will work	• More people involved → expect more resistance • Longer cycles → More time, people, resources needed. • More support needed from all levels • Tolerance for failure is less • Implement only those changes that have been tested and show improvement in indicators

Step 4: Sustaining improvement

Learning Objectives:

1. Build enthusiasm, motivate team, recognition by certificates and celebration
2. Share the results and successful projects widely
3. Make policy with new ways to work
4. Hardwire the gains by making system change

Once you have found successful solutions that work it is important to take some concrete steps to make sure that they are sustained in the health facility. The specific actions that can be taken to sustain improvement are:

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

To ensure that a change is sustained one must ensure that it is a system change and not just a minor tinkering of the process (Tinkering is reacting to the problem rather than looking for the root-cause. It usually relates to trying to get health care workers to change only their immediate behavior rather than changing the system so that it becomes a norm for them to provide good quality care).

- **It is important to think of sustainability from the beginning. If the changes that you have tested require hard work and make things more burdensome for the staff or patients then they will not be sustained over a long time.**
- **Changes that make things easier and better for the staff and for the patients are likely to be sustained.**
- **Leadership support is important to sustain the gains and their support may be needed to make the new way of working the norm across the unit/facility.**
- **Although skills to improve care at the frontline are the cornerstone for quality improvement, we need to over time develop structures and systems at an organizational level to support quality improvement work and make things easier for the QI teams at the frontline.**

KEYS TO SUCCESS

- The most important way to experience a successful quality improvement project is with a SMART aim.
- Also, there can be no improvement if you do not carry out what you plan! So do the work and carry out your project.
- Do not try to do everything alone, the success of quality improvement depends on teamwork. Form multiple teams in the health facility so that they can learn and support each other.
- Keep seniors informed about your work and seek guidance from any available QI experts. There is lots of information online on quality improvement to build your own knowledge
- Document your work in word or PowerPoint in a timely manner so that you are later able to share it with others. Display your successes prominently in your unit / ward to motivate your staff and team members.
- Manager of the health facility should continuously encourage the health care team to improve quality of care by rewarding people who are involved in QI efforts and giving them opportunities to share their work.
- A champion is someone who takes ownership and leads the QI initiative in the health facility or in the health system. Focus on the big picture. The point is not to mechanically pick aims, do fishbone exercise, draw charts, and undertake PDSA cycles but to ensure best health outcomes for the patients.

MUSQAN RIE - SAMPLE AIM STATEMENTS

- **RIE 1: Ensuring timely initiation of emergency treatment of sick newborns and children and making timely referrals.**
    - We aim to reduce the time required to initiate treatment of sick newborns in our unit from current ___ min. to ___ min. in next 6 weeks, starting from this date _____.
    - We aim to reduce the time required to refer a sick newborn to nearest SNCU from current ___ min. to ___ min. in next 6 weeks, starting from this date _____.
- **RIE 2: Improving breastfeeding, hypothermia (temperature maintenance), KMC practices in eligible neonates and developmental supportive care.**
    - We aim to reduce hypothermia rates in newborns admitted to our unit from current ___ % to ___ % in next 6 weeks, starting from this date _____.
    - We aim to increase the duration of KMC for all stable newborns in our unit from current ___ hours to ___ hours in next 6 weeks, starting from this date _____.
    - We aim to increase the percentage of babies admitted to our unit who are appropriately nested from current ___ % to ___ % in next 6 weeks, starting from this date _____.
    - We aim to increase the rate of early initiation of breastfeeding (within 1hr of birth) in all stable babies born in labour room of our health facility from current ___ % to ___ % in next 6 weeks, starting from this date _____.
- **RIE 3: Ensuring improvement in infection prevention practices and reduction in Hospital Acquired Infections (HAIs)**
    - We aim to improve compliance to correct segregation of red bin wastes / yellow bin wastes of BMW in our unit from current ___ % to ___ % within next 6 weeks, starting from date _____.
- **RIE 4: Improving documentation and record management practices. This RI event must include timely recording and updating of records and data.**
    - We aim to reduce the pendency of updated records in online SNCU system of all admission / follow-ups of our unit from current ____ days to ____ days within next 6 weeks, starting from date _____.
- **RIE 5: Ensuring implementation of clinical protocols such as rational use of antibiotics, oxygen, fluids, etc.**

- We aim to reduce antibiotic usage for admitted newborns in our unit using the current FBNC guidelines from current ____ % to ____ % within next 8 weeks, starting from date _____.

- **RIE 6: Providing respectful care and improving engagement of mothers and families in newborn care and enhancing parents' and families' satisfaction with the care, given in the facilities.**

  - We aim to improve the involvement of mothers during daily clinical rounds from current ____ min. to ___ min. within next 6 weeks, starting from date _____.

  - We aim to improve the patient satisfaction score from mothers & family members of admitted newborns, from current ____ (score) to ____ (score) within next 6 weeks, starting from date _____.

Note: *Please note that the above aim statements are to be used as a guide by the NBSU staff to develop their own aim statements as per their contextual needs. Assigned mentors for each NBSU will be assisting the staff in this regard.*

FREQUENTLY ASKED QUESTIONS (FAQS)

Q1. What is meant by quality of care?

Based on several definitions in the literature, the WHO definition of quality of care is "the extent to which health care services provided to individuals and patient populations improve desired health outcomes." To achieve this, health care must be safe, effective, timely, efficient, equitable and people-centered.

Q2. What is the difference between quality improvement and quality assurance?

Quality assurance (QA) ensures basic functions of a healthcare delivery system. QA determines whether the healthcare being delivered is following predefined standards. Many of the interventions such as having policy, standards, guidelines, adequate human resource, equipment, and infrastructure are important quality assurance parameters. Quality improvement (QI) is about changing behaviors, approaches, and systems to maximize the quality of care that patients receive. Quality improvement moves beyond quality assurance and seeks to transform the culture within which healthcare is delivered. Quality improvement requires the systematic use of improvement models or tools, such as the Plan-Do-Study-Act (PDSA) cycle. Here are some more features or QA vs. QI:

Quality assurance:	*Quality improvement*
Driven by regulatory and accrediting agencies	Internally driven, empowers all personnel to make improvements
Tends to focus on finding who is responsible for errors	Focuses on improving the system and processes of care; seeks to prevent errors
Relies on inspections to identify errors	Relies on improving processes
Periodically monitors quality	*Continuously* strives to improve quality
Management/leadership: Top down	Management/leadership: Shared responsibility with involvement of people at the point of care
Maintain a predefined level of quality	Continuously improving quality

Example: You want to make sure that everyone washes their hands on entry to a neonatal unit. Some illustrative standards to enable hand washing would be:

- Instituting a hand washing policy
- Ensuring there is a sink near the unit entrance
- Ensuring availability of soap and running water

Quality assurance assessment / accreditation will be done by assessors periodically to check if all these standards are in place. Having a policy and availability of soap, water and sink is necessary but it may not necessarily lead to the behavior of consistent hand washing by the staff/visitors. So, the staff at the unit would need to use quality improvement methods to continuously strive to ensure that more and more people who enter the neonatal unit wash their hands. Staff would review if there are processes that make it difficult for people to wash their hands; make certain changes in the process; engage stakeholders in adopting those changes; and would measure the progress of hand washing rates to track progress towards achieving the aim. Thus, maintaining the healthcare delivery system up to the pre-defined standards is quality assurance.

Understanding the processes of care (how the healthcare is delivered) and making such processes better continuously is quality improvement. Hence, QA and QI are interlinked and both are important to ensure the good functioning of a health care system.

Q3. Are quality improvement methods used to improve care only for maternal, newborn and child health?

QI methods can be used to improve any system, including any healthcare delivery system. Same principles apply everywhere.

Q4. Would quality improvement add to already overburdening data collection in our facility?

If thoughtful data collection is undertaken, there is no additional burden. Data-based decision-making is at the core of quality improvement methodology. All decisions must be based on evidence and any data collection in the system should generate information for taking actions. It is advisable to start with existing data but if nothing exists data collection should be started soon as possible as data are the backbone for any improvement initiative.

Q5. Why do we need to use quality improvement methods when our clinical interventions are already based on scientific evidence?

While evidence-based medicine/public health tells us what interventions will work, quality improvement methods will tell us how to adapt the process of care to our own context to improve compliance to evidence-based guidelines and make such guidelines work in your setting.

Q6. We have many problem areas in our facility. Should we start multiple projects for each one of those?

It is wise to prioritize the problem areas and start with only one or two projects initially. Start with a simple, feasible improvement activity with rapid turnaround time and take up more projects as the team builds their understanding of quality improvement methods by applying them and gain confidence.

Q7. Our staff members just do not want to work. How will quality improvement approach help with that?

Quality improvement methods work by decreasing individual resistance and team building to change, encouraging data-based decision-making, improving communication among staff. All these, put together, increase motivation levels among staff. In any organization it is hard to get everyone to join improvement initiatives, but once you start others will get convinced and join the movement. Once other people see how things have become better (based on the data) using quality improvement approach they will get interested and curious to learn and adopt too.

Q8. Will quality improvement help us in getting accreditation? How is quality improvement different from accreditation?

Quality improvement will not directly help in accreditation. Accreditation is a voluntary one-time compliance to prescribed standards (Quality Assurance) while Quality Improvement aims at ongoing improvement in specific service areas. However continuously doing quality

improvement at a facility can make it easier for the facility to meet and perhaps in some areas even surpass the accreditation requirements.

Q9. Do we need to have a designated person for doing QI work in our facility?

Not necessarily. Quality as an embedded culture among all staff is preferable compared with having a designated person for quality. But often you need a local champion who can quick start the improvement projects and provide some extra support to frontline staff who are doing the quality improvement work.

Q10. Do we need continuous trainings on quality improvement for facility staff?

Initial training and handholding support is required for facility staff, once they learn the basics of QI and have executed one or two projects on their own; no more formal trainings are required. There are several online resources from where anyone interested in quality improvement can continue to build their knowledge base. The main learning will come from doing projects on the ground.

Q11. Do improvement initiatives create additional work for facility staff?

QI does not require much extra time; you can manage it during your routine work. QI helps to improve your routine work outcomes and, in some cases, you may in fact be able to reduce your workload. By applying quality improvement, you can bring efficiency into the system by reducing wastage of time and resources.

Q12. I am working hard and trying my best, why should I use QI?

Quality improvement is a management approach that helps to solve system problems together in a team. Even if you are working at your individual best, the system where you work may not be working to its maximum potential. This is because very few people work to their best in each system. QI will help to involve more people within the system to work together and will improve the performance of the system overall, which in turn will give benefit to all stakeholders. In other words, quality improvement is a broader approach to improve the performance of the system as a whole and not just an individual.

Q13. Does QI require extra resources?

To the best of our ability and creativity improvement should be done with the help of existing resources without any significant additional support from outside. Quality improvement helps us to realize that by reorganizing day-to-day work we can get better results within the same resources. However, commitment to learning and practicing quality improvement is a must.

RESOURCES

1. MOHFW, Govt. of India. Newborn Stabilization Unit Training - Participants' Module. Child Health Division. 2020. PDF
2. MOHFW, Govt. of India. MusQan Guidelines for Ensuring Child Friendly Services in Public Health Facilities for Community Health Centers & District Hospitals. 2021. Complete MusQan Guidelines & Assessment Tools for CHC & DH.
3. MOHFW, Govt. of India. KMC & Optimal feeding of Low-Birth-Weight Infants - Operational Guidelines for Programme Managers. Child Health Division, 2014. PDF
4. Child Health Division, MOHFW, Govt. of India. Navjaat Shishu Suraksha Karyakaram (NSSK) Resource Manual. 2020. PDF
5. WHO, Regional Office for South-East Asia. Point of Care Quality Improvement Learner's Manual; 2020. License: CC BY-NC-SA 3.0 IGO. PDF

Other Resources for QI related information

NQOCN COP Website: https://www.nqocncop.org/
NQOCN COP Website is a repository of not only COP activities but also on various aspects of QI, including blogs by patients, healthcare professionals, health managers, etc., resources on how to publish in international peer reviewed journals, advance content on data analysis and expert views on various aspects of QI.

NQOCN COP YouTube Channel: Scan and access to QI sessions conducted by NQOCN with the QI experts across the world.

PART E: ANNEXURES

POCQI Worksheet (English)

Date: _____ **Facility Name:**_____

1A. Prioritizing a problem:

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

1B. Prioritized Problem: _____

1C. Forming a team (incl. all stakeholders) & allocating roles to members (viz. leader, communicator & data recorder):

1D. Write a smart aim for the problem identified:
We aim to …… in

……..…….. from …….. to

…… over ……. weeks/months.

2: Root Cause Analysis Using following tools - Fishbone, process flow & 5-why's

A. Fish Bone: *Fill the most relevant causes for your identified problem in the fish bone diagram below*

Place	Procedure	Problem
People	Policy	

B. Process flow diagram (using oval, rectangle & diamond box with arrows)

C.Asking Whys (*5 Whys for reaching the root cause of your problem) You may use this tool if you want to reach the depth of your problem)*

Q1.
A1.
Q2.
A2.
Q3.
A3.
Q4.
A4.
Q5.
A5.

D. Data review record

Please record your data in a tabular format in this space

3. Write down 5 change ideas after doing the ROOT CAUSE ANALYSIS which your team feels will solve the identified problem *(stay away from people and policy related change ideas)*

A. Change idea	**Why do you feel it will work**
1:	
2:	
3:	
4:	
5:	

B: Planning the first PDSA Cycle *(for testing change ideas in small steps)*

P: Plan:

- Who will do it?
- What will he/she do?
- When will it happen?

- Where will it happen?
- Why will it happen?
- How long will this change idea be tested?

D: Do *(Actual conduction of the plan will be done at your facility when you return to your place of work)*

S: Study: W*ill be done at your facility when you return to your place of work*

- Is it feasible to do this change in your setting?
- Does it take you closer to your aim statement?

Remember*: Does your change lead to some unwanted side effects (document them)?*
A: Act:

- **Adopt**: Answer to both questions in "Check" are Yes. You will implement this in your system.
- **Adapt:** One or more answers in "Check" are No. *You, will need to test a new modified version of the change idea and run it through the PDCA process again.*
- **Abandon:** The answer to both or the first question in "Check" is No. *You have to give up this change idea and test a fresh change idea and run it through the PDCA process.*

4. Mention how you will ensure the gains from this QI project will be sustained in future.
(Write what actions the team can take to ensure that the new way of working continues in future)

POCQI Worksheet (Hindi)

तारीख: _____ नाम: _____

ओहदा: _____

उप-केंद्र / प्राथमिक स्वास्थ्य केंद्र /संगठन का नाम:_____

1A. बेसलाइन डेटा की समस्या और समीक्षा को प्राथमिकता देना

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

1B. प्राथमिकता वाली समस्या: _____

1C. एक टीम बनाना (सभी हितधारकों सहित) और सदस्यों को भूमिकाएँ आवंटित करना (अर्थात नेता, संचारक और डेटा रिकॉर्डर):

नेता	
संचारक	
डेटा रिकॉर्डर	
सदस्य	

1D. पहचानी गई समस्या के लिए एक स्मार्ट उद्देश्य लिखें:

हमारा लक्ष्य है ..... को

..... में ..... से

..... से ऊपर/ तक ..... सप्ताह/महीने में

2: मूल कारण विश्लेषण निम्नलिखित उपकरणों का उपयोग करते हुए - फिशबोन, प्रक्रिया प्रवाह और 5-क्यों

A. फिश बोन: नीचे फिश बोन डायग्राम में अपनी पहचानी गई समस्या के लिए सबसे प्रासंगिक कारण भरें

Place / स्थान सम्बंधित	Procedure / प्रक्रिया सम्बंधित	Problem / समस्या
People / स्वास्थ्य कर्मी सम्बंधित	Policy / नीति सम्बंधित	

B. ***प्रक्रिया प्रवाह आरेख (तीरों के साथ अंडाकार, आयत और हीरे के बॉक्स का उपयोग करके)***

C: 5 Why's/ 5 क्यों पूछना (5 कारण आपकी समस्या के मूल कारण तक पहुंचने के लिए) यदि आप अपनी समस्या की गहराई तक पहुंचना चाहते हैं तो आप इस उपकरण का उपयोग कर सकते हैं

Q1.

A1.

Q2.
A2.

Q3.
A3.

Q4.
A4.

Q5.
A5.

D: डेटा समीक्षा रिकॉर्ड

(*कृपया इस स्थान में अपना डेटा सारणीबद्ध प्रारूप में रिकॉर्ड करें*)

3. रूट कॉज एनालिसिस करने के बाद **5** परिवर्तन विचारों को लिखें जो आपकी टीम को लगता है कि पहचानी गई समस्या का समाधान करेगा (*लोगों और नीति संबंधी परिवर्तन विचारों से दूर रहें*)

A. परिवर्तन के लिए विचार	आपको क्यों लगता है कि यह काम करेगा
1:	
2:	
3:	

A. परिवर्तन के लिए विचार	आपको क्यों लगता है कि यह काम करेगा
4:	
5:	

B: पहले **PDSA** चक्र की योजना बनाना (*छोटे चरणों में बदलते विचारों के परीक्षण के लिए*)

P: Plan: योजना

- यह कौन करेगा?
- वह क्या करेगा/करेगी?
- यह कब होगा?
- यह कहाँ होगा?
- ऐसा क्यों होगा?
- इस बदलाव के विचार का कब तक परीक्षण किया जाएगा?

D: करें (जब आप अपने कार्यस्थल पर लौटेंगे तो योजना का वास्तविक संचालन किया जाएगा)

S: Study

S: अध्ययन: जब आप अपने कार्यस्थल पर लौटेंगे पर किया जाएगा

- क्या यह बदलाव आपकी सेटिंग में करना संभव है?
- क्या यह आपको आपके लक्ष्य विवरण के करीब ले जाता है?

याद रखें: क्या आपके परिवर्तन से कुछ अवांछित साइड इफेक्ट होते हैं (उन्हें दस्तावेज करें)?

A: Act:

- **अपनाएं:** यदि उपरोक्त दोनों प्रश्नों के उत्तर "हां" हैं। आप इसे अपने सिस्टम में लागू करेंगे।

• **अनुकूलन:** एक या अधिक उत्तर "नहीं" हैं। आपको, परिवर्तन विचार के एक नए संशोधित संस्करण का परीक्षण करने और इसे फिर से *PDSA* प्रक्रिया के माध्यम से चलाने की आवश्यकता होगी।

• **परित्याग करें:** दोनों या पहले प्रश्न का उत्तर "नहीं" है। आपको इस बदलाव के विचार को छोड़ना होगा और एक नए बदलाव के विचार का परीक्षण करना होगा और इसे दूसरे *PDSA* चक्र के माध्यम से चलाना होगा।

4. उल्लेख करें कि आप भविष्य में इस *QI Project* से होने वाले लाभ को कैसे सुनिश्चित करेंगे

Pre- & Post-Test Questions for NBSU Staff

The following questions will be used to assess the knowledge of NBSU participants on POCQI related concepts. These questions are based on POCQI Learner's Manual (WHO-SEARO, 2020).

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 behavior 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

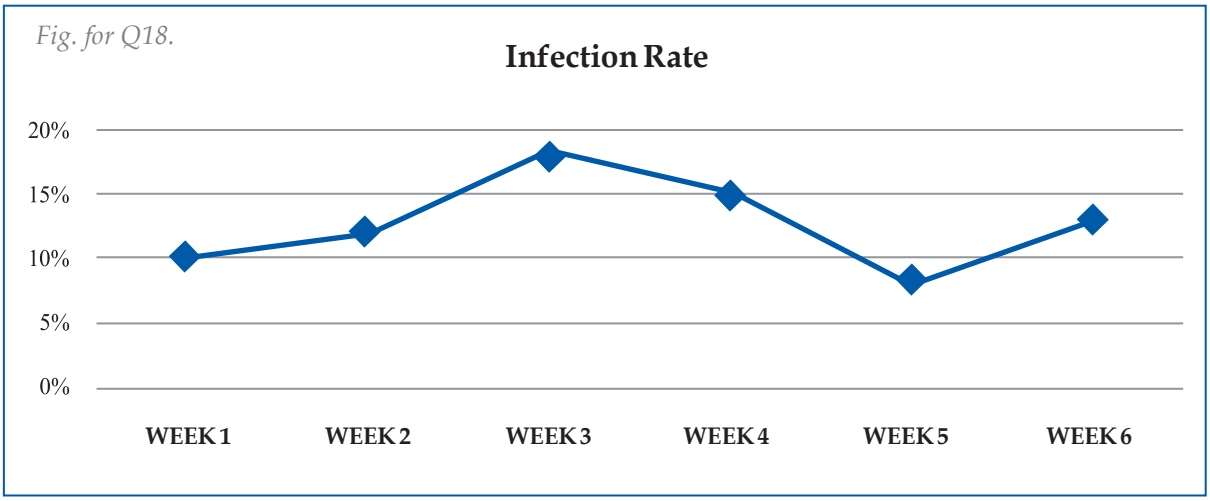
15. The doctor-in-charge of a newborn care unit starts to monitor infection rates. What type of measure is incidence of infection?
    a. Outcome measure
    b. Process measure
    c. Balance measure
    d. Ranking measure

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

Fig. for Q18.



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 analyze 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

Answer Key:

1. C	2. C	3. D	4. C	5. B
6. A	7. C	8. B	9. D	10. C
11. D	12. D	13. C	14. B	15. A
16. B	17. D	18. A	19. D	20. D

Reporting Format for QI projects

NBSU QI Project Reporting & QI Project Data Template

Date:	
Health Facility Name:	
Mentor:	

QI Project Detail:

Aim Statement:	

QI Team Details:

Name	Designation	Role in team
		Team leader
		Recorder
		Communicator

Problem analysis: (Please attach high quality images)

- **Fish bone**

- **Process flow**

- **5 Whys :**
  - **Q1**
  - **A1**
  - **Q2**
  - **A2**
  - **Q3**
  - **A3**
  - **Q4**
  - **A4**
  - **Q5**
  - **A5**

  (Add more questions if required. You can stop at 3 or 4 questions also if root cause is arrived at)

Change ideas:
Enlist the Change ideas here:

1. ..
2. ..
3. ..
4. ..

(Add more lines if required)

Process Indicator *(Add more indicators, if required):*
Name:

a) Numerator:
b) Denominator
c) Calculated Value:

Outcome Indicator *(Add more indicators, if required)***:**
Name:

a) Numerator:
b) Denominator:
c) Calculated Value:

PDSA Table: Please type relevant details only

PDSA Number (*Duration with Dates of start and end*)	**Plan and Do Details** *(Who, what, when, where was planned and what was done exactly)*	**Outcome** *(Adopted/ adapted/ abandoned)*

Results (includes Time series graphs using "*QI project data sheet*"):
(Please mention the how much improvement has occurred with respect to your aim statement and if your team could achieve the aim statement)

Updated Process Flow (if Applicable):

Major Learnings:

1. ..
2. ..
3. …
4. ..

Major Challenges:

- ..
- ..
- ..
- ..

QI project data sheet:

Facility Name:	Department: NBSU				Mentor's name:				Aim Statement:		
Time --> (day/week/month)	1	2	3	4	5	6	7	8	9	10	11
Process indicator - 1:	*Please mention the process indicator here like the example, e.g. Percentage of 'X' actvities perfo*										
Numerator: _____ *(Mention the numerator e.g no. of "X" activities performed)*											
Denominator: _____ *(Mention the denominator e.g total admitted patients in ICU)*											
Value in %age	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Process indicator - 2:											
Numerator: _____											
Denominator: _____											
Value in %age	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A

NBSU QI project data sheet.xlsx

Click on the excel icon to open the sheet or scan the QR code

Key Clinical Skills required for NBSU

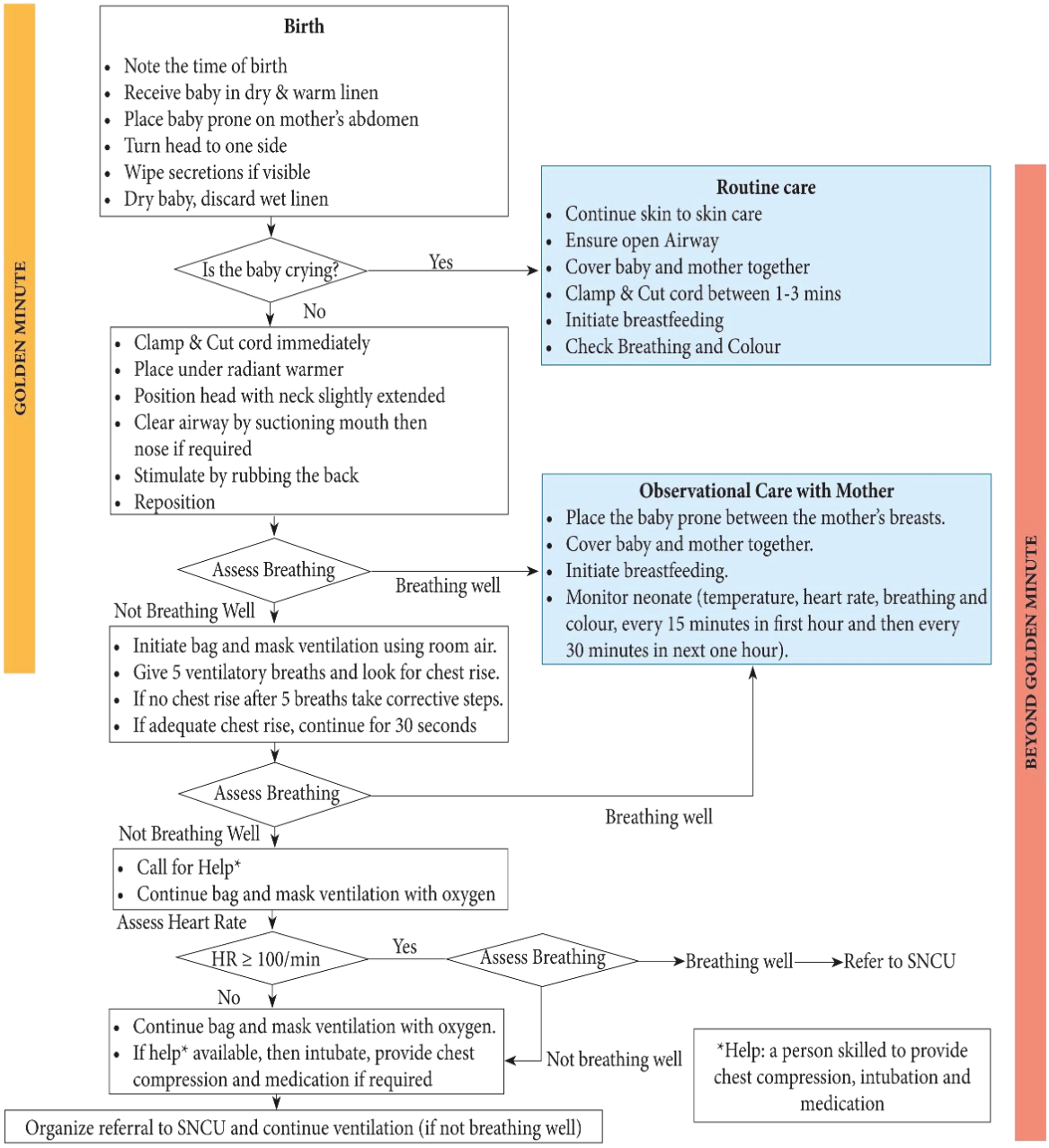
1. Emergency triage of new born
2. Management of a newborn with emergency signs
3. Use of radiant warmer
4. Newborn resuscitation
5. Oxygen therapy in new born
6. Umbilical vein catheterization
7. Measuring oxygen saturation using pulse oximeter
8. Use of glucometer
9. Measuring temperature of a newborn
10. Management of severe hypothermia
11. Use of phototherapy unit
12. Management of neonatal seizures
13. Orientation on breastfeeding
14. Management of Sepsis in new born
15. Kangaroo Mother Care (KMC)
16. Technique of expression of breast milk and spoon/paladai feeding
17. Feeding with oro-gastric tube
18. How to clean self-inflating bag
19. Hand washing
20. Personal protective equipment (PPE)
21. Segregation of bio-medical waste and their disposal

PART F: POSTERS on key topics for NBSU

Handwashing

Source: *Child Health Division, MOHFW, Govt. of India. Navjaat Shishu Suraksha Karyakaram (NSSK) Resource Manual. 2020.*

Algorithm for Neonatal Resuscitation



Source: *Child Health Division, MOHFW, Govt. of India. Navjaat Shishu Suraksha Karyakaram (NSSK) Resource Manual. 2020.*

Identification of danger signs in a newborn

Danger signs in a baby suggest serious illness requiring immediate medical attention. These, therefore, should be explained to the mother before discharge and she should be advised to bring the baby to the facility, if any of the following danger sign is observed. The signs are elaborated as under:

- **Poor feeding:** May be a sign of sickness, hypothermia, hypoglycemia, or respiratory distress.
- **Respiratory difficulty**, apneic spells/attacks, or cyanosis: May be due to pneumonia, immature lungs, hypoglycemia, hypothermia, or any other serious illness
- **Undue lethargy:** May be a sign of sepsis, hypothermia, hypoglycemia, or respiratory distress.
- **Sudden rise or fall in body temperature**: Hypothermia needs to be diagnosed and managed according to the actual temperature, to prevent complications and eventual death. Fever may be due to high environmental temperature or at times due to serious infection.
- **Appearance of jaundice within 24 hours of age** or yellow staining of palms or soles, suggests pathological jaundice and needs immediate referral and treatment.
- **Failure to pass meconium within 24 hours/urine within 48 hours/**persistent vomiting/drooling of saliva or choking during feeding: May be due to surgical problem requiring urgent attention.
- **Excessive crying/seizures (abnormal movements of the body):** May be due to some sickness, hypothermia, hypoglycemia, or respiratory distress. The baby needs to be seen by a doctor immediately to treat any serious illness, including meningitis.
- **Bleeding from any site:** May suggest serious illness or may be due to Vitamin K deficiency, both need attention at a facility.

Source: *Child Health Division, MOHFW, Govt. of India. Navjaat Shishu Suraksha Karyakaram (NSSK) Resource Manual. 2020.*

Kangaroo Mother Care (KMC)

It is a special way of caring for low birth weight (LBW) babies. It improves their health and wellbeing by promoting effective thermal control, breastfeeding, infection prevention and bonding. In KMC, the baby is continuously kept in skin-to-skin contact by the mother and breastfed exclusively. KMC is initiated in the hospital and can be continued at home.

Benefits of KMC:

1. Temperature maintenance with a reduced risk of hypothermia
2. Increased breastfeeding rates
3. Less morbidities such as apnoea and infections
4. Better weight gain
5. Early discharge from the health facility
6. Less stress (for both baby and mother)
7. Better mother infant bonding.

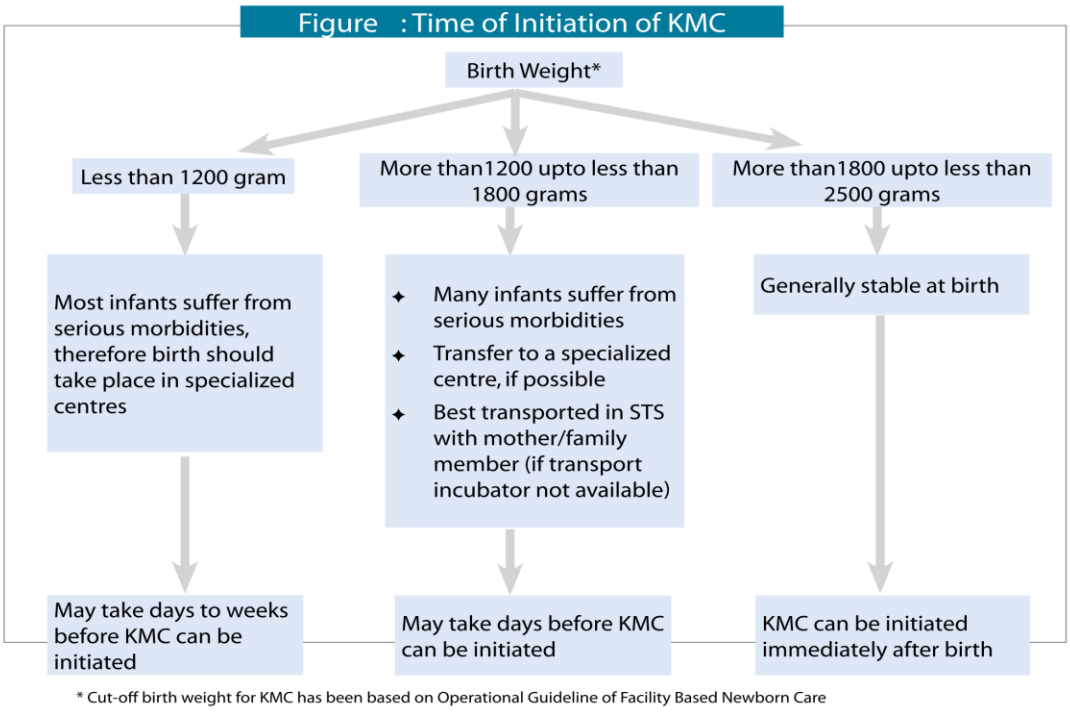
Components of KMC:

1. Skin to skin contact between mother and baby
2. Exclusive breastfeeding

Prerequisites of KMC:

1. Counselling, support and supervision by health care workers.
2. Support to the mother in the hospital and at home.
3. Regular follow up post discharge and access to health care providers is mandatory for safe and successful KMC at home.

Figure : Time of Initiation of KMC



* Cut-off birth weight for KMC has been based on Operational Guideline of Facility Based Newborn Care

Source: *Child Health Division, MOHFW. KMC & Optimal feeding of Low-Birth-Weight Infants - Operational Guidelines 2014.*

Preparations for KMC

Mother's clothing: KMC can be provided using any front-open, light dress as per the local culture. KMC works well with blouse and sari, gown or shawl. A suitable apparel that can retain the baby for extended period can be adapted locally.

Baby's clothing: Baby is dressed with cap, socks, jhabala, nappy/diaper.

Positioning baby for KMC

Duration of KMC

- Skin-to-skin contact should start as soon as feasible.
- Sessions that last < 1 hr. should be avoided because frequent handling maybe stressful for the baby.
- The length of skin-to-skin contacts should be gradually increased to as long as possible.

Father and Other Relatives can also provide KMC

Monitoring of KMC

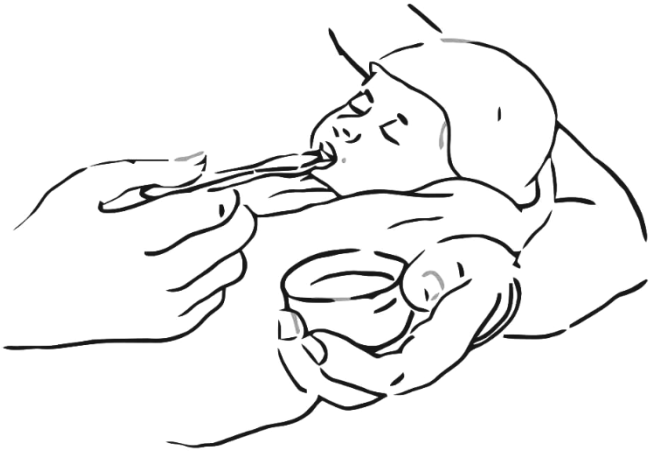
- Infants receiving KMC should be monitored carefully especially during the initial stages to ensure that the infant's airway is clear, breathing is regular, color is pink and s/he is maintaining temperature.
- Mother should be trained to observe her infant for danger signs, like-hypothermia, respiratory problems, feeding difficulty, change in colour during KMC so that she can continue monitoring at home.

Source: *Child Health Division, MOHFW. KMC & Optimal feeding of Low-Birth-Weight Infants - Operational Guidelines 2014.*

Feeding methods for Low Birth Weight (LBW) Infants

Paladai feeding

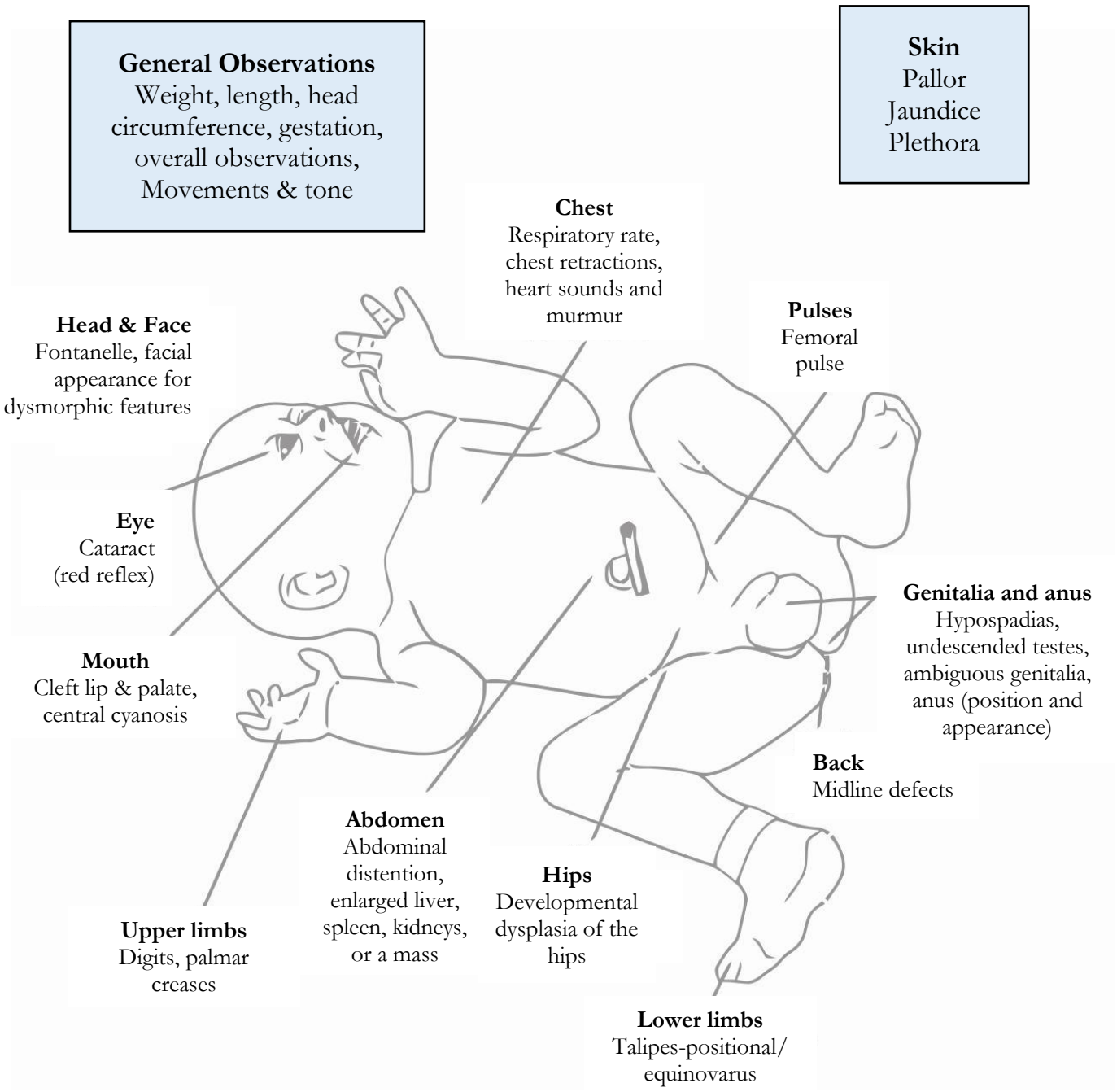
Spoon feeding



Cup feeding

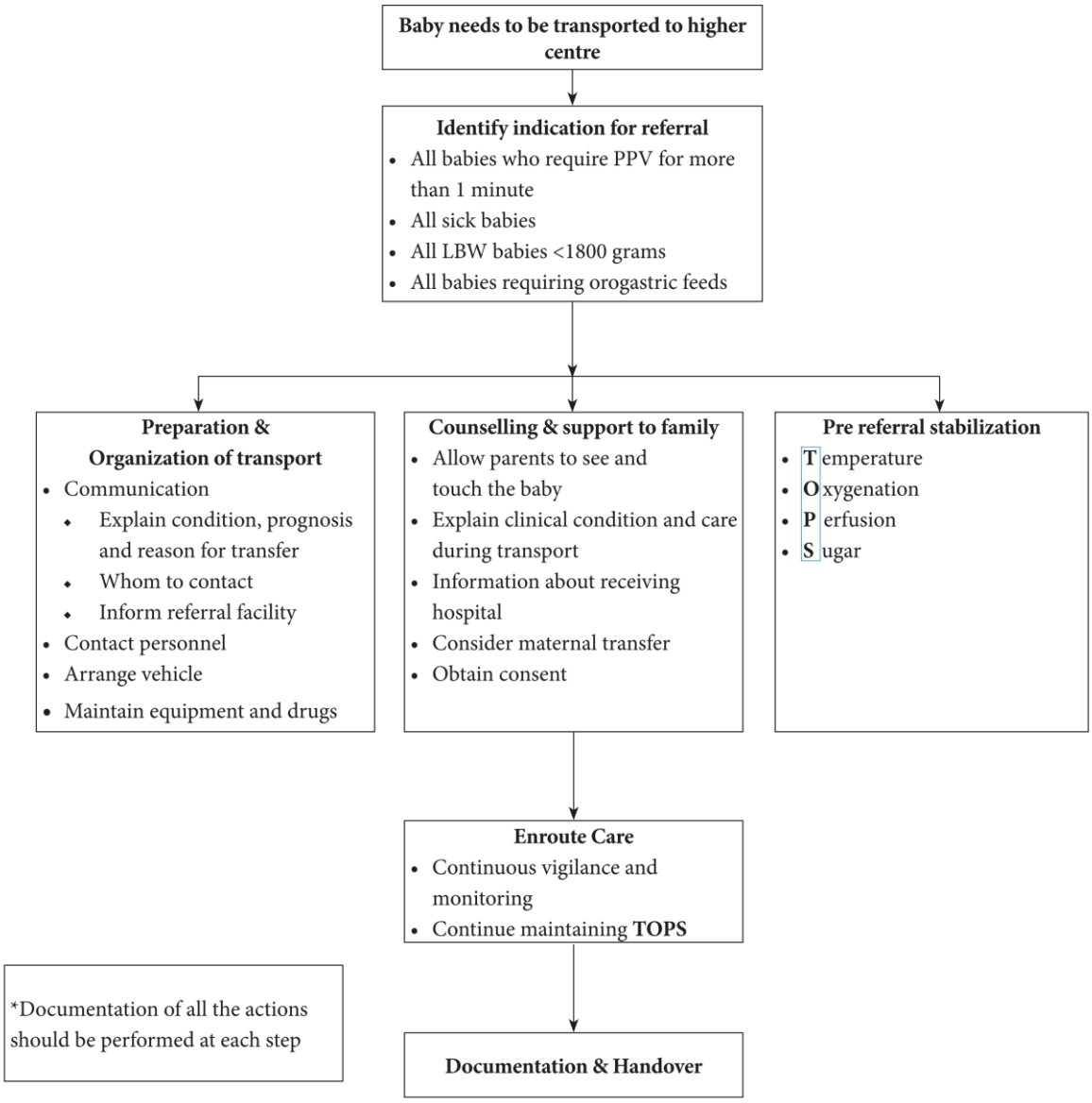
Source: *Child Health Division, MOHFW. KMC & Optimal feeding of Low-Birth-Weight Infants - Operational Guidelines 2014.*

Examination of newborn from head to toe for common birth defects



Source: *Child Health Division, MOHFW. KMC & Optimal feeding of Low-Birth-Weight Infants - Operational Guidelines 2014.*

Algorithm for care during neonatal transport



Source: *Child Health Division, MOHFW, Govt. of India. Navjaat Shishu Suraksha Karyakaram (NSSK) Resource Manual. 2020.*

Nationwide Quality of Care Network

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