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

POCQI: Point of Care Quality Improvement

Four simple steps to practice quality improvement at health facility level

Coaching Manual

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World Health Organization
Regional Office for South-East Asia

unicef
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USAID
FROM THE AMERICAN PEOPLE

World Health Organization
WHO Collaborating Centre for Training
& Research in Newborn Care
All India Institute of Medical Sciences, New Delhi

Acknowledgement

The Point of Care Quality Improvement package for improving the quality of care for mothers and newborns in health facilities has been prepared jointly by the South East Asia Regional Office of World Health Organization (WHO-SEARO), WHO Collaborating Center for Newborn, All India Institute of Medical Sciences (AIIMS) New Delhi and the United States Agency of International Development – Applying Science to Strengthen and Improve Systems Project (USAID ASSIST).

Of the many approaches to QI, resource materials from the following helped to conceptualize the need to create a simplified tool for learning the basics of QI at the point of care in health facilities. These include:

- USAID Applying Science to Strengthen and Improve Systems (ASSIST) Project. Bethesda, MD: University Research Co., LLC (URC): (1) Massoud MR, Ottosson A, Nsubuga-Nyombi T, Karamagi E, Stern A, Ismail A, Boguslavsky V, Livesley N, Faramand T, Holtemeyer J. 2016. Improving Health Care. *Training Participant Guide;* (2) Massoud MR, Ottosson A, Nsubuga-Nyombi T, Karamagi-Nkolo E, Stern A, Ismail A.2015. Improving Health Care. Case Study: Nutrition Assessment Counseling and Support (NACS); (3) Singh R, Singh M, Jha R, Sharma P, Livesley N. 2016. Improving Quality in Healthcare: A practical guide for health care providers. Technical Report. Published by the USAID ASSIST Project.

- Bose C, Hermida J. Eds. 2016. Improving care of mothers and babies: a guide for improvement teams. 2016. American Academy of Pediatrics and University Research Co., LLC.

- Materials developed by the Institute for Healthcare Improvement (http://www.ihi.org/Pages/default)

- Evidence based practice for improving quality (http://www.epiq.ca)

The POCQI package has been field tested in several settings in the countries of the Region, India (New Delhi, Kangra and Kolkata), Bhutan, Bangladesh and Maldives. The opportunity to field test the package and inputs received from participants and facilitators are gratefully acknowledged.

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Introduction

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

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

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

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

1. **Getting started**
   - Identify leadership and champions
   - Define roles at various levels

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

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

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

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

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

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

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

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

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

2. **Setting standards of care**
   - Develop guidelines based on standards
   - Develop an assessment tool based on standards and guidelines

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

4. **Improvement**
   - Create improvement teams to identify problems and implement solutions
   - Implement a collaborative approach to ensure adherence to guidelines based on standards of care
   - Train health providers (in technical and QI methods) to implement the quality improvement system

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

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

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

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

What is quality improvement?

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

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

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

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

Quality improvement (QI) is a management approach that health workers can use to re-organize patient care at their level to ensure that patients receive good quality healthcare. While QI primarily focuses on re-organizing care within the existing resources, it can also contribute to addressing related issues. For example, QI leads to more efficient use of resources that can solve at least some issues of scarcity. It could help to identify the most relevant gaps in knowledge and skills among healthcare workers and help to prioritise 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 and usually without requiring additional resources.

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

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

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

Such a quality improvement approach at health facilities will not only receive support but also active encouragement by the district and state health system within the national framework and action plan for quality of care led by the ministry of health in the country.

Point of care Quality Improvement – the POCQI Model

The Point of Care Quality Improvement or POCQI model has been designed to build capacity for quality improvement in the health facilities by teams of healthcare workers who will be suitably and actively supported by the management of the hospital/health facility and the district management for quality of care. Existence and availability of essential infrastructure for patient care is of course a pre-requisite to attempting quality improvement.

For this model a training package has been developed to build knowledge and skills of front line health workers to use quality improvement approaches to solve problems in their health facilities and reliably deliver better care for mothers and newborns around the time of birth. The POCQI training package includes a Coaching Manual, a Learner Manual, a set of slides and other learning materials. Although the focus is on the care of mothers and newborns at the time of birth, the training package provides a generic approach for continuous quality improvement of health care that can be applied in other areas in health facilities such as sick newborn care and paediatric care.

The unique feature and strength of the POCQI model is that it offers a simplified common sense approach that has been tested successfully and helps bring incremental improvement in quality of care within the available resources and without many additional resources.

The POCQI model intends to offer a newer paradigm, beyond the hereto quite often followed approach of providing clinical training/coaching to health workers with the assumption that knowledge-deficit is the primary cause of poor performance and inadequate quality of care. The focus in this model is on team

building among the health workers at the health facilities and build their capacity to collectively decide, based on local data, a target that involves problem solving,and improving availability and efficient use of existing resources including time, essential medicines and equipment in order to achieve standardization of care for improving quality of care and patient satisfaction.

The underlying assumption for this approach is that healthcare workers want to ensure the best health outcomes for all their patients. The intentionally designed 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. Working together will ensure in the long run a movement towards continuous quality improvement with moving targets, from easy to change to harder to change process of care for ensuring patient satisfaction with the healthcare they receive. Any knowledge deficit that is identified by teams of healthcare workers would also get resolved by their own initiative to seek the required information and skills through traditional and modern sources.

The training package combines strong features of several packages including those prepared by USAID ASSIST, Institute for Healthcare Improvement (IHI), Helping Babies Survive and Thrive, and Canadian Evidence Based Practice for Improving Quality (EPIQ) that have been used successfully in a range of settings across several countries. The POCQI package has been field tested in several settings in countries of the Region and has been found to be acceptable and feasible to apply in health facilities for improving maternal and newborn health care.

Learning Objectives

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

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

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

1) Identify a problem with quality of care, forming a team and writing an aim statement to improve the quality
   - How to use existing data to identify a problem to be solved
   - How to form the right team to work on fixing the problem
   - How to write a clear aim statement for improving the situation

2) Analyze and measure quality of care
   - How to use tools for understanding processes of care and systems in their health facility
   - How using these tools can help identify possible solutions to address the problem and to reach your aim
   - How to choose indicators of process and outcome
   - How to use these indicators to track progress and measure improvement

3) Develop changes and test these to learn what works
   - How to develop ideas of change to address the problem and reach your aim
   - How to test if these changes are working by using Plan-Do-Study-Act (PDSA) cycles

4) Sustain improvements
   - How to embed successful changes into your system and sustain the quality level
   - How to engage and motivate teams to view QI as an important tool for providing better care

Course structure

- Most of the course consists of small group work using a Learner Manual.

- The Learner Manual includes a case scenario and exercises and discussion around the first three steps for quality improvement.

- Each step is introduced with a short presentation to provide and clarify the key concepts.

- On the second day, the groups use a QI project template to develop a QI project for their health facility and share their plans with the rest of the participants to get their inputs.

Organizing the Workshop

Whom to invite

This course is designed for front-line health workers who will use these skills in their day-to-day work to improve care. It works best when the health facilities send three or more staff members (nurses, doctors and other staff) who are involved in direct care for women and babies around the time of labour (childbirth). It is recommended to involve managers from these facilities right from the beginning so that they can understand the QI concepts and steps in the POCQI model and subsequently support the QI projects.

The number of people to invite will depend on the number of facilitators available. Ideally there will be one facilitator per group of 6-9 participants. A group of 32-36 participants and at least four facilitators generally works well.

The invite should clearly describe the objective that participants should be able to work as a team to complete steps of quality improvement. The ultimate goal being able to carry out quality improvement projects in their facilities.

Lead Facilitator

The lead facilitator is ideally a person who has knowledge about healthcare of mothers and newborns at the time of childbirth and basics of QI, facilitated at least two QI workshops and knows about the entire programme logistics. It is recommended that the lead facilitator must have completed at least two QI projects along with his/her team and must be proficient in coaching and conducting participatory training and be able to collate feedback for future improvement in the training workshop.

Group Facilitators

The experts who will be assigned the role of Group Facilitators should themselves have experience in using QI approaches to improve care for women and neonates, especially around the time of delivery. They should have good communication skills, strong inter-personal skills and a flair for participatory learning. Ideally,the facilitators should meet the previous evening to:

- Go through the profile of invited participants;
- Discuss the preparations of the workshop; and
- Distribute roles and responsibilities among themselves.

How to organize the room

Most of the workshop involves staff from each hospital/health facility working together in teams. Because of this, the room should not be set up conference style or around a single table. Instead, teams from one or more health facilities should sit together around one table It is a good idea to limit the group to 6-9 people on one table with one facilitator.

Training equipment and materials

- Computer
- Projector and screen
- Microphones, as required
- A whiteboard or flipchart with marker pens for each group around the table
- Highlighter and pencil for each participant
- Materials for any game activity if inbuilt in the course
- Name tags for participants and facilitators

Training documents

a. Each participant should have:
   1. Agenda of the workshop
   2. Learner Manual
b. Each facilitator should have
   1. Agenda
   2. Coaching Manual
   3. Learner Manual
   4. PowerPoint presentations for each step (for lead facilitator)
   5. PowerPoint presentation of the QI Project Template
   6. Video clip files
   7. Copies of workshop feedback form (one for each participant)

Model Programme of the workshop

A model programme for the two-day workshop is given below. Based on the expertise of the instructors and facilitators the agenda can be modified to include games and other activities to reinforce the concepts.

POCQI: Improving the Quality of Care for mothers and newborns in health facilities Quality Improvement Workshop Venue: Dates:		
Day 1 - QUALITY IMPROVEMENT STEPS		
Time	**Session**	**Purpose**
08:30 – 09:00	- Registration - Distribution of materials	
09:00 – 09:15	- Introduction to the workshop - Introductions of facilitators and participants	Overall plan, logistics
09:15 – 10:00	Case study - How a team addressed a problem and provided better care by implementing a selected change	Simple success story about QI to motivate participants
Step 1 - Identifying a problem, forming a team and writing an aim statement		
10:00 – 10:20	Presentation by lead facilitator	Share key concepts
10:20 – 11:00	Group work	Understand concepts
11:00 – 11:15	**Tea/Coffee Break**	
Step 2 – Analysing the problem and measuring quality of care		
11:15 – 12:00	Presentation by lead facilitator	Share key concepts
12:00 – 12:45	Group work	Understand concepts
12:45 – 13:30	**Lunch**	
Step 3 – Developing and testing changes		
13:30 – 14:00	Presentation by lead facilitator	Share key concepts
14:00 – 14:30	Group work	Understand concepts
Step 4 – Sustaining improvement		
14:30 – 15:00	Presentation by lead facilitator and Discussion	Share key concepts
15:00 – 15:30	Participants do the knowledge assessment exercise	Knowledge assessment
15:30 – 16:00	**Tea/Coffee Break**	

16:00 – 16:30	Feedback on knowledge assessment	Knowledge assessment
16:30 – 17:00	Introduction to work on Day-2 on own quality improvement project	Plan for Day-2

Day 2 - DEVELOPING OWN QI PROJECT	
Time	**Session**
09:00 – 09:30	Review of previous day and clarifications Overview and instructions for Day 2
09:30 – 10:15	**Step 1** - Group work using QI project template
10:15 – 11:00	**Step 2** - Group work using QI project template
11:00 – 11:30	**Tea/Coffee Break**
11:30 – 12:15	**Step 3** - Group Work using QI project template
12:15 – 13:00	Teams review their projects and prepare PPT for sharing in the plenary
13:00 – 14:00	**Lunch**
14:00 – 15:30	Teams share their projects with the whole group and get feedback (Plenary)
15:30 – 16:00	**Tea/Coffee Break**
16:00 – 17:00	Plan of action for the team
17:00 – 17:30	Feedback on Workshop

Role of the facilitators

Lead facilitators

There should ideally be one (or two) lead facilitators who will:

- Organize the workshop
  - The lead facilitator/s will ensure that the right people are invited, that the right people are facilitating, that the room is set up correctly and that the workshop progresses well
- Introduce
  - The lead facilitators will introduce the workshop and participants
- Keep time
  - The lead facilitators will help the groups keep time
- Presentations
  - The lead facilitators will do the presentations for each step (or delegate to a group facilitator) and facilitate presentations from the groups
- Distribute the tasks well in advance,who will do what, among the group facilitators

Group facilitators

The group facilitators work with the small groups of participants and help participants to understand the concepts. Their job is to give explanations, answer questions, lead the small group discussions, and help the groups keep time. The group facilitator does three things:

- Enhances learning
  - Makes sure that each participant understands what they are expected to do
  - Answers participants' questions and clear any confusions
  - Provides feedback on exercises and help correct any incorrect or incomplete answers
  - When the group is planning the project for their own facility, provides advice on what makes a good initial improvement aim, who should be on the improvement team and how to go about analysing the problem
- Motivates
  - Compliments people on giving correct responses/expressing views
  - Encourages all members of the team to contribute
  - Is positive about their ability to do this work at their health facility
- Manages
  - Makes sure that the group has everything it needs
  - Helps the group stay on time
  - Ensures everyone is engaged and busy with group work
  - Avoids distractions

If you do not have enough group facilitators

Each section in this manual will include tips for managing the workshop if you do not have one facilitator per group.

General advice for all facilitators

What to do:

- Be enthusiastic and positive

- Be attentive to participants' questions and needs

- Watch people's body language to see if people need additional help

- Listen to people's questions and discussions and help direct them rather than jumping to provide the 'right' answer

- Encourage the quiet members to participate

- Keep a check on timing and encourage the group to complete the task within time

- Be an observer rather than controlling the discussion

What not to do:

- Do not work on other things while the course is taking place

- Do not be rude or make people feel that they do not know anything

- **Do not lecture – the participants should talk more than the facilitators**

Day 1 – The Steps of Quality Improvement

Lead facilitators

Welcome everyone and begin by saying that on the first day all participants will work through the learner manual and learn the key elements of the four steps for quality improvement. Show the learner manual to participants. They should have received a copy each.

Introduction to the workshop

- Explain the objectives of the workshop: Use the points mentioned in the section "Learning Objectives"

- Explain briefly the overall plan for the next two days, logistics and ground rules

- Introduce other facilitators and participants

Narrate the Introductory case study

Narrate a case study of how a team of facility staff used QI methods to solve a problem at a health facility. The facilitator can use their own example of a simple successful QI experience or use the example in *Appendix 1: Case Study*. A complex case study or one that used complex tools should not be used. The case study should be used to emphasize the following:

- Each of the four steps in the POCQI model

- At least some of the changes the team makes involve changing processes of care and go beyond simply educating, training or instructing staff

- That this is a simple and common sense approach that can be undertaken at most places within the existing resources and without any significant additional resources.

Introductory presentations for each section

- Present to the whole group in plenary the four power point presentations to introduce each QI step.

Role of group facilitators

The group facilitators will help participants (hospital teams) on the assigned table to go through the Learner Manual and guide them as they work through the case scenarios and discussions. The facilitator will answer questions, provide guidance and encouragement and help all group members to participate. Specific guidance is provided in each section.

What to do if there are not enough facilitators

Ideally, there should be one facilitator for each group of 6-9 participants from hospital teams. If there are not enough, the course will still work but the lead facilitators will have to give some more direction before each small group session so that the groups know what is expected of them. The lead facilitator/s and group facilitators would move from table to table to supervise and facilitate learning and provide feedback.

STEP: 1 ✓

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

Step 1: Learning objectives

1) How to review data to identify problems

2) How to prioritize which problem to work on

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

4) How to write a clear aim statement

Step 1: Presentation by Lead Facilitator (Slide 1 to 12)

Present the slides 1-12 using the talking points provided with each slide. Inform the participants that these slides are available in the learner manual along with space to take notes.

<table>
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01

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

Steps in QI

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

→ Step 2: Analysing the problem and measuring quality of care

→ Step 3: Developing and testing changes

→ Step 4: Sustaining improvement

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

</td><td>

- Highlight that this course is designed to teach a new skill – how to use quality improvement methods to improve service delivery at the point of care in your health facility

- We will spend Day 1 working through the **four steps of QI** using a hypothetical example

- On Day 2 we will help plan an initial QI project that you can carry out in your facility

- The first step is to pick something specific to work on, form a team and develop a precise aim statement to guide your efforts.

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Step I
Learning objectives

You will learn

→ How to review data to identify problems

→ How to prioritize which problems to work on

→ How to form a team to work on that problem

→ How to write a clear 'aim statement'

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

- Review the learning objectives for the first step, together we will learn

  - How to review data to identify problems

  - How to prioritize which problems to work on

  - How to form a team to work on that problem

  - How to write a clear 'aim statement'

- Use the local data (from your work place) and identify problems related to quality of care. You may be able to identify several problems.

- Because QI is a new skill for many people it is important to think of the first improvement project as an opportunity for learning. Because of this, new teams should work on QI projects which:

  - Are easy to solve

  - Do not need many additional resources

  - 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

Identifying a problem to solve

→ **Data-based decision:** Review local health facility data and identify gaps related to quality of care

→ **Simple**, easy to fix & amenable to change

→ **Value** for patient outcomes

→ Does not need many **new resources**

→ **Short turn-around time:** early success is motivating

→ **Avoid long-term projects** initially

  ▶ Decreasing maternal mortality in a small facility:

  ▶ Decreasing hemorrhagic disease in newborn (vitamin K related): since onset is late follow up after discharge is required to capture this

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

Select your team

Look for volunteers who are:

→ Enthusiastic - they want to make changes

→ Involved - they are already doing the work that needs change

→ Influential - others people listen to them and they can get things done

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

- Once you have picked an aim, you need to pick a team of people who can work on this together.

- Team members should be picked based on how they can contribute to reaching the aim

- 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 will self – motivate

  ■ Involved – make sure a lot 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 are able to involve and influence other people

05

Select your team

Identify who should be in the team

➜ Need people from every level
  ▶ From all involved departments
  ▶ from administrators to cleaners

➜ Assign some key roles
  ▶ Leader
  ▶ Recorder
  ▶ Communicator

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

- Having a diverse team is good, you should have a wide range of people – 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) if a problem involves cultural or behavioural issues in clinical care.

- Titles and hierarchy should not matter

- You want people who understand the problem and have the ability to change how care is delivered

- It is also good to assign different roles:
  ▪ Leader – lead meetings, direct activities to achieve goals, represent the team Recorder - Record meeting notes
  ▪ Recorder: record meeting notes
  ▪ Communicator: communicates and liaison among members

06

Why is teamwork important for improvement?

→ Healthcare is provided by range of people in the hospital

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

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

→ Accomplishing things together increases the confidence of each member

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

- 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 a whole range of people 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

- Once your team is formed, jointly develop a precise aim statement that clearly states what needs to be achieved

- Review the characteristics of a good 'aim statement'. It should:

- Be linked to a particular patient group – e.g. newborns, women in labour

- Include what needs to change/be achieved

- Should be measureable and include a clear achievable target/goal: e.g. increase coverage from 20% to 80%

- Include a definitive timeline

07

Aim statement
Characteristics of a good aim statement

→ States a clear, specific aim

→ Linked to specific patient population

→ Should include a goal:

▶ Neither too difficult nor too long to achieve

→ Includes a solution

▶ Do not include possible, yet unproven solutions

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

SMART Aim

S Specific

M Measurable

A Achievable (but challenging)

R Relevant and recorded

T Timely

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

- When you develop an aim statement just think of the word SMART. Any aim you develop should be as per the SMART criteria:

- Review the SMART criteria from the slide

Aim statement

Problem: All babies are not dried immediately after birth

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

→ Who (which patients)- Newborn

→ What (the process)- Immediate drying using dried clean towel

→ How much (the amount of desired improvement)-from baseline rate of 60 % to 100%

→ By when (time over which change will occur)- within 4 weeks

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

Example 1: Go through the example of the aim statement and highlight how it has all the essential elements

Aim statement

Problem: Babies are cold at one hour following birth

We will reduce the percentage of newborns with low temperature(<36.5 C) from 50% to <10% within 6 weeks

→ Who (which patients)- Newborn

→ What (the outcome)-Hypothermia

→ How much (the amount of desired improvement)-from baseline rate of 53 % to <10%

→ By when (time over which change will occur)- within 6 weeks

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

Example 2: Go through the example of the aim statement and highlight how it has all the essential elements

- Discuss how the first aim statement is not specific (does not define what is meant by skin-to-skin contact), is not measurable (does not have a target) and does not have a timeline.

- The second one is good. It provides:

  ▪ a definition of what is meant by skin-to-skin contact

  ▪ a target – "improve by 25%"

  ▪ a timeline – "within 2 weeks"

Is this a good aim statement

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

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

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

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

STEP: 1 ✔

Small group work facilitated by the group facilitator

Group facilitator takes the participants through the learner manual.

Instructions: Case scenario part 1

- Participants to individually read **Case scenario part 1** in the learner manual (page 2).

- Explain that participants should review the data in **Figure 1**, answer the questions on the next page and write their answers in the space provided.

- They can do this exercise as a group or as individuals. If they do it as individuals, please encourage discussion in the group after everyone is finished.

- If the group does not have a group facilitator assigned to their table, ask them to raise their hand if they need a facilitator to come to them.

- Lead facilitators should move from group to group to oversee and support the group facilitator, as required.

Instructions: Discussion 1.1: Identifying the problem

- 'Process' is an action or activity that is done in healthcare. For example giving a medication, washing hands, transferring patients, etc.

- 'Outcome' is the result of the activities done in healthcare. Outcomes are what the health workers are trying to achieve (clinical outcome).

By improving processes of care (correct medications, hand washing, drying babies, timing of care etc.), we can improve the related outcomes of care. For example, a QI team may try to reduce the incidence of infection (an outcome) by improving hand washing (a process).

The answers for each question are:

What are the different processes of care and outcomes of care listed on the Birth Register shown in Figure 1 in the learner manual?

Processes of care	Outcomes of care
• Delivery route	• Apgar scores
• Uterotonic given	• Birth weight
• Immediate drying	• Temperature at 1 hour
• Delayed cord clamping	• Post-partum haemorrhage

Calculate the percent performance of three processes of care

Process of care	Performance
Uterotonic given	50%
Immediate drying	70%
Delayed cord clamping	80%

Calculate the percent performance of two outcomes of care

Outcome of care	Performance
Hypothermia at 1 hour	50%
PPH	20%

Instructions: Case scenario part 2

After completing Discussion 1.1, ask the group to individually read Case scenario part 2 and fill in the prioritization matrix.

Instructions: Discussion 1.2: Prioritizing the problems

Because the situation is hypothetical, there are no right answers to the matrix and numbers assigned by participants may vary from the sample given below. But it is clear that low birth weight, while an important problem, is hard to improve and you should steer the team away from trying to work on this. Emphasize that this matrix can be useful for getting consensus on prioritizing problems to work on. Group facilitator should use a flip chart to build consensus on the prioritization.

Sample of a prioritization matrix with hypothetical values. (1= Low; and 5= High)

Possible aim	Important to patient outcomes (1-5)	Affordable in terms of time and resources (1-5)	Easy to measure (1-5)	Under control of team members (1-5)	Total score (4-20)
Uterotonic given within 1 min	4	5	5	5	19
PPH management	5	3	3	4	15
Immediate drying	4	4	5	5	18
Delayed cord clamping	3	3	3	5	14
Decrease in low temperature at 1 hr <36.5 degree C	5	5	5	4	19
Decrease in low birth weight <2500 grams	5	2	5	1	13

Instructions: Discussion 1.3: Forming a team

After discussing what problem to solve, ask the group to move onto Discussion 3. Ask participants to identify from the case scenario who should be on the team that is trying to address the quality gap that they picked in Discussion 2.

You should use this discussion to emphasize the importance of having the right people on the team (people who are involved in actually giving care, people who are interested in fixing the problem and people who are influential enough to get other people involved as well). Ask participants who should be the team leader and why. Discuss the factors that make a good team leader. The facilitator should emphasize the importance of listening to all voices on the team (not just the most senior people) and involving them in identifying and fixing problems.

Some attributes of a good leader of a QI team include:

- Wants to improve care
- Values the input of others on the team
- Does not think he/she has all the answers
- Gives team members authority/permission to try new ideas to improve care
- Is good at communicating with others in the team and outside the team

Instructions: Discussion 1.4: Writing an aim statement

In this discussion, make sure that participants learn how to write a good aim statement that describes "what" they want to achieve, "who" are the people that they want to help, "how much" benefit they expect to achieve and "by when" they want to get the expected results.

Possible aim statements for the two problems identified are:

- 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 uterotonic medicine within one minute after normal vaginal delivery from 50% to 100% within 4 weeks.

As long as the team has all the essential elements their aim statement is good. There is no right answer about what the target should be or when the team should reach its target. Usually a timeline between 2 weeks and 3 months is appropriate for most QI projects. Less than 2 weeks is hard to achieve most QI aims and more than 3 months may be too long to sustain motivation for working on a problem. Also, the target should not be too low or too high – so a 5% reduction in newborn hypothermia is not ambitious enough; on the other hand eliminating post-partum haemorrhage is unrealistic.

Summarize Step 1

- After the groups have completed Discussions 1.1 to 1.4, ask for volunteers to give the answers for each of the concepts discussed in Step 1:
    - Examples of different processes and outcomes of care
    - Calculated percent performance of the processes and outcomes
    - The problems that they decided to work on
    - Team members
    - Factors that make a good team leader
    - An example of a good aim statement

STEP: 2 ✓

Analysing the problem and measuring quality of care

Step 2: Learning objectives

1) Tools for understanding processes and systems and how to use them

2) How using these tools can help identify possible solutions to reach your aim

3) How to choose indicators for process and outcome

4) How to use these indicators to track progress of improvement

Step 2:   Presentation by the lead facilitator (Slide 13 to 37)

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Steps in QI

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

→ **Step 2: Analysing the problem and measuring quality of care**

→ Step 3: Developing and testing changes

→ Step 4: Sustaining improvement

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

Now that you have selected a problem to work on, formed a team and developed a clear aim statement it is time to move to the second step:

Analysing the problem and measuring quality of care

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Step 2
Learning objectives

You will learn

→ Tools for understanding processes and systems of healthcare and how to use them

→ How these tools can help identify possible solutions to reach your aim

→ How to choose indicators for process and outcome

→ How to use indicators to track progress and improvement

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

In Step 2 you will learn how to identify the causes for the selected problem and to develop indicators to measure progress in reaching your aim.

Read the four learning objectives from the slide.
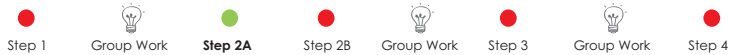
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Step 2: Analyzing and measuring quality of care

Cause & effect

Why might a problem be happening?

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

→ People

→ Places

→ Procedures (practices)

→ Policies

→ anything else

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

- 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 appropriately. The same applies when you are working on a problem at the level of your health facility – in clinic, ward, or out-patient department.

- We are going to discuss options for identifying possible causes of the problem that you have decided to work on. By broadening the understanding of all underlying main causes you will come up with appropriate solutions that are likely to succeed.

- 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

1.Fishbone

Get to the root cause of the quality issue(4P's)
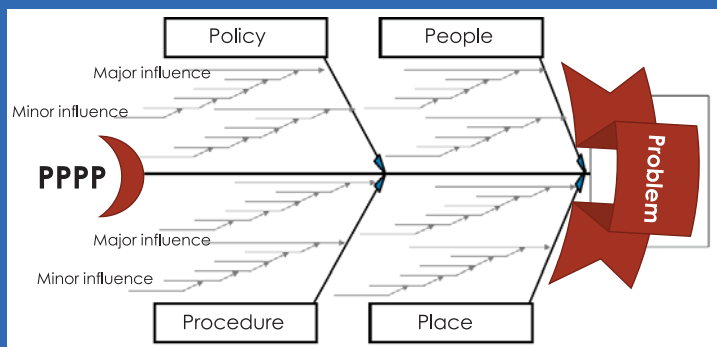
One way to determine the possible causes of the problem is to draw the Fishbone Diagram. (a completed diagram looks like the skeleton of a fish!)

- 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.

- 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.

- Now, for each of the contributing factors, identify possible causes. Show these possible causes as shorter lines coming off the "bones" of the diagram. Where a cause is large or complex, then it may be best to break it down into sub-causes, working from proximal to distal causes. Show these as lines coming off each cause line.

- By this stage, the diagram would show several possible causes of the problem.

- From here, the team should be able to develop actionable solutions. There may be many problems and 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

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

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2. "Five whys"

→ Mothers are not breastfeeding –Why ?

→ They feel uncomfortable taking their gown off – Why ?

→ The gown opens at back , so they have to take entire gown off to breast feed ,so they feel exposed . Why they have this type gown?

→ That is what store keeper orders .Why doesn't the store keeper order better gowns appropriate for breast feeding ?

→ No one has requested him to do that

● Step 1   ⚙ Group Work   ● **Step 2A**   ● Step 2B   ⚙ Group Work   ● Step 3   ⚙ Group Work   ● Step 4

- We are going to discuss options for identifying the root cause of the problem that you have picked up.

- "Five whys" is a tool for identifying 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

- Illustrate with the 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 make it difficult for the women to breastfeed. The design of the gowns is such that the women have to take them off completely to breastfeed – they are not comfortable doing this and so do not 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)

3.Pareto charts
Learning objectives
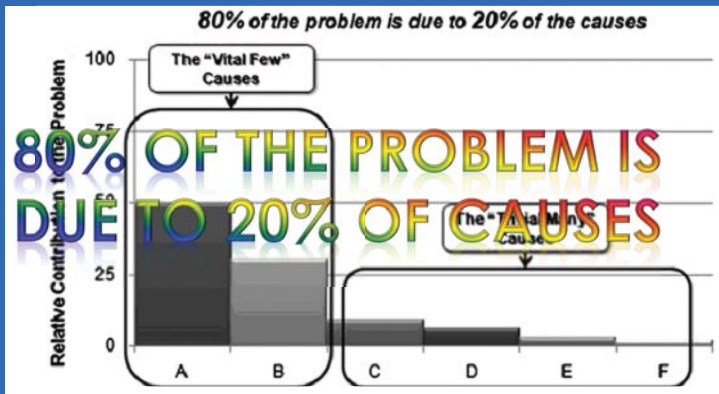
80% of the problem is due to 20% of the causes

The Pareto Principle states that 80% of a problem is due to 20% of the causes. This principle helps you to look for the causes that account for most of the problem and to prioritize the ones that you can address efficiently.

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

In this problem of medication errors, there are 10 reasons for the error but only three causes account for 80% of the errors. Working on these three causes will be more efficient than working on the other, less frequent causes.

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

Example: Medication error

Inadequate dilution
Shortage of staff
Wrong patient
Expired medicine
Weight of the patient
Improperly filled
Wrong label on vial
Misread handwriting
Inadequate supply/storage
Doctor error /prescription
0% 10% 20% 30% 40% 50%

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

Example: Medication error

80% of problems due to 30% of causes
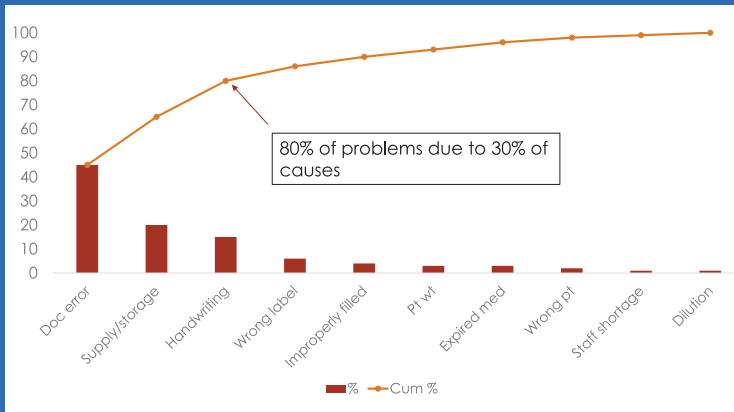
This is another way of displaying the Pareto Principle and determining which causes account for most of the problem.

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

4. Process flow chart

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

1. Decide the *beginning* and *end* points of the process to be flow charted

2. Identify the *steps* of the process as these are practiced at present

3. Link the steps with *arrows* showing direction

4. *Review* the chart to see whether the steps are in their logical order to achieve the end point efficiently: Is the order wrong, are some steps unnecessary?

● Step 1   ◇ Group Work   **● Step 2A**   ● Step 2B   ◇ Group Work   ● Step 3   ◇ Group Work   ● Step 4
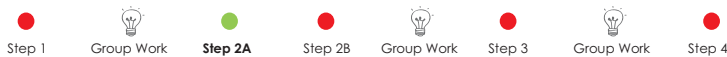
- The process flow chart is a tool for describing all the steps in a process. For example, how essential newborn care is provided immediately after the delivery. Flow charts can help identify problems in the process, for example:

  ▪ Steps that are being done in the wrong order

  ▪ Redundant 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

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How to create a process Flow chart

➔ One flow line out of step

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

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

Step

Option Yes

No

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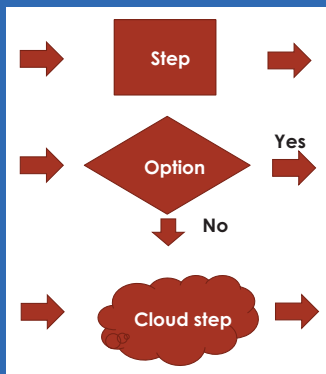
Step 1 | Group Work | **Step 2A** | Step 2B | Group Work | Step 3 | Group Work | Step 4

Different shapes are used to visualize the steps of a process (process mapping) in a flow chart:

• start and finish (oval)

• routine actions that always happen (rectangles)

• option points (diamonds) – these are steps that lead to different options:

  ■ Either someone makes a decision about what happens next (e.g. a triage step)

  ■ Or the care in that step does not always happen (e.g. only 50% of women get oxytocin in the first minute after delivery)

• unclear steps (clouds) these are used when you are not sure what happens

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• Emphasize that we have learnt four tools – Fish Bone, "Five Whys", Pareto Chart, and process flow chart. These tools can help identify appropriate solutions to address the main causes of the problem that you are trying to solve.

• **Show the Pareto chart video**

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Key tips

➔ Analysis helps to find out the root cause of problems

➔ Try to find few barriers that account for most of the problem

➔ Help the teams think about how re-organization can help with fixing the problem

➔ Video on Pareto chart

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

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Step 2: Analyzing and measuring quality of care

Measurement

➜ Determine the indicators which enable us to know whether we have made improvement

➜ Look at baseline data and information

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

We have used the diagnostic tools to learn what the most important causes of the problem are. We now need to develop indicators so we can learn if we are making progress in solving our problem

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What is an indicator?

➜ A measurement tool

   ▶ defines a rate/ratio or an event

➜ Used as guide to monitor and evaluate the quality of healthcare – Is it improving?

➜ A tool to make continuous improvement in quality of care

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

● Review the definition of an indicator from the slide

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Process and outcome indicators?

→ Measure of Process – actions that are taken in delivery of care

▶ Washing hands to prevent infections

→ Outcome ("in the population…")

▶ Incidence of infection in the patients

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

- There are two main types of indicators:
  - Process indicators measure actions that health workers or others carry out to achieve something
  - Outcome indicators measure what health workers are trying to achieve (clinical outcome)
- For example, a QI team may try to reduce the incidence of infection (an outcome) by improving hand washing (a process)

Process and outcome indicators?

→ If you don't measure process, how will you know

What led to improvement?

→ If you don't measure outcome, how will you know

If improvement has occurred?

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

- Ideally QI projects should measure both process and outcome because they give different information:
  - Process measures let you know if you are putting into practice the new process or not. For example, the percentage of health workers washing their hands tells you how effective the team is at improving hand-washing behaviour
  - Outcome measures let you know if you are actually getting the result that you want and that matters to patients. For example, the percentage of newborns with injection tells you if hand washing is working or not. It is possible that there are other processes that need to be addressed. If the hand washing indicator shows good performance and there is still a high rate of infection, the team would need to look for other causes of infection
- Emphasize that while you want answers to both of these questions you should look for the easiest way of getting these data. And only collect data that you are going to use.

Slide 28

Why do we need indicators?

➜ To measure the specific processes and outcomes

➜ The quantitative data can be used by teams and organizations for assessment and analysis of trend over time

➜ They allow us to make comparisons with other health care facilities

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

- 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.

Slide 29

- Indicator has to be clear and precise so that everyone can understand it in the same way and knows how to measure it.

- This includes having a well-defined numerator and denominator

- It is also important to decide as a team who should collect the data, where from and how data will be collected and how often you should collect and review the data.

Qualities of a good indicator

➜ Clear and unambiguous (teams will not confuse what is meant by a particular indicator)

➜ Identifies a clear numerator and denominator

Also important to decide

➜ Source of data and who is collecting it

➜ Frequency at which data would be collected

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

Key elements for putting indicators to use

→ Indicators should be linked to aims

→ Should be used to test change and guide improvement

→ Should be integrated into team's daily routine

→ Important to select a few key measures – don't overburden with endless data collection

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

Best use of indicators: Emphasize the key points on how to use the selected indicators

How to develop indicators:
Example 1: Explain from the slide

Developing indicators

Patients in hospital	Patient gets treated	Result
DENOMINATOR #women delivering in hospital	**PROCESS** %women receiving Inj Oxytocin within 1 min of delivering the baby	**OUTCOME** %women with post- partum hemorrhage

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

Developing indicators

Babies born	Babies receive care	Result
DENOMINATOR #babies born in facility	**PROCESS** %babies dried immediately %babies receiving skin to skin care at birth	**OUTCOME** % babies hypothermic at 60 minutes

Step 1 | Group Work | Step 2A | **Step 2B** | Group Work | Step 3 | Group Work | Step 4
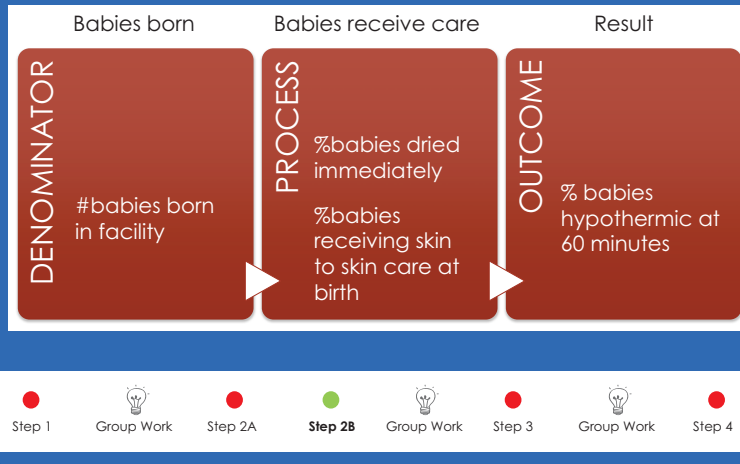
How to develop indicators:
Example 2: Explain from the slide

- 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.

- It would be good to highlight here that monthly data review is okay for outcome indicators but you should look at process indicators daily or weekly to speed up the learning process.

Example of good indicator

Indicator: The rate of PPH in women in the hospital

→ **Numerator:** Number of cases of PPH

→ **Denominator:** Number of women giving birth

→ **Source:** Labour room register in the health facility

→ **Person responsible:** Delivery room nurse

→ **Frequency:** Labour room register will be reviewed monthly

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

Plotting a time series chart

→ Title: Clear and well defined title that includes what and when

→ X and Y axis have clear scale and include indicator label

  ▶ X axis: Time period - days/weeks/months

  ▶ Y axis: measurement in %, proportion

→ Annotation of variables

→ Numerator and denominator values are shown

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

- A good way to review data (value) of your indicators is to plot the data on a time series chart (or a run chart)

- Time-series charts show data over time so that you can 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.

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Time-series chart:

Percentage of women receiving uterotonic within one minute
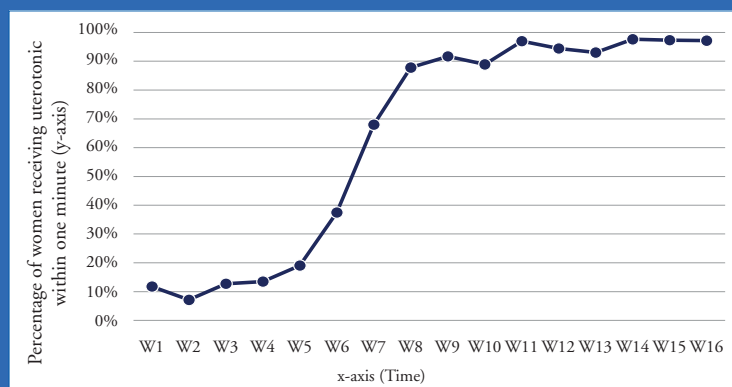
- Explain from the example of run chart in this slide. Something happened at week 5. Process of care was changed.

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

Key tips

➜ Looking at data overtime is crucial and more frequent measurement (daily or weekly) is better than less frequent(monthly)

➜ Only collect data what you are going to use

➜ If possible, try to use data that is already recorded in your health facility or that will be easy to collect

● Step 1 　💡 Group Work 　● Step 2A 　● **Step 2B** 　💡 Group Work 　● Step 3 　💡 Group Work 　● Step 4

Summarize the use of indicators:

● As far as possible, try to use data that are already collected in your health facility. This saves time and you can spend more time studying your data and thinking about what it is telling you rather than collecting it.

● Only collect what you are using. We are collecting data to use it to learn. If you are not using it or not learning from it – do not collect it. Save the effort!

● Remember the reason that we are collecting data is to learn. We will learn faster if we review the data frequently. Every day or every week is much better than every month. As mentioned earlier, outcome indicators can be monitored once a month.

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

STEP: 2 ✓

Small group work facilitated by the group facilitator

Instructions: Case scenario part 3

- Participants to individually read case scenario part 3 in the learner manual (page 8).

- Explain that in **Case scenario part 3** the team has decided to pick two aims: reducing neonatal hypothermia at one hour and improving uterotonic administration to the woman within one minute of delivery.

- The small group work will now focus on helping the team to understand what are the key factors contributing to babies being cold and women not receiving the uterotonic within one minute of delivery.

- Explain the figures in the learner manual one by one. Figure 2 - Flowchart of immediate post natal care of the baby; Figure 3 - Flowchart of care of the mother; and Figure 4 - Fishbone diagram for uterotonic (Inj. Oxytocin) administration.

Instructions: Discussion 2.1: Analysing a flow chart

In **Discussion 2.1**, ask participants to review the Newborn Care Flow chart. Make sure that they understand the meaning of the different symbols (shapes). Ask them to identify steps on the flow chart that could be making babies cold. Emphasize that the point of analysing is to find specific causes for problems that can be changed. In this example, there are many steps between delivery and putting the baby with the mother which could be making the babies cold. Some of these steps of care could be performed while the baby is in skin-to-skin contact with the mother.

Instructions: Discussion 2.2: Analysing a fishbone diagram

In **Discussion 2.2**, ask the team to review the maternal care Fishbone diagram. Make sure that they understand that the diagram has four large sections (policy, people, place and procedure); these sections they have smaller subsections coming of them. Help the team to identify that the problems leading to women not getting oxytocin are related to:

PLACE: Oxytocin ampoule/vial and syringes are kept in separate places

PROCEDURE: The usual procedure is to fill the syringe with oxytocin after the baby is born

These two factors mean that it is hard for the nurse/midwife to actually fill oxytocin into the syringe from the ampoule/vial within a minute of delivery.

After discussing the analysis of the problems ask participants to think about how they are going to measure their performance and move on to **Case scenario part 4 and Discussion 2.3**.

Instructions: Case scenario part 4

Team will discuss what indicators will they use to measure program.

Instructions: Discussion 2.3: Developing indicators

Ask them to write **an outcome measure for reducing neonatal hypothermia** and a **process and outcome measure for improving uterotonic administration**. Because the team in the newborn case scenario has not yet decided on the process to reduce hypothermia, they do not yet have a process measure.

Encourage discussion about the importance of reviewing data frequently (in days or weeks) for process measures so that you can learn quickly.

Please emphasize that improvement in the real world is not a linear series of steps like in this training. The steps are linked to each other and you sometimes need to go back to a previous step for better understanding of the situation.

Instructions: Case Scenario part 5

Instructions: Discussion 2.4: Plotting data over time

Ask the group to draw two time-series charts on the flip chart and make sure that they understand the basic components: 1) x-axis in weeks, 2) y-axis with the numerator of interest, 3) dots showing the level of performance, 4) lines connecting the dots, as shown in the below two figures.

Percentage of women receiving uterotonic within one minute
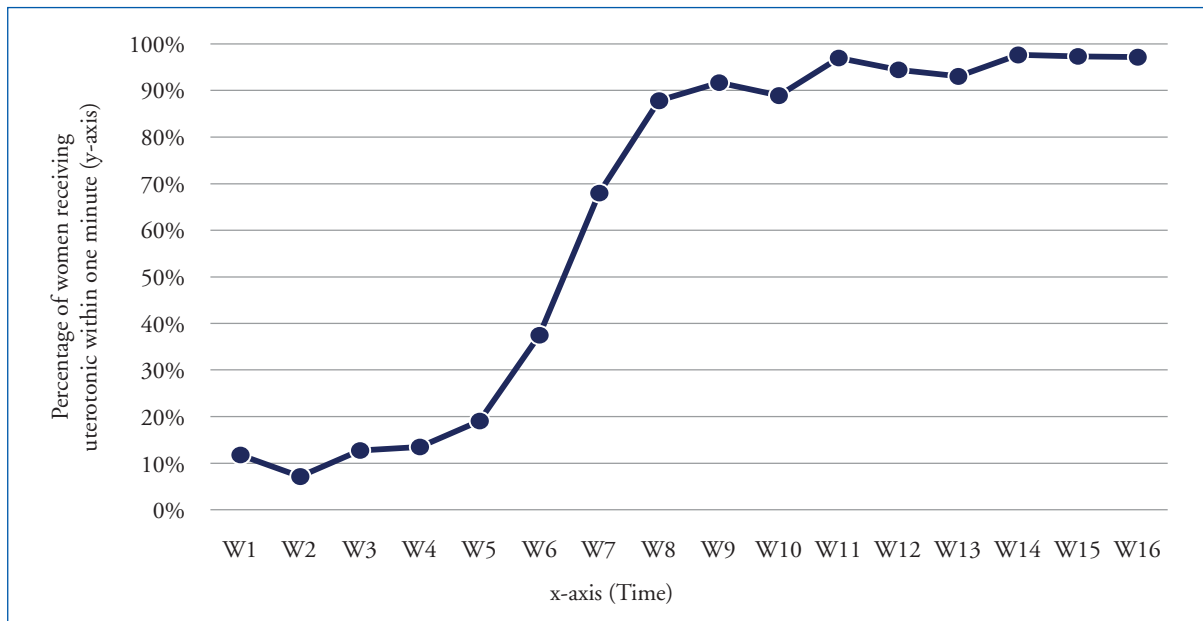
Percentage of women with post-partum haemorrhage
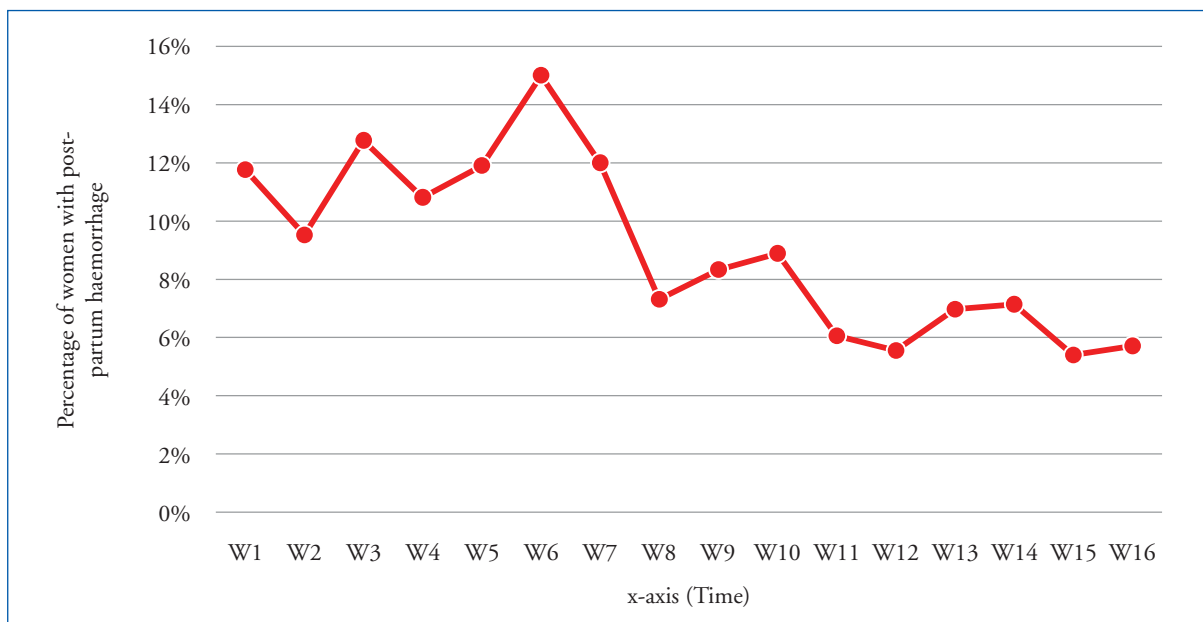
Summarize Step 2

- After the groups have completed Discussions 2.1 - 2.4 review the Step 2. Ask them:
  - What are some of the reasons for babies getting cold after birth?
  - What are some reasons for women not receiving Inj. oxytocin within 1 minute of delivery?
  - Examples of good outcome indicator for neonatal hypothermia and process and outcome indicators for improving oxytocin administration.
  - Ask one team to share their time series chart. Make sure to point out what has been plotted against the x-axis and y-axis as well as the data.

STEP: 3 ✔

Developing and testing changes

Step 3: Learning objectives

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

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

Step 3: Presentation by lead facilitator (Slide 38 to 54)

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

Steps in QI

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

→ Step 2: Analysing the problem and measuring quality of care

→ **Step 3: Developing and testing changes**

→ Step 4: Sustaining improvement

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

- We are at Step 3 now. By this time health facility teams have decided what they want to improve, formed a team, identified some of the causes for poor care and developed some measures to indicate how our project is progressing.

- After diagnosing the problem the team now must take action/s to correct it.

- This involves developing ideas about what to change to fix the problem.

- We will also discuss how to test these ideas in our own work place to learn if they work and to adapt them to your setting

Step 3
Learning objectives

You will learn

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

➔ how to test these changes at small scale using Plan-Do-Study-Act (PDSA) cycles

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

State the learning objectives from the slide

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

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

- Test the idea/s to learn if these work and to adapt them for your setting, as required

Develop changes

➔ Determine possible changes (interventions) that may lead to improvement

➔ Organize changes according to importance and practicality

➔ Test one change at one time

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

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Developing changes-Ask your Team

➜ What changes will we make ?

➜ Why will this change result in an improvement?

➜ How will it work?

➜ What improvement will we expect to see as a result of this change ?

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

When you are developing and reviewing the possible changes, it is good for the team to discuss:

- Based on what we learned from our analysis, what changes should we make?

- Why and how will this change solve the problem we identified in our analysis?

- What result do we expect to see in the process and outcome measures (indicators)?

There are several types of changes that you can make in your health facility. Some of the main categories include:

- Improving knowledge or skills of the health care providers – training

- Eliminate waste by stopping unnecessary treatments or steps of care – stop doing harmful or useless (even if harmless) practices

- Improve the patient relationship and communication - her experience of the care received – listen to what patients want

- Manage variation in the existing treatment and care practices – make work (process of care) more standard and predictable.

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Some categories of changes

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

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

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Some categories of changes

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

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

Examples of changes include:

- Improving knowledge or skills of health care workers – teach the importance of keeping babies warm and how to do skin-to-skin contact and other treatments.

- Eliminate waste: move equipment so that it is close at hand to reduce the time to access it for patient care

- Improve the patient relationship and communication: pre-delivery counselling for women to find out what care they would like during delivery

- Manage variation: establish the steps and practice triage of new admissions to the labour room so you can prioritise care and decide how to allocate resources; decide/adopt standard treatment protocols for common maternal and newborn conditions.

State the common steps in a plan to introduce the change idea in your practice at the health facility

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Plan the change
What will your team do ?

➔ Ask and document the details for:

- ▶ what needs to be done?
- ▶ who will do it?
- ▶ who will measure indicator?
- ▶ when will it be started
- ▶ when will result be reviewed ?

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

Testing the change

→ Test BIG changes on small scale

→ Test individual changes separately when possible

→ Negative results are opportunity to learn

→ Think about how conditions change over time (monthly, seasonal patterns, external variables)

| Step 1 | Group Work | Step 2A | Step 2B | Group Work | **Step 3** | Group Work | Step 4 |
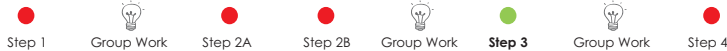
- The rationale of testing things initially at a small scale is that it allows you to know if it succeeds and gives you the confidence to practice at large scale and adopt more innovative changes in future.

- As much as possible, it is good to test each change idea individually.

- It is also important to highlight that some of your change ideas will not work. That is good. Testing on a small scale means that they will not do any harm and they are an opportunity for learning.

- It is good to test the change/idea in different working conditions to learn if the change always works, for example, testing on weekends or night time will let you know if changes will work when there are fewer staff.

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Test Changes

Adopt
Adapt
Abandon

Plan
Plan the change

Act
Next steps on the basis of the study

Do
Test the change

Study
Review the data
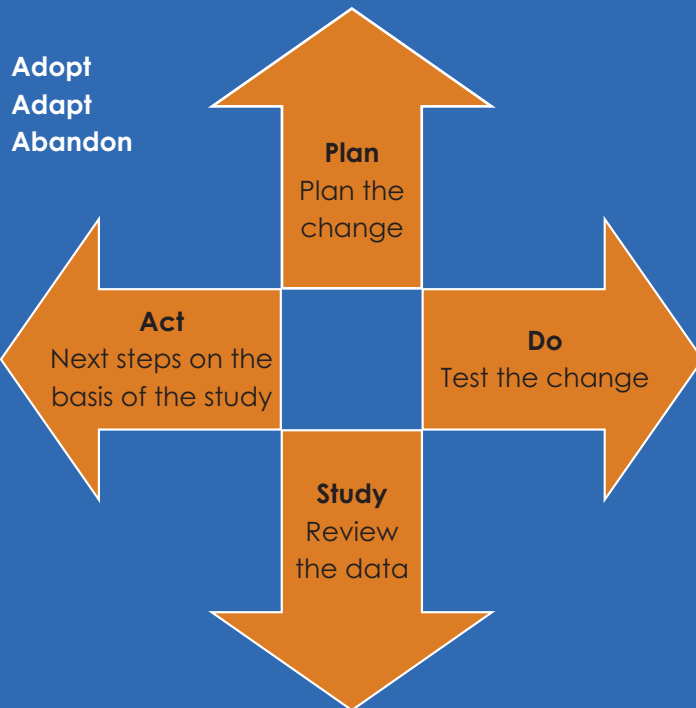
Step 1   Group Work   Step 2A   Step 2B   Group Work   **Step 3**   Group Work   Step 4

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 easier to fix problems when you test the new ideas to learn how they work and to adjust them to your setting

- 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 fully implemented; 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. It is important to emphasize that a team can do small scale PDSA cycles very quickly. For example, when someone is cooking and they decide to add salt and see if it tastes better they are doing a PDSA. Teams can do short PDSA cycles as well to learn how new ideas are working and to adapt them.

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Planning

➜ Describe

▶ What change will you test

▶ Who will make the change

▶ Where they will do it

▶ How long they will test

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

Describe the Plan step of the PDSA cycle:

Plan – the team decides:

● Who will test the change/new idea

● What they will do

● When they will do it

● What you want to learn from the test

Describe the Plan step of the PDSA cycle:

Plan

● Share the example from the slide

Do

● In this step the assigned persons in the team tests the change as per the plan developed in the previous step.

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Planning Example

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

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

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Study and act

→ After testing the change you need to think about:

   ▶ Is this feasible in our setting

   ▶ What else needs to be done so this change can happen

   ▶ Do we think it will solve the problem

→ After answering these questions the team will decide if they should:

   ▶ Adopt

   ▶ Adapt

   ▶ Abandon

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

- Study

   - The team reviews what they learned from the test:

   - whether it is feasible in our work setting

   - whether it was successful in addressing the problem as hypothesized by the team

- Act

   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

- PDSA cycles are also used to move towards making the change at a relatively larger scale and sustainable.

- When you are in the trial phase (pilot) the tests should be small, short and frequent.

- As you learn what works you can move toward the implementation phase with larger numbers.

- When you are trying to sustain a change (implement it) PDSA cycles are larger (because you want to see if it works across a wide range of people and situations e.g. in all units of the hospital).

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PDSA cycles – what next ?

Pilot phase

→ Few workers are involved

   ▶ less resistance

→ Rapid cycles

   ▶ take shorter time

→ Support needed low

   ▶ Testers do not yet intend changes to be permanent

→ Tolerance high: A failed test is taken an opportunity to learn

Implementation phase

→ Implement at scale changes that have shown definite improvement in pilot phase

→ Large number of workers involved – expect more resistance

→ Higher support needed

→ More time, people, resources needed.

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

Implementation

→ Making the change in the new standard process across the health facilities (unit/department)

→ Specific steps taken to prevent from slipping back to the old ways of working. (Hardwiring through job descriptions, protocols etc.)

→ System to keep an eye on key indicators to ensure improvement is sustained

→ Making the successful change permanent and consistent

●	💡	●	●	💡	🟢	💡	●
Step 1	Group Work	Step 2A	Step 2B	Group Work	**Step 3**	Group Work	Step 4

Implementing the change that led to improvement:

- We have to take care that the successful change is adopted by other units in the health facility/hospital since it is very likely to succeed, hence improving care across the facility.

- At the same time it should be embedded in the system so that it is adopted as a permanent practice.

- This will be discussed in detail in Step 4.

Key tips

→ Change ideas will improve care

1. They are right idea

2. Putting change in action

3. Adapting it to the local context

→ Testing changes as small PDSA cycles

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

Summarize the step 3:

- Remember that you are making changes to improve quality of care.

- Changes will lead to improved care if:

  - They are the right changes (you may have made the wrong diagnosis of the problem when you analysed it and therefore picked the wrong change)

  - They are put into action - if the team members including front line workers do not want to make the change or do not know how to implement and practice that change then the change will not work. It is crucial to involve front-line workers in all steps so that they help pick the right changes, and can then implement changes and sustain the practice if the change was successful.

  - They are adapted to the local context. Ideas from other settings may be good in theory but need to be tested to make sure that they work properly in the local setting and will many times need to be adapted)

- PDSA cycles are invaluable for making sure that:

  - You selected the right change

  - That the change is put into action after right planning

  - That the effect of the change is studied.

  - Changes that are successful are sustained and scaled up and those that fail are discarded

Multiple ramps of changes towards a single aim

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

Staff educated and involved

Maintain baby's temperature

On job mentoring

Revert to cling wraps and improve application

Put wall thermometer in newborn corner

Orientation for new staff

Make ziploc bags available (abandon)

Transport incubator warmed before transfer

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

Maintain ambient temperature

Adapted from the Institute of Healthcare Improvement (IHI)

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

- It is rare to succeed with doing one PDSA cycle per change idea

- Try to test one change at a time. The changes in the illustration can happen at different times in the health facility.

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

STEP: 3 ✓

Small group work facilitated by the group facilitator

- Explain that for Step 3 group work, there are two options. Teams can either choose to work on the Maternal Health Scenario (Scenario A) or on the Neonatal Health Scenario (Scenario B).

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

Instructions: case scenario part 6: Maternal Health Scenario

Ask participants to individually read **Case scenario part 6** and to discuss how the analysis tools helped them identify possible changes that could improve care. (page 17)

Instructions: Discussion 3.1: Improving uterotonic administration-change ideas

Ask them to list some possible changes to improve uterotonic administration. Encourage them to think why these changes could fix the problem.

Note: Many new improvement teams focus on training, management directives/orders and on individual performance as possible solutions. They are not able to pay attention to system problems and the process of care. There is no need to correct them if they identify the former since they are often important, but it helps them to think of system or process issues that could be redesigned or reoriented leading to improvement by improving the efficiency of the process of care often without additional resources.

This is also a good time to look back at the improvement team. If the people who will need to test the selected change in the delivery of care are not on the team, it would be good to add them at this stage. Emphasize the effect of just telling people to change their behaviour or practice in comparison to involving them in planning right from the beginning on how to change their practices.

Ask the group to read **Case scenario part** 7. In the case scenario, there are people in the team who have different opinions about whether the change will work or not. This happens in all teams at some point. Pros and cons for alternative approaches need to be discussed. Emphasize that testing new ideas (even if not everyone agrees that they will work) gives groups a way to avoid conflict – instead of discussing whether a change will work or not, the people who think it will work should try it out on a small scale to learn whether it is worth considering.

Instructions: Discussion 3.2: Testing changes

In **Discussion 3.2**, ask participants to plan the initial test. Things to highlight include:

- Because some of the group are sceptical, these changes should be tested on a small scale (just a few patients)

- The plan should explain "who" will do "what", "where" they will do it and "when", for example, Nurse A ("who") will test preloading the syringe with oxytocin when the woman comes into the labour room ("what") for all the women who come to the labour room for delivery during her next shift ("when") in the labour room ("where"). Similarly, Nurse B will test preloading the syringe at the start of her shift.

- The key idea is to initially undertake a PDSA cycle on a small scale to learn if the change is feasible. The team will collect information about how easy the change was and if there is anything else that they need to do to make the change easier. The focus should be on learning how to make the change better and easier.

A reasonable approach to designing a PDSA to one of the ideas would be:

Plan	What change will you make?	Pre-loading the oxytocin syringe when the woman comes into the labour room
	Who will test the change?	One of the enthusiastic nurses will test the change
	Where will the test take place?	In the labour room
	How will they test the change	The nurse will pre-fill a syringe when the woman comes into the labour room so that the syringe is ready and can be administered within one minute of delivering the baby
	For how long will the change be tested?	They want to see if the new way of working is feasible. They only need to do a couple of deliveries to learn if it is feasible before they decide to test throughout in one shift (8 hours)
Do		
Study	What do you want to learn from this test?	The team wants to learn whether there is enough time to do this when a woman comes into the labour room and where the pre-loaded syringes should be kept
Act		

Similarly, Nurse B will test preloading the syringe at the start of her shift.

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

After discussing the PDSA cycles, ask participants to read **Case scenario part 8** and start **Discussion 3.3** about what they should do after these PDSA cycles. Highlight that the initial test showed which of the changes had to be abandoned and which could be adapted further. The participants may have different ideas about what to do next but some good next steps would be:

1. To arrange for extra cold packs to keep the oxytocin safe in the syringes

2. To test different number of syringes to reduce wastage

Instructions: Discussion 3.4: Testing changes

Ask them to read Case scenario part 9. This describes how the team progressed from testing and adapting the new way of working on a small scale (one shift at a time) to making it the norm for all deliveries in the hospital.

How many changes has the team tested so far?

The team has tested three changes:

 Change 1 - Preload syringe when the woman enters labour room

 Change 2 - Preload syringe at start of shift

 Change 3 - Preload syringe when all previously pre-loaded syringes have been used

How many PDSA cycles have they done?

Change 1: Preload syringe when the woman enters labour room

 PDSA 1: this change did not work – they abandoned it

Change 2: Preload at start of shift

 PDSA 1: test in one shift – this test taught them that they needed another cold pack and five pre-loaded syringes is too many

 PDSA 2: in the next shift, they tested using three and getting the extra cold pack. This worked but they learned that they needed to label the date and time

 PDSA 3: in the next shift, they learned that sometimes three syringes were not enough; so they developed another change to support change 2

Change 3: Preload additional syringes once all previously pre-loaded syringes have been used

 PDSA 1: this worked well. This practice was introduced in all shifts (by all nurses)

Instructions: Case scenario part 6: Newborn Health Scenario

Ask the group to read **Case scenario part 6** and to discuss how the analysis tools helped them identify possible changes that could improve care.

Instructions: Discussion 3.1: Developing changes

Ask them to list some possible changes to reduce neonatal hypothermia. Encourage them to think why these changes could fix the problem.

Note: Many new improvement teams focus on training, management directives/orders and on individual performance as possible solutions. They are not able to pay attention to system problems and the process of care. There is no need to correct them if they identify the former since they are often important. But help them to think of a system or process issues that could be redesigned or reoriented leading to improvement by improving the efficiency of the process of care often without additional resources.

In particular, encourage participants to use the flow chart for reducing neonatal hypothermia to identify ways of reorganizing how care should be provided to the newly born babies.

This is also a good time to look back at the improvement team. If the people who will need to implement the selected change in the delivery of care are not on the team, it would be good to add them at this stage. Emphasize the effect of just telling people to change their behaviour or practice in comparison to involving them in planning right from the beginning on how to change their practices.

Ask the group to read **Case scenario 7.** In the case scenario, there are people in the team who have different opinions about whether the change will work or not. This happens in all teams at some point. Emphasize that testing new ideas (even if not everyone agrees that they will work) gives groups a way to avoid conflict – instead of discussing whether a change will work or not, the people who think it will work should try it out on a small scale to learn whether it is worth considering.

Instructions: Discussion 3.2: Testing changes

Ask participants to plan the initial test. Things to highlight include:

- because some in the group are sceptical, these changes should be tested on a small scale (in just a few patients)

- the plan should explain *"who" will do "what", "where" they will do it and "when"* (when should include the scale – for example, Nurse X (*"who"*) will test how easy it is to put the baby after birth onto the chest of the mother, dry the baby on the mother's chest, initiate breastfeeding and weigh the baby and give vitamin K after the first breastfeed (*"what"*) for all babies she delivers during her next shift ("when") in the labour room (*"where"*).

- the idea is to initially undertake a PDSA cycle on a small scale to learn if the change is feasible. The team will collect information about how easy the change was and if there is anything else that they need to do to make the change easier. The focus should be on learning how to make the change better and easier.

A reasonable approach to designing a PDSA cycle to test the new order of work would be:

Plan	What change will you make?	Change the order of activities after the baby is born (redesign the process)
	Who will test the change?	One of the enthusiastic nurses will test the change
	Where will the test take place?	In the labour room
	How will they test the change?	The nurse will try the new sequence of events: 1) put the baby on the mother's chest as soon as it comes out, 2) dry the baby on mother's chest, 3) cut the cord (delay to 1-3 minutes after birth), 4) encourage initiation of breastfeeding, 5) give vitamin K and weigh the baby after the first breastfeed has been taken
	For how long will the change be tested?	They want to see if the new way of working is feasible. They only need to do a couple of deliveries to learn if it is feasible so they decide to test in one shift.
Do		
Study	What do you want to learn from this test?	The team wants to learn if mothers like or dislike getting the baby on their chest immediately, if it is possible for the nurse to care for the baby on the mother's chest and if the nurses still remember to weigh the baby and give vitamin K before baby and mother go out of the labour room
Act		

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

After discussing the PDSA cycle, ask participants to read **Case scenario part 8** and start **Discussion 3.3** about what they should do after the first PDSA. Highlight that this initial test showed that most of the sceptic team members objections to the change were not factual (at least in the two deliveries that were part of the test) and that the way the equipment in the labour room was currently placed made the new way of working more difficult. The participants may have different ideas about what to do next but some good next steps would be:

1. place the baby care trolley with sterile towels and other supplies next to the delivery table to make it easier to provide care while the baby is on mother's chest

2. test that the labour room reorganization works and also continue to learn if women are happy to receive their baby on their chest immediately after delivery and if nurses continue to remember to weigh the baby and give vitamin K.

Ask the team to read **Case scenario part 9.** This describes how the team went about reorganizing the labour room. After the team learned that following the new order of steps of caring for newborns (change 1) they decided to reorganize the room (change 2) to make it easier to care for babies on their mother's chest.

The nurses were not sure how to reorganize the labour room so they tried one particular way, realized that it could be better reorganized differently and did it again. A nurse then tried to follow the new order of steps in the reorganized labour room for one full shift.

Instructions: Discussion 3.4: Testing changes

Ask them to read case scenario part 9. This describes how the team progressed from testing and adapting the new way of working on a small scale (one shift at a time) to subsequently making it the norm for all deliveries in the hospital.

How many changes has the team tested so far?

The team tested two changes:
- Changing the order of steps of caring for newborns
- Re-organizing the labour room

How many PDSA have they done?

The team did four PDSA:
- They tested the new order of steps for one shift
- They reorganized the labour room without a mother there x 2
- They tested the new order of steps in the reorganized room for one shift and reorganized again after the first delivery

After completing the discussion 3.4 ask them to read the case scenario summary (page21) and study the run charts in figures 6-8.

STEP: 4 ✔

Sustaining improvement

Step 4: Learning objectives

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

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

Step 4:   Presentation by lead facilitator
(Slide 55 to 60)

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

POCQI COACHING MANUAL

Steps in QI

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

→ Step 2: Analysing the problem and measuring quality of care

→ Step 3: Developing and testing changes

→ **Step 4: Sustaining improvement**

●	💡	●	●	💡	●	💡	●
Step 1	Group Work	Step 2A	Step 2B	Group Work	Step 3	Group Work	**Step 4**

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After fixing the problem the final step is to make sure that the improvement is sustained over time.

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Step 4
Learning objectives

You will learn

→ how to embed successful changes into health system to sustain the improvement in quality of care

→ engage and motivate team to view QI as culture for improvement thus improving work culture across the health facility for providing better care

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

- Review the learning objectives

- 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. Ideas include:
  - Developing new guidelines of patient care or standard operating procedures
  - Assigning new job responsibilities to existing staff
- Building a work culture in the health facility focused on improvement in quality of care and looking for further opportunities to improve it.
- You can also help your other colleagues (beyond your own team) learn by sharing your work. Some things will be contextual but some can be shared and could work with the same success.

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Implementing changes
Sustenance is key

→ Embed successful ideas into system - requires concrete actions e.g. framing guidelines , standard operating procedures or job responsibilities

→ Continuous process with eye on improvement

→ QI is contextual but learnings can be shared and adapted at other places after testing

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

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Hardwiring of QI project

→ Documenting the flow of the new process — the new way of doing things

→ Providing training on the new process

→ Teaching people new skills that might be required of them

→ Making changes in job descriptions, policies, procedures

→ Addressing supply and equipment issues

→ Assigning day-to-day ownership for the improvement and maintenance of the new process

→ Having senior leaders remove any barriers that might allow slippage back to the old process

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

- "Hardwiring" is what we call the steps we take to prevent the system from slipping back to the old ways of working after we have identified and tested a better way of working.

- Use the points from the slide to explain the elements that ensure hardwiring the change into the system.

Tinkering vs System Change

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

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

- To ensure that a change is sustained one has to 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 and addressing that.

- Tinkering usually relates to trying to get health care workers to change only their immediate behaviour rather than changing the system so that it becomes a norm for them to provide good quality care.

- For example: If you are trying to solve the problem of illegible physician orders leading to medical errors, you could tinker or change the system

  - Telling the physicians to write clearly is tinkering – it is a superficial change that is not likely to be sustained

  - Moving to a standardized medication ordering system; for example, using computers to provide a doctor's prescription, is an example of a system change

Slide 60

Useful tips to sustain…spread..

➔ Successful team involves new members in hospital to join; help forms multiple teams

➔ Spread best practices among colleagues in the hospital

➔ Keep higher ups informed: Hospital team informs MS/ Director and they inform the district/state

➔ System rewards successful teams – Certificates, QI jewel of month

➔ System provides opportunities to successful teams to disseminate and share their success widely

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

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

- Build multiple teams in the health facility so that they can learn and support each other

- Health care team should keep higher-ups in the system informed and tell them about your success

- Manager of the health facility should continuously encourage the health care team to incrementally improve quality of care

- Rewarding people who are involved in QI efforts

- Give opportunities for them to share their work

Success Factors:

- Highlight the importance of a champion: A champion is someone who takes ownership and leads the QI initiative in the health facility or in the health system. Explain the qualities of a champion from the slide.

- Focus on the big picture. The point is not to mechanically pick aims, do fish bone exercise, draw charts and undertake PDSA cycles but to ensure best health outcomes for the patients. QI is another tool, such as a stethoscope and antibiotics that can let us help more patients.

Slide 61

Key to success

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

➔ **Personal aspirations:** Remember most of us entered medical profession with aim to alleviate sufferings and help society

➔ **Positive attitude:** Being positive and prepared to address barriers, challenges which prevent us achieving this aim

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

After you finish this presentation ask the participants to read page 24 in the learner manual and discuss with the group facilitator.

Facilitator instructions for wrapping up Day 1

- After the groups are finished,summarize the day's work. Review the following points with participants:
  - Why do we need quality improvement?
  - What is the first step of quality improvement?
  - Why is it important to form teams?
  - Why is data needed?
  - What does PDSA stand for?
  - Why do we need to test changes?
  - How will we know a change is working to produce the desired results?
- At the end of the discussion congratulate participants for their work during the day.
- Request participants to do the knowledge assessment exercise (section 5 in the learner manual).
- After the participants have finished the knowledge assessment exercise, provide feedback. Use Appendix 4 in the coaching manual to provide correct answers.
- Inform participants about any relevant meeting logistics for the next day.
- After participants have dispersed all facilitators should meet for a debriefing session to review how the sessions during the day went and plan for Day 2.

Day 2 – Developing Own Quality Improvement Project

Instructions for lead facilitators

On **Day 2,** you will guide participants to develop a QI project (one project per hospital team) that they can start at their health facility when they return after the workshop.

Give the following instructions for the expected tasks:

- Ask the participating hospital / health facility teams to use the provided **QI Project Template** to describe their project.

- After they fill in each section ask them to respond to the questions on the QI Project Review Sheet and reflect on their planned project.

- Request the group facilitators to work on the table with the small groups (consisting of hospital teams) and guide the teams to use the QI Project Template in refining their project design.

- The **QI Project Example Template** provides an example of how the **QI Project Template** and **QI Project Review Sheet** may be filled out. This is a good tool for the facilitators to guide the work of hospital teams.

- Group Facilitators would help the teams put their project on the PPT Template in the afternoon to prepare a 10 minute presentation.

- Each hospital team presents their project to the whole group of participants in a plenary session. During the presentations facilitate discussions among the teams.

Below are some **key points** that the lead and group facilitators will find useful to emphasize in **each Step** as well as some common reasons for why QI projects fail.

Key points to emphasize for planning a QI project

STEP: 1 ✓

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

Picking an aim:

Key points	Common reasons for failure

We want participants to enjoy their first improvement project and find it useful so that they feel excited and encouraged to move onto a second improvement project.
 	
Help them realize that QI is quick, easy and useful. This is the most important part of the training.
 	
Things to think about in helping them pick their first QI project are:
 	
• Gets **RESULTS**: Help the team pick a project that is likely to get results quickly within days or weeks rather than months. Factors that help to get results quickly include:
 	
   ■ Identify changes that can be tested frequently.
   ■ The process you want to change / improve happens frequently.
   ■ Data to measure improvement are easily available and do not need a new system to collect.
 	
• Most of the process they are targeting takes place in one place in their health facility.
 	
• Does not require too many additional resources (including staff time)
 	
• Is **RELEVANT** to the people doing the work and are wanting to improve. Team members feel:
 	
   ■ it is important and has impact on patient outcome or patient satisfaction
   ■ data are as objective as possible so they can be sure that there is improvement
   ■ it is something that is likely to reduce work for team members (improve efficiency)
 	
• Is **RECOGNIZED** by others
 	
   ■ You want the team to get appreciation from as many people as possible
   ■ Projects that solve problems that leaders and teams are interested in or make patients happy are good
	• The team selects a problem which is too **complex**
	
	• The problem and choice of aim is such that changes **cannot be tested quickly** – results are not evident in short time:
	
	   ■ Infrequent event
	   ■ Involves follow up so the effect of the change is only available days or weeks later
	
	• There is no easy source of objective data collection
	
	• Data collection is done by inspection/observation or checklist which takes a lot of resources and also interferes with teamwork
	
	• The aim is vague (not SMART)
	
	• Inappropriate or heterogeneous team that cannot come to a common understanding and fail to agree to a common project.

Forming a team

Key points	Common reasons for failure
Improvement requires changing the way we work. While we might want to change people's behaviour, it usually is not pleasant when someone tells us do so. The people who will have to change how they work should be on the team and part of the process from the very beginning. • Look for **volunteers.** You want people who are **interested** in making changes and will self-motivate. • Titles and hierarchy should not much influence team selection. You want people who understand the problem and have an **ability to fix** the problem at their level. • **Each step** in the process needs to have a **representative** on the team • Good people to have on a QI team: ■ Are **enthusiastic!** – they want to make changes ■ Are **involved!** – they are already doing the work that needs change ■ Are **influential!** – other people listen to them and they can get things done • Too many people in a group is hard to manage; try to keep around 6-8 people • The **team leader** is not necessarily the senior-most person but more a middlerung person who is **aware of the ground realities** and working conditions and at the same time can move things around.	• The team is made up of only senior people who then issue **directives** for junior people to change how they work. This creates problems with getting the junior front line healthcare workers to agree to change the way they work. If you want nurses to do something differently, then nurses need to be involved closely in the QI team and be the main source of ideas about how the health care team should work differently. • The team is chosen **based on designation** of the people rather than interest. • **Poor communication** within the team. It is important to allow everyone to give their opinion. • Many people on the team are **not involved in the day-to-day work that they are trying to improve.** • The team is **too big** and is hard to manage and reach consensus. • The team is **too small** and leads to fatigue as members are overworked.

STEP: 2 ✔

Analysing the problem and measuring quality of care

Analysing the problem

Key points	Common reasons for failure

People often develop or have a fixed set of solutions that they fall back on when they need to fix a problem. These include: more resources, more training and management (administrative) directives. Not all problems can be fixed by these standard solutions.
 	
The purpose of system analysis is to come up with specific and different types of solutions.
 	
• **Use analysis** to find the root cause of problems.
 	
• Try to **find the few key factors** that account for most of the problem (Pareto's principle).
 	
• Help the teams think about how **reorganization** of the process of care can help in fixing the problem.
 	
• Use the **right tools.** For example,
 	
  ▪ Flow charts to track the steps of care and movement of patients through the system
 	
  ▪ Fishbone analysis to categorize different problems
 	
  ▪ Pareto chart to identify the most important causes
 	
  ▪ 'Five Whys' to identify root cause
	• The team **does not do any analysis** but thinks that they already understand the problem and jump to solutions.
	
	• The team thinks **that analysis will take too long** so decides not to do it.
	
	• The team **analyses how the process is supposed to work** rather than study how it actually works.
	
	• The team **does not have the people** who are responsible for doing the work that needs to be improved, so deep analysis cannot be achieved.
	
	• The hospital management or the health care team ends up **blaming** individuals.
	
	• The team tries to use multiple tools, all at once, to fix the problem.

Developing a measurement system

Key points	Common reasons for failure
Do not scare people with technical jargon, sophisticated theory and math around measurement. People do not need to learn this in the initial phase. There is not enough time to explain the more complex issues around measurement in this training and it is not helpful to introduce complex ideas without demystifying them. Instead **focus on the basics:** • Looking at **data over time** is crucial and more **frequent** measurement (daily or weekly) is better than less frequent (monthly). • **Only collect the data that you are going to use** • If possible, try to have both a process and outcome measure. Sometimes it may not be practical to have both types of measures: For example, to improve Vit K administration in newborn babies we cannot feasibly measure the negative outcome of bleeding. So we only measure the process of Vit K administration for the purposes of the QI project. • If possible, try to use data that are already recorded in the health facility or that will be very easy to collect.	• Data collection is prioritized over undertaking changes. • Too much data are collected and **not enough are used or acted upon.**

STEP: 3 ✔

Developing and testing changes

Developing changes

Key points	Common reasons for failure
The only way to deliver better care for your patients is by doing something differently. This requires making changes. After identifying the problem in the analysis stage, the team needs to come up with some change ideas. Change ideas will improve care if 1) **they are the right ideas** 2) **they are put into action** 3) **they are properly adapted to the local context** Tips to support teams to come up with change ideas that meet these three criteria include: The right idea: ■ Being careful with analysis helps teams develop good change ideas ■ Helping teams think about all the steps that will link, implementing the change to getting the outcome you want. ■ Never assume the idea is correct and will definitely succeed unless the team has tested it in the local context. Putting the change idea into action: ■ Healthcare workers are more likely to adopt changes if they are part of the team right from the planning stage. Having the people who will have to change is crucial to coming up with change ideas that you want to implement. ■ Involving individuals who have authority to get the idea implemented is also crucial. Adapting it properly to the local context: ■ Almost all change ideas need to be tested and adapted (see next section) to local situation	● Change idea did not come from a careful analysis. The team is doing 'more of the same' – waiting for more resources, doing more training, giving more orders ● The idea is imposed by senior people and the 'workers' do not buy in to it or carry it out.

Testing changes

Key points	Common reasons for failure
• Most new ideas do not work without adapting them to the local setting. • Testing new ideas to learn if they are working or to try entirely new ideas is critical for getting improvement. • Encourage your team to plan some PDSA cycles that only take place on one or two patient initially or can be completed in a few days.	• Not enough small scale testing undertaken • The team does not discard or modify the changes that did not work. • The team does not come up with new ideas based on what they have learned from previous tests. • The team goes ahead with a test on a larger scale without knowing if the change idea will work.

STEP: 4 ✓

Sustaining improvement

Key points	Common reasons for failure
For successful ideas to become a part of routine work, it requires concrete action in the form of new guidelines, job responsibilities and standard operating procedures in the health facility to which everyone has to comply.	• Successful change ideas are dumped after an improvement project ends. • Ignoring the previous improvement activities once team embarks on a new QI activity. • Not assigning a lead person for a completed QI project, who can share continuously the data and gains. • Efforts are not made to scale up small successes across different staff, shifts, units, and departments in the hospital/ health facility. • Not engaging staff beyond improvement team. • Not changing the system to support the improvement.

Plan of Action for the team

By this time, participants will have understood the basic steps of quality improvement, prepared a small QI project and have ideas on how to carry out a quality improvement project.

In this session, teams will prepare a plan of action to undertake upon returning to their duty station.

A matrix/table is provided in the learner manual on Page 66 in which they can fill in the details.

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

Give 15 minutes to complete this exercise working as the hospital teams.

Column 1: Mention the date of Planning

Column 2: Identify activities / tasks to be done: Here are some examples of initial activities that may be needed upon return to the facility.

- Organize a briefing of the staff in their hospital or unit (e.g. with staff from paediatrics, neonatology, Ob-Gyn)

- Organizing a briefing for the leadership of the hospital - the superintendent or director to share the quality improvement methods they learnt in the workshop and their planned project.

- Identify team members to work on the project

- Orientation of selected team members to the quality improvement concepts and methods

- Review the project (they have planned during the workshop) with the team and revise the project plan if needed

Column 3: Mention the reasons for undertaking each activity – what will it achieve (output)?

Column 4: Person(s) responsible for carrying out each specific activity.

Column 5: Timeline by when each activity is expected to be completed

Column 6: Current status of the activity. This column can be periodically updated as the project progresses.

Column 7: Comments. Any additional points of note can be mentioned here. Such as any anticipated obstacles or supporting factors for each planned activity. Mention if any extra resources will be required.

In the plenary feedback session (15 minutes), request one hospital team to share the activities they have identified. Provide opportunity to all participants to discuss and share additional or alternate activities as per their local contexts. If time permits, ask another hospital team to share their activities especially if they have identified some different and additional activities. In this way, all participants will be clear on what specific activities they will need to undertake upon returning to their hospitals.

Instructions for Facilitators to wrap up Day 2

- Congratulate participants for all their hard work

- Ask participants to fill in the workshop feedback form and collect the forms.

- Create a social media group – for example a Facebook page or a Whats App / Viber group / email group to enable ongoing sharing and learning among participants. It is important to include one or two facilitators as online resource persons in the group.

- Facilitator provides his/her contact information and a list of technical resources for any future information and technical needs.

Appendix 1 - Case Study: Successful simple QI project

Ideally a real case study on Quality Improvement project undertaken should be presented by a Facilitator. This is to motivate participants that Quality Improvement is simple, feasible and can be applied in healthcare facilities.

Here is one such example

Background

As per the WHO guidelines delayed umbilical cord clamping (not earlier than 1 minute after birth) is recommended for improved maternal and infant health and nutrition outcomes. Delayed cord clamping (DCC) after birth is safe and effective intervention for improving neonatal and maternal outcomes should be a standard practice. In a health facility while observing ten low risk mothers who had spontaneous vaginal delivery (SVD) only in 1 out of 10 babies who had spontaneous breathing cord clamping was delayed to 1 minute after birth (10%). The healthcare workers decided to improve this.

Making a Team

Obstetrician, Medical Officer and nurses posted in the labour room, and the paediatrician formed a team to ensure DCC in normal low risk mothers. The team frames the following SMART aim statement.

Aim

Delayed cord clamping (1 minute after birth) will be implemented in normal low risk SVD from a current level of 10% to 60% over a period of six weeks.

Analysis of problem and measurement plan

The team considered that this is a simple, feasible project and decided to map the current processes of care at the time of birth by observing three consecutive births. Once the baby is born crying medical puts two cord clamps immediately and cuts the cord and hands over baby to the nurse. She takes the baby to the newborn corner, places under the warmer, dries the baby and wraps with a sheet. She comes back to delivery table to assist the medical officer.

Change idea

Team decides to reorganise the processes at the time of birth for normal low risk SVD.

1) Immediately after delivery, the medical officer will keep the baby over mother's abdomen.

2) Nurse will note the time of birth and watch breathing and crying of the baby.

3) Nurse will dry the baby while over mother's abdomen using a sterile warm towel and wrap along with the mother maintaining skin-to-skin contact.

4) Cord clamping will be delayed by at least 1 minute after birth.

5) Mother will be encouraged to initiate breastfeeding within 1 hour of birth.

Intervention

1. Standard operating procedure (SOP) was made as above, that will be followed by medical officer and nurses in case of normal deliveries.

2. Medical officers, obstetrician, paediatrician and nurses were oriented to the SOP.

3. Flowcharts and pictures were displayed in the labor room.

4. Duty of noting the time of delivery and cord clamping was allotted to the nurses.

5. The data were maintained in the labour room register by the nurses.

Team decided to implement new changed process in one shift, to learn if these changes are feasible and acceptable. They first tried in three normal deliveries and succeed in delaying clamping the cord to over 1 minute.

The team continued to implement the SOP during their own shift to practice DCC over next 20 next deliveries and could achieve success in 18/20 (90%) over two weeks. Two patients did not initiate breathing at birth and hence cord was clamped immediately at birth to provide resuscitation.

Sustain and spread DCC in all shifts

1) The team decided to share the successful experience with other staff posted in labour room.

2) Team briefed the report of Quality Improvement project to Head of the hospital requested her to issue notice for implementation of DCC in all shifts.

3) Posters displaying the changed SOP were put in labour room to educate all the staff.

4) A big clock was put with seconds hand to make it clearly visible to Labour Room staff.

5) Follow up over next 3 months revealed that DCC was being sustained. This was encouraging to the entire staff who got motivated to practice same for cesarean born babies.

6) Reorientation program was planned for new team of doctors and nurses whenever they get posted in labor room.

Appendix 2 - Games for Teaching QI

To convey some of the concepts of quality improvement it is valuable to use some interactive exercises and games. Deciding whether and which games to use for the training will depend on the facilitator's prior experience. Other factors to consider are:

1. Time needed for the game

2. Size of the audience and number of facilitators comfortable in guiding the game

3. Availability of required materials and space needed for the game

Note:

1. All facilitators should practice and know the game well

2. The purpose of the game and the concept to be conveyed should be clear

For games, facilitators can go through the "NQC Game Guide - Interactive Exercises for Trainers to Teach Quality Improvement in HIV Care". This guide includes 21 games for teaching QI concepts and was developed by the New York State Department of Health AIDS Institute. The games are not specific to HIV Care and can be used to any type of quality improvement training program including one focused on maternal and child health. This guide is available online: http://nationalqualitycenter.org/files/nqc-game-guide/

Here we describe one game that has been used during the testing of this training package.

Helium Stick Game

Concept
- Learning how to work together, listen and communicate with other members of a team.
- Understanding the concept of coming up with testing creative solutions
- Understanding the concept of system-level changes vs. focusing on individuals

Group Size & Time
- 6 – 12 people per group depending on the length of the pole
- Time – Approximately 25-30 minutes

Materials
- Lightweight PVC pipe available at a local hardware store (or similar long, **lightweight**, thin rod)

Directions
- Line up the participants in two rows which face each other.
- Ask participants to put up their arms in front of them and point their index fingers
- Put the stick (6 feet long A PVC pipe works well) on their fingers. Everyone adjusts their finger heights till the stick is horizontal

- Make sure everyone's index fingers are touching the stick.

- The Task: Explain that the challenge is to lower the stick to the ground.

- The Catch: Each person's index fingers must be in contact with the stick at all times. Pinching or grabbing the stick is not allowed –the stick it must rest on top of the extended fingers.

- Note: the stickwill usually 'float' up rather than come down, causing much laughter and frustration.

- After a few tries some groups or individuals may want to give up, believing it is not possible or that it is too hard.

- People may become frustrated with others who they feel aren't lowering their finger to let the stick go down, and often choose one person as the culprit.

- Facilitation: The facilitator can offer suggest the group stops the activity, discusses a plan, and then tests again.

- Facilitation: Less often, a group may be succeeding too fast. For these, check to make sure that fingers are constantly touching the stick and they lower the pole all the way to the ground.

- After a few unsuccessful attempts someone might suggest creative solutions to bring the stick down. Ideally teams should listen to members with such ideas and test to see whether the idea works or not. Occasionally people will be dismissive of creative ideas. Here the facilitator can reinforce the concept of listening to team members and testing a change idea.

- If no one comes up with new ideas then you can ask the group to come up with creative ideas to make the stick come down.

- **Important:** The stick in this game represents the 'system'. Facilitators should move the group from focusing on individual effort to thinking about how they can change the 'system' to achieve their objective. Allow the participants some time to come up with ideas themselves. Possible creative solutions could be:

  - To make the stick heavier by attaching/hanging available objects (bags)
  - To find something to stick or tie participants fingers to the stick (rubber, tape)

- If they decide to make the stick heavier then they will need to test various locations and weights to get the right weight and balance in order to be able to put the stick down. Encourage multiple tests.

Debrief

1. How did the exercise make them feel?

2. What led to eventual success?

3. Which solutions worked? System level changes or individual based changes?

4. What did they learn about testing ideas?

Figure 1: A group participating in the 'helium stick game' at a workshop

Appendix 3 – Interpreting Run Charts

This section describes rules for interpreting run charts. This section is optional depending on the time available during the workshop and participant interest.

Show the video on run charts - https://www.youtube.com/watch?v=A4a2BgKlnBc

A run chart displays data over time. The first thing that we have to do in a run chart is to draw a median for the baseline values. The primary purpose of a run chart is to determine whether the change that we make has led to any improvement. Four rules can be used to identify when a change is of relevance.

Rule 1: A Trend

A trend is continued movement in a single direction, either up or down. A trend on a run chart is five or more consecutive points all going up or all going down. If the value of two or more successive points is the same, ignore one of the points when counting.

% of pregnant women receiving iron supplements
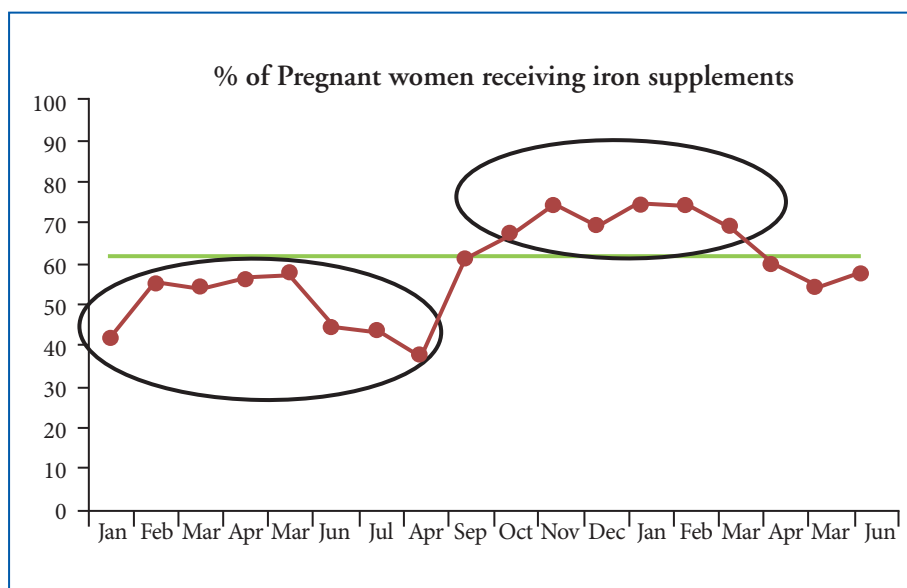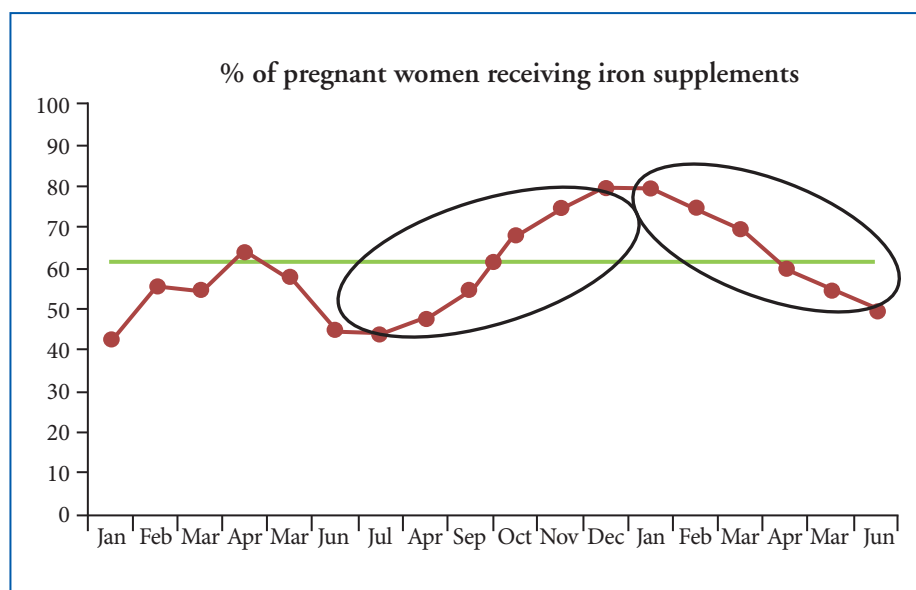
Rule 2: A Shift

A shift is a pattern indicating that a process or outcome measure in question has now moved to a different level of performance. A shift on a run chart is six or more consecutive points either all above or all below the median. Skip values that fall on the median and continue counting.

% of Pregnant women receiving iron supplements

Rule 3: Runs

A run is a series of points in a row on one side of the median. If only chance is influencing a process then there should be regularity at which data points go above or below the median. If data are only affected by chance then it would move back and forth the median with a certain frequency. If the 'runs' are too few or too many then something is affecting the process.

a. Count the number of runs in the chart = Number of times the line crosses the median + 1

b. Count the number of data points which do not fall on the median

c. Look at the statistical chart below.

d. If the number of runs is out-of-range for the given number of data points (refer to table). This indicates that something of relevance has happened.

Runs: A non-random pattern is signaled by too few or too many runs, or crossings of the median line
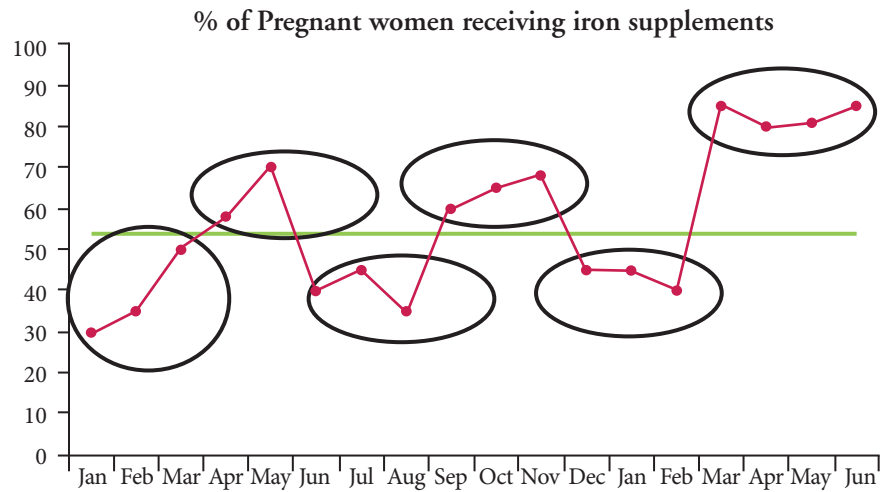
% of Pregnant women receiving iron supplements

Figure 1: Table to Determine too many or two few runs[8]

Table Checking for too many or too few runs on a run chart. Table is based on about a 5% risk of falling the run test for random patterns of data

Total number of data points on the run chart that do not fall on the median	Lower limit for the number of runs (< than this number runs is 'too few')	Upper limit for the number of run(> than this number is 'too many')
10	3	9
11	3	10
12	3	11
13	4	11
14	4	12
15	5	12
16	5	13
17	5	13
18	6	14
19	6	15
20	6	16
21	7	16
22	7	17
23	7	17
24	8	18
25	8	18

[8]Reference: Perla, Rocco J., Lloyd P. Provost, and Sandy K. Murray. "The run chart: a simple analytical tool for learning from variation in healthcare processes." BMJ Quality & Safety 20.1 (2011): 46-51.)

% of Pregnant women receiving iron supplements
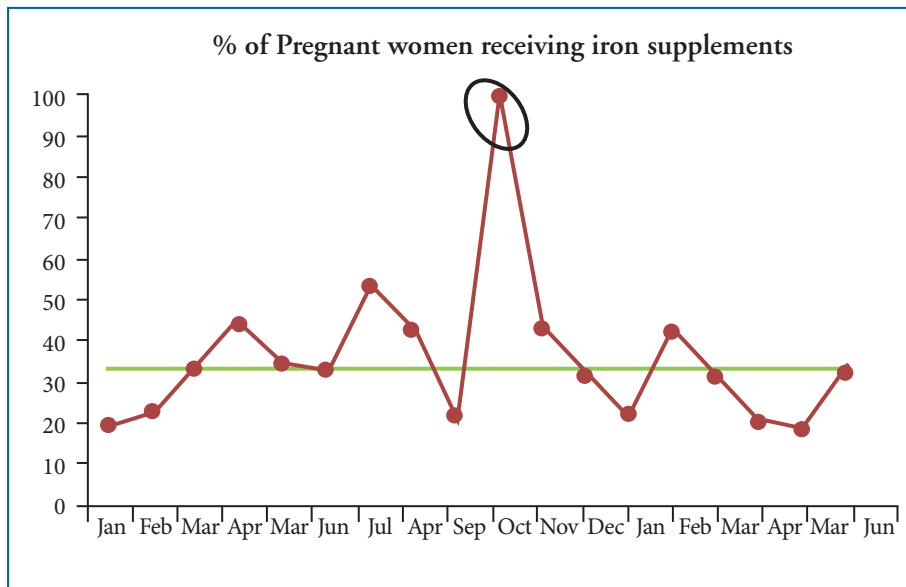
Rule 4: Astronomical Point

An astronomical point is an unusually large or small number.

Appendix 4 - Answers to the Knowledge Assessment

Correct answer is in bold with a tick mark. You can compare the responses from participants.

Select ONE 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.   Facility in-charge will order what needs to be achieved
   b.   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.   Team should have manager or leaders of facility
   d.   **Team leader 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 flow chart** ✓
   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 flow chart
   d.   Pareto chart

6.   **To understand in depth a single underlying cause of a problem which tool will be helpful to use?**

   a.   Five whys

   b.   Fishbone

   c.   Process flow chart

   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.   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 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.   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 manpower.** ✓

   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 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. What changes will lead to achieving this objective?**

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

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

    c.   Outsourcing X-ray services

    d.   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 ATM 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 out of ten hospitals are reporting high infection rates. The state child coordinator (MoH) passes an order that all doctors and nurses should wash hands as per guidelines. Is this going to decrease infection rates significantly?**

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

    b.   This is not an effective way of changing behaviour as frontline healthcare workers are not involved ✓

    c.   No, because healthcare 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 healthcare 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.**
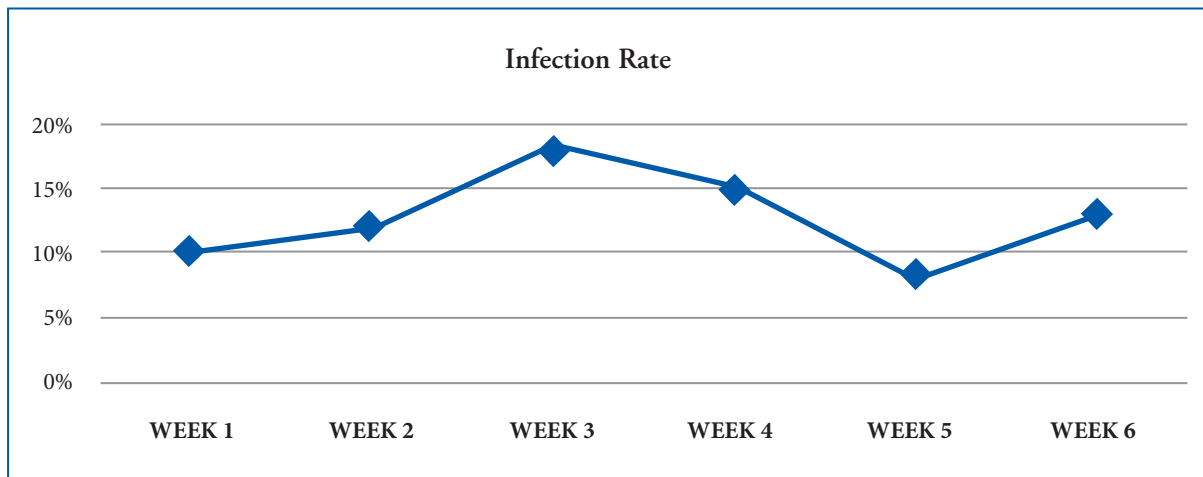
This type of chart is called:

    a. **Time series chart** ✓

    b. Frequency polygon

    c. Incidence chart

    d. Histogram

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

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

    b. Hang a poster near the resuscitation trolley

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

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

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

    a. Nurses from the unit

    b. Doctors working in the unit

    c. Hospital administrator

    d. **A senior specialist from tertiary healthcare facility** ✓

Appendix 5 - Frequently Asked Questions

Q1.   What is meant by Quality of Care?

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

Operational definitions of the characteristics of quality of care

- **Safe** – delivering health care that minimizes risks and harm to service users, including avoiding preventable injuries and reducing medical errors

- **Effective** – providing services based on scientific knowledge and evidence-based guidelines

- **Timely** – reducing delays in providing and receiving health care

- **Efficient** – delivering health care in a manner that maximizes resource use and avoids waste

- **Equitable** – delivering health care that does not differ in quality according to personal characteristics such as gender, race, ethnicity, geographical location or socioeconomic status

- **People-centred** – providing care that takes into account the preferences and aspirations of individual service users and the culture of their community

(Source: WHO: Standards for improving quality of maternal and newborn care in health facilities)

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

Quality Assurance (QA) ensures basic functions of a healthcare delivery system. QA determines whether the healthcare being delivered is in compliance with predefined standards. Many of the interventions such as having policy, standards, guidelines, adequate human resource, equipment and infrastructure are important quality assurance parameters.

Quality Improvement (QI) is about changing behaviors, approaches and systems to maximize the quality of care that patients receive. Quality improvement moves beyond quality assurance and seeks to transform the culture within which healthcare is delivered. Quality improvement requires the systematic use of improvement models or tools, such as the Plan-Do-Study-Act (PDSA) cycle.

Here are some more features or QA vs. QI:

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

Example: You want to make sure that everyone washes their hands on entry to a neonatal unit.

Some illustrative standards to enable hand washing would be:

● Instituting a hand washing policy

● Ensuring there is a sink near the unit entrance

● Ensuring availability of soap and running water

Quality assurance assessment / accreditation will be done by assessors periodically to check if all of these standards are in place. Having a policy and availability of soap, water and sink is necessary but it may not necessarily lead to the behaviour of consistent hand washing by the staff/visitors.

So the staff at the unit would need to use quality improvement methods to continuously strive to ensure that more and more people who enter the neonatal unit wash their hands. Staff would review if there are processes that make it difficult for people to wash their hands; make certain changes in the process; engage stakeholders in adopting those changes; and would measure the progress of hand washing rates to track progress towards achieving the aim.

Thus, maintaining the healthcare delivery system up to the pre-defined standards is quality assurance. Understanding the processes of care (how the healthcare is delivered) and making such processes better continuously is quality improvement. Hence, QA and QI are interlinked and both are important to ensure the good functioning of a health care system.

Q3. **Are quality improvement methods used only to improve care during birth?**

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, no additional burden would be added. 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 make the evidence based guidelines work.

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

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

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

Quality improvement methods work by decreasing individual resistance to change, encouraging data-based decision-making and 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 actually doing projects on the ground.

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

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

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

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

Q13.   Does QI require extra resources?

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

World Health Organization

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