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TRAINING FACILITATOR GUIDE

Improving Health Care

JUNE 2016

This quality improvement training facilitator guide was prepared by University Research Co., LLC (URC) for review by the United States Agency for International Development (USAID) and authored by Liz Taylor (consultant), Amanda Ottosson, and M. Rashad Massoud of URC. The guide was produced under the USAID Applying Science to Strengthen and Improve Systems (ASSIST) Project, which is made possible by the generous support of the American people through USAID and its Office of Health Systems.

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DISCLAIMER

The contents of this training guide are the sole responsibility of University Research Co., LLC (URC) and do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

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For more information on the work of the USAID ASSIST Project, please visit www.usaidassist.org or write assist-info@urc-chs.com.

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Acronyms

AMTSL	Active management of the third stage of labor
ART	Antiretroviral therapy
ASSIST	USAID Applying Science to Strengthen and Improve Systems Project
HCI	USAID Health Care Improvement Project
MDG	Millennium Development Goal
MOH	Ministry of Health
MUAC	Mid-upper arm circumference
NACS	Nutrition assessment, counseling, and support
NCD	Non-communicable disease
NEJM	New England Journal of Medicine
PEPFAR	U.S. President's Emergency Plan for AIDS Relief
PPH	Post-partum hemorrhage
PRICOR	Primary Health Care Operations Research Project
QAP	Quality Assurance Project
QI	Quality improvement
SDG	Sustainable Development Goal
UN	United Nations
URC	University Research Co., LLC
USAID	United States Agency for International Department
WHO	World Health Organization

Overview

About the Course

The course, *Improving Health Care*, introduces the science of improvement and how it can be applied to make health care better. The course is designed to help anyone working in health care to learn practical applications of improving quality of care for patients.

The course begins with an introduction to the United States Agency for International Development (USAID)-funded flagship project for improving health care, the USAID Applying Science to Strengthen and Improve Systems (ASSIST) Project, which provides context to the history of improving health care in low- and middle-income countries.

The course then explains the definition of quality of care, different perspectives on the problem of achieving quality in health care, and how quality is essential to achieving global health priorities. Illustrative results are described to give an idea of what can be accomplished in implementing improvement within a health care system. The model for improvement is covered, along with the key principles to improve care.

The course is designed around a case study about improving nutrition assessment, counseling, and support (NACS) services in a health care facility in Uganda. Although the course uses an example from a developing country, the theory, methods and principles discussed in the course can be applied in any context.

An online version of this course is available for self-directed learning by individual or groups of learners. The *Improving Health Care: Training Participant Guide* can be used either as a workbook to be completed by each learner taking the online course or as the participant's manual for classroom delivery of the course, let by a facilitator.

About this Facilitator Guide

This facilitator guide, *Improving Health Care: Training Facilitator Guide,* was developed to support a quality improvement trainer to conduct a traditional classroom training using the same content and slides as delivered in the online course.

The facilitator's guide outlines the key talking points which should be delivered on each slide and provides directions for leading the exercises and group discussions.

The materials needed to deliver the training in a classroom setting include:

- Training Facilitator Guide
- Training Participant Guide (one copy per participant)
- Improving Health PowerPoint slide deck
- Agenda
- Training evaluation form (one per participant)
- Tent cards for names
- Pens

When delivered as classroom training, this course is expected to take approximately 11 hours to complete, including breaks. It is best received by participants when it is conducted in approximately half-day sessions on three consecutive days but may also be presented in a day and a half. The training facilitator should define the actual agenda for the training showing how the content will be delivered by day. **Appendix A** provides a sample agenda.

The ideal venue for the course has participants seated at small tables of 4-6 persons per table, to enable small group discussion. All participants should have a clear line of sight to the presentation screen and facilitator.

To prepare for delivering the course, the facilitator should review both the Facilitator Guide and the Participant Guide to become familiar with all the modules, activities, exercises, and discussions. It is more effective to draw on personal experiences throughout the course, so it is a good practice for the facilitator to make note of when and where such personal experiences can be incorporated as examples.

It is a best practice in training to seek participant feedback on the training workshop in order to identify ways to improve the training workshop the next time it is delivered. A generic participant evaluation form is found in **Appendix B** which can be expanded to seek feedback on specific modules, if so desired.

Appendix C provides a checklist for the facilitator of key materials to have on hand and tasks to be performed in advance of the training and afterwards.

The remainder of this guide is organized by the main sections in the training participant guide:

- Introduction and Module 1: The USAID ASSIST Project and its Evolution
- Module 2: What Is Quality Health Care?
- Module 3: The Issue of Quality in Health Care
- Module 4: Overview of Improving Health Care, Part 1
- Module 4: Overview of Improving Health Care, Part 2
- Module 4: Overview of Improving Health Care, Part 3
- Module 4: Overview of Improving Health Care, Part 4
- Module 5: Case Study – Nutrition Assessment, Counseling, and Support
- Case Study Section 1: Defining Improvement Aim(s)
- Case Study Section 2: Forming the improvement Team
- Case Study Section 3: Understanding the Current Process
- Case Study Section 4: Developing Indicators
- Case Study Section 5: Plotting a Time Series Chart
- Case Study Section 6: Developing, Testing, and Implementing Change

Each section specifies: 1) the suggested amount of time to deliver the course content for that section; 2) the specific learning objectives of the section; 3) talking points for each slide used in the section; and 4) directions for any individual or group activity, as well as the answers for the five case study exercises.

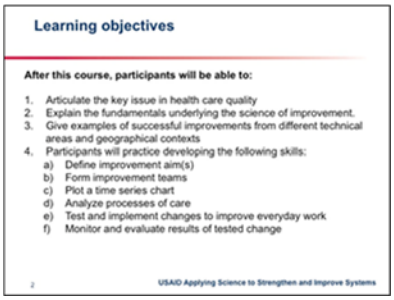
Appendix D provides the full slide deck for the training.

Introduction and Module 1: The USAID ASSIST Project and its Evolution

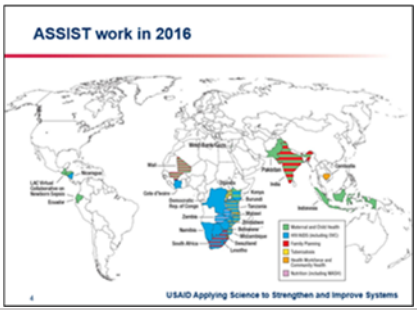
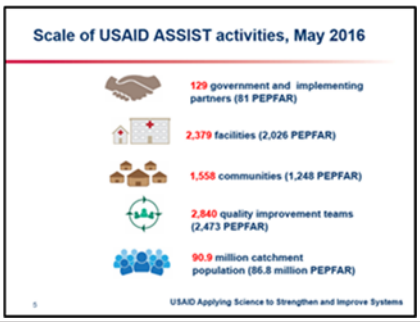
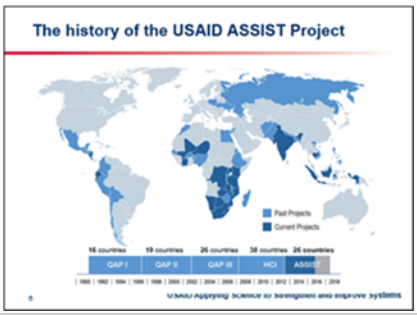
Time: 30-45 minutes

After this module, participants should be able to:

- Explain the course learning objectives
- Explain the history and goals of the USAID ASSIST project

PRESENTATION VISUAL	FACILITATOR'S MAIN POINTS
Introduction Slide 1: 	**WELCOME:** Welcome participants to the Improving Health Care Training Workshop. **SAY:** This course is designed to introduce the science of improvement and how it can be applied to make health care better. The course is designed around a real-life Nutrition Assessment Counseling and Support (NACS) case study. It will take us through a simulation exercise based on a real NACS improvement journey. The fundamentals of improving health care, as well as the methods, are illustrated through a series of improvement modules.
Facilitator introduction	**INTRODUCE:** Introduce yourself and explain that you'll be asking participants to introduce themselves in a few minutes. Include a bit of history of your career and what you do in the international health care development field.
Participant introductions	**SAY:** Let's move into our introductions. We want to hear all about you. Please tell the other participants your name, where you are from, your role and credentials, and how are you are involved in improving health care.
Overview	**ASK:** Ask the participants what they are hoping to learn in this workshop.
Course learning objectives Slide 2:  	**ASK:** What do you already know about the project? **LISTEN:** Listen and respond to participant's answers. **SAY:** The ASSIST project is a flagship program through USAID. It is funded through a centrally procured mechanism, bid out of and awarded out of USAID's Office of Health Systems in Washington DC. The program has a global scope. Any country that is eligible for assistance from USAID can access the project. The project has a ceiling of $185 million over 5 years. It represents the continuation of the USAID Health Care Improvement (HCI) Project, the USAID Quality Assurance Projects (QAP) 1-3 and the USAID Primary Health Care Operations Research (PRICOR) Project **EXPLAIN:** Explain what ASSIST is trying to accomplish under the agreement:

PRESENTATION VISUAL	FACILITATOR'S MAIN POINTS
	1. Improve health care at scale. Successful pilot projects alone are not acceptable today given However, ASSIST does often start with pilot or activities at a small scale with the intent of rapid scale up. 2. Enable the host country governments to continue the work that ASSIST helps in producing in a country. It is very important to the project to institutionalize improvement while producing results and making sure the improvement will be sustainable even after ASSIST is no longer working within the country. Produce the learning in the field, advance the science in this field, and generate knowledge that can be shared with other programs, countries, and organizations.
Materials review	**INTRODUCE:** Introduce the participant guide. Be sure to highlight the following: Different sections of the Participant Guide Where the Case Study begins Slides and note-sections are at the end of each module
Agenda review	**REVIEW:** Review the agenda with participants. Go over housekeeping at your location (i.e. break room, water, bathrooms, etc.) **ASK:** Ask if participants have any questions before you begin with Module 1.
Module 1: USAID Project and its Evolution Slide 3: 	**ASK**: What do you already know about the project? **LISTEN:** Listen and respond to participant's answers. **SAY:** The USAID ASSIST Project is a flagship program through USAID. It is funded through a centrally procured mechanism, bid out of and awarded out of USAID's Office of Health Systems in Washington DC. The program has a global scope. Any country that is eligible for assistance from USAID can access the project. The project has a ceiling of $185 million over 5 years. It represents the continuation of the USAID Health Care Improvement (HCI) Project, the Quality Assurance Projects (QAP) 1-3 and the Primary Health Care Operations Research (PRICOR) Project. EXPLAIN: Explain what ASSIST is trying to accomplish under the agreement: 1. Improve health care at scale. Successful pilot projects alone are not acceptable today given However, ASSIST does often start with pilot or activities at a small scale with the intent of rapid scale up. 2. Enable the host country governments to continue the work that ASSIST helps in producing in a country. It is very important to

PRESENTATION VISUAL	FACILITATOR'S MAIN POINTS
	the project to institutionalize improvement while producing results and making sure the improvement will be sustainable even after ASSIST is no longer working within the country. 3. Produce the learning in the field, advance the science in this field, and generate knowledge that can be shared with other programs, countries, and organizations.
ASSIST work in 2016 Slide 4:  	**EXPLAIN:** The prior projects set the stage at the beginning of the quality improvement field and the rest of the agenda. The countries in which ASSIST works fluctuates; however, here are the locations current as of 2016. The colors show what technical areas are being work on in each country.
Scale of USAID ASSIST activities, March 2016 Slide 5:  	**SAY:** As of March 2016, ASSIST was working with: • 129 government and implementing partners (81 PEPFAR) • 2,379 facilities (2,026 PEPFAR) • 1,558 communities (1,248 PEPFAR) • 2,840 quality improvement teams (2,473 PEPFAR) • 90.9 million catchment population (86.8 million PEPFAR)
The history of the USAID ASSIST Project Slide 6:  	**EXPLAIN:** One way to learn about the history of health care improvement in low- and middle-income countries is to take a look at the scopes of work for ASSIST and its predecessor projects.
Closing	**ASK:** Are there any questions or comments or need for clarification?
Short break – 5 minutes	

Module 2: What Is Quality Health Care?

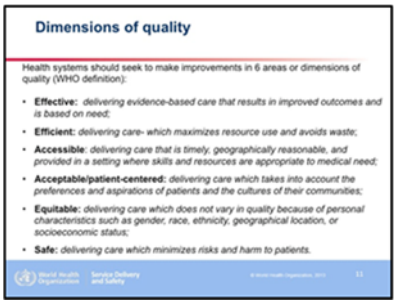
Time: 40 minutes

After this module, participants should be able to:

- Describe quality health care
- Discuss different definitions of quality
- List the six WHO dimensions of quality health care

PRESENTATION VISUAL	FACILITATOR'S MAIN POINTS
What do we mean by quality health care? Slide 7: 	**ASK:** Think about what "quality of care" means to you. **ASK:** Now, in your experience or from reading the newspaper or your understanding of the world, how are we doing in delivering quality health services?
Definition of health care quality Slide 8: 	**SAY:** The most common definition of quality of care is brought to us by the Institute of Medicine. **READ THE QUOTE:** The degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge. **ASK:** How does that definition sound to you? **LISTEN:** Listen and respond to participants' responses. **ASK:** Is context taken into account with this definition? **SAY:** We know from practice, context is a very important factor. Otherwise, this definition is a little abstract. Let me tell you a story.
Real world example: Nicaragua obstetric care story	SAY: In general, most infant deliveries are safe procedures, complications are avoided, and the women and newborns do not require medical attention. For all deliveries, only about 15% of situations require interventions. Though, it is that 15% that need attention and a coordinated effort for a positive health outcome. In our story, we have such a team. In a village in Nicaragua, a full medical team involving the hospital, health centers, OBGYNs, surgeons, and the traditional birth attendants who deliver the births at home were all trained and coordinated together. One day in this village, a mother gave birth to her newborn son with the traditional birth attendant present. All went well through the delivery, however, the mother's placenta was not delivered within 30 minutes of the newborn. This is considered a danger sign for the mother.

PRESENTATION VISUAL	FACILITATOR'S MAIN POINTS
	Fortunately, the traditional birth attendant working with the mother was trained on these danger signs. Through this training, she knew what dangers to look for and what to do if the danger occurred – the mother must be evacuated to the hospital. The local team members already previously arranged the procedure of what to do and when to do it. The team talked to the family and explained that the woman must go to hospital or there would be complications. The family listened and the woman arrived at the health center. Before she even arrived the operation table was ready, she had an IV drip put in, and the surgeon performed a manual evacuation of the placenta. Two hours later, the new mother is resting in bed nursing her newborn. She received the care that she needed, because the local health professionals were all a part of a cohesive team. They immediately took action and knew what to do. This is the desired outcome for a patient – when medical professionals act by using all appropriate resources and current professional knowledge. Context is everything in medical situations, if not more important than the actual science behind the medicine. The science of a situation does not mean much outside the context of the situation. The alternative to this story is that the traditional birth attendants do not know what to do, the emergency team is not put in place and trained, and the newborn goes without a mother.
Another definition of quality care Slide 9: 	SAY: Another definition of quality care is one by David Nicholas. READ: Quality care is what happens at all the points of service along the continuum of care, and high quality care is a function of the system's ability to produce care that will address the client's needs in an effective, responsive and respectful manner… ASK: Are we getting a better sense of what is good quality care? SAY: In practice, there is a huge difference between the definition of quality care and quality health care. In many countries, there is a strong desire and motivation to do the right thing. The Ministry of Health for a country might go online and research the standard evidence from the WHO or NIH or CDC. They will take the standards and develop into country guidelines, which is written with the best intentions. However, because there is no context given to those guidelines, there are failures in the system. Given our example above, the guideline for how long you wait after birth for the placenta to be delivered is 30 minutes. This is the standard. But, the context is all in how you act on it. What happens after the delivery? Are you doing the right things in the right way when the patient needs it done?

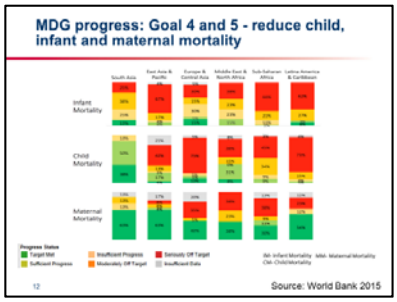
PRESENTATION VISUAL	FACILITATOR'S MAIN POINTS
	ASK: How can you harness the hospitals, communities, and people working together to allow quality health care to happen contextually?
Pause	**ASK:** Are there any questions?
WHO Dimensions of Quality Slide 10:  Dimensions of quality Health systems should seek to make improvements in 6 areas or dimensions of quality (WHO definition): • **Effective:** *delivering evidence-based care that results in improved outcomes and is based on need;* • **Efficient:** *delivering care- which maximizes resource use and avoids waste;* • **Accessible**: *delivering care that is timely; geographically reasonable, and provided in a setting where skills and resources are appropriate to medical need;* • **Acceptable/patient-centered:** *delivering care which takes into account the preferences and aspirations of patients and the cultures of their communities;* • **Equitable:** *delivering care which does not vary in quality because of personal characteristics such as gender, race, ethnicity, geographical location, or socioeconomic status;* • **Safe:** *delivering care which minimizes risks and harm to patients.*	**SAY:** According to the World Health Organization, health systems should seek to make improvements in six areas or dimensions of quality: • **Effective:** delivering evidence-based care that results in improved outcomes and is based on need • **Efficient:** delivering care- that maximizes resource use and avoids waste • **Accessible**: delivering care that is timely, geographically reasonable, and provided in a setting where skills and resources are appropriate to medical need • **Acceptable/patient-centered**: delivering care that takes the preferences and aspirations of patients and cultures of their communities into account • **Equitable**: delivering care that does not vary in quality because of personal characteristics such as gender, race, ethnicity, geographical location, or socioeconomic status • **Safe**: delivering care that minimizes risks and harm to patients
Pause	**ASK:** Are there any questions or comments? **ASK**: Ask participants to share their experiences of what the different dimensions of quality mean to them.
Short break – 5 minutes	**ANNOUNCE:** Tell participants this is only a 5-minute break.

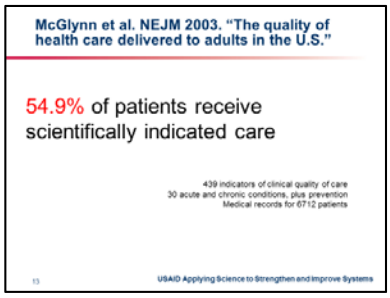
Module 3: The Issue of Quality in Health Care

Time: 40 minutes

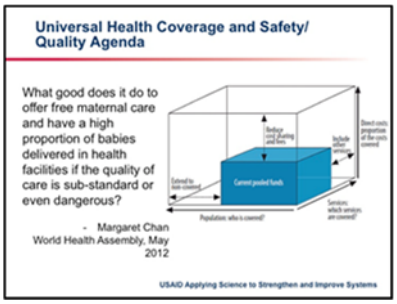
After this module, participants should be able to:

- Explain the issues in providing quality health care around the world
- Describe the Sustainable Development Goals

PRESENTATION VISUAL	FACILITATOR'S MAIN POINTS
The issue of quality in health care Slide 11: 	**ASK:** Of all the knowledge and interventions that happen in health care, the major question is why aren't we getting the results we should get? Health care is a complicated industry. The average health care provider plays three different roles simultaneously: S/he advises you, S/he conducts what s/he advises and carries out the intervention or procedure, and S/he benefits from the procedure. It is this third role, the health care provider might benefit from a procedure, whether financially or otherwise, that produces a conflict of interest. However, if you take out the financial aspect of providing health care, the health care provider is not incentivized, and he or she may be less inclined to perform the procedure.
MDG progress: Goal 4 and 5 – reduce child, infant and maternal mortality Slide 12:  	**SAY:** Let's look at the Millennium Development Goal (MDG) score card **DESCRIBE:** Describe the elements of the chart: **Color-coding** Insufficient data Seriously off target Moderately off target Insufficient progress Sufficient progress Target met **Acronyms** IM: Infant Mortality (First year of life) CM: Child Mortality (First to fifth year of life) MM: Maternal Mortality (During delivery) **ASK AND LISTEN TO RESPONSES:** How do you interpret the progress of these goals? Is this a pretty picture?

PRESENTATION VISUAL	FACILITATOR'S MAIN POINTS
	Are the countries able to achieve their targets? Is there green in every area? What do you think is happening? **SAY:** Although the MDGs have come to an end, this data shows that there is still a lot of progress that needs to occur in order to achieve the goals set to reduce infant, child, and maternal mortality.
McGlynn et al. NEJM 2003. "The quality of health care delivered to adults in the U.S." Slide 13:  	**SAY:** It is important to recognize that achieving quality health care is not just a developing country issue. The systems of care are just not in place in many countries (developed and developing) to achieve quality care. Developed countries may have more technology and resources. However, improvement is not only about the inputs into health care, it is about the way in which the inputs are used. "The quality of health care delivered to adults in the U.S." by McGlynn et al. found that just over half of patients (54.9%) received scientifically indicated care. Therefore, just under half did not. This study included medical records for 6712 patients, 439 indicators of clinical quality of care in 30 acute and chronic conditions, plus prevention.
The issue of quality in health care Slide 14: 	**SAY:** The phenomenon of best available knowledge not being implemented in everyday work to benefit patients is a predominant theme in health care around the world. In 2001, the Institute of Medicine published the Crossing the quality Chasm report that found: There are serious problems in quality: "*Between the health care we have and the care we could have lies not just a gap but a chasm."* The problems come from poor systems…not bad people. Institute of Medicine (IOM). 2001. Crossing the Quality Chasm. Crossing the Quality Chasm: A New Health System for the 21st Century. Washington, D.C: National Academy Press.
What is the problem? Slide 15: 	**SAY:** Margaret Chan, Director General, World Health Organization, has a different perspective on the problem. **READ THE QUOTE:** The reality is straightforward. The power of existing interventions is not matched by the power of health systems to deliver them to those in greatest need, in a comprehensive way, and at an adequate scale. -- Margaret Chan, Director General World Health Organization

PRESENTATION VISUAL	FACILITATOR'S MAIN POINTS
What is the problem: World Bank Slide 16: 	**SAY:** Jim Kim, President of the World Bank, believes that the enormous investments that have been made in global health should have led to what we might have called a science of implementation, execution, or improvement. **READ THE QUOTE:** "The enormous investments that have been made in global health should have led to what we might have called a science of implementation and execution… …We have just not focused on the enormous complexity of delivering health care in a way that keeps people healthy." **SAY:** In other words, what Jim Kim is saying is that we are overemphasizing the science of discovery at the expense of the science of delivery. We need to give equal attention to the science of delivery. In medicine, we have an abundance of knowledge and techniques that save lives, but what is the point of having so much if not everyone is benefiting.
Sustainable Development Goals Slide 17: 	**SAY:** In September 2015, the UN announced the new global health priorities through the development of the Sustainable Development Goals (SDGs). The UN laid out a set of 17 priority areas to be achieved by 2030. Goal number 3, good health and well-being, specifically aims to strengthen prevention and treatment to: Reduce global maternal mortality ratio to less than 70 per 100,000 live births End preventable deaths of newborns and under-five children End the epidemics of AIDS, TB, malaria and neglected tropical diseases while combatting hepatitis, water-borne diseases and other communicable diseases Reduce by 1/3 pre-mature mortality from NCDs Reduce substance abuse And others. Those include the remaining unfinished goals from the MDGs together with new priorities. A notable difference from the MDGs is the incorporation of non-communicable diseases (NCDs) as a global health priority. 80% of the global burden of illness is attributed to NCDs.
Sustainable Development Goal 3: Ensure healthy lives and promote well-being for all at all ages Slide 18:	**SAY:** A key part of the SDGs is Universal Health Coverage (UHC). UHC is "defined as ensuring that all people can use the promotive, preventive, curative, rehabilitative and palliative health services they need, of sufficient quality to be effective, while also ensuring that the use of these services does not expose the user to financial hardship," (World Health Organization, 2010).

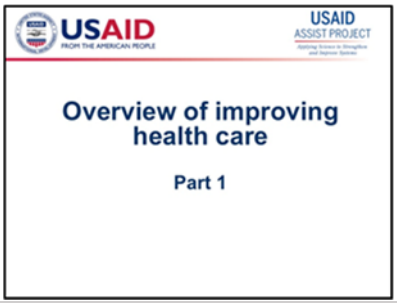
PRESENTATION VISUAL	FACILITATOR'S MAIN POINTS
	Specifically by 2030, ensure • Universal access to sexual and reproductive health services • Universal health coverage • Support for R&E • Increased health financing and recruitment, development and training and retention of the health workforce in developing countries • Strengthened capacity of all countries for early warning and risk reduction as well as management of national and global health risks
Universal Health Coverage and the Safety/Quality Agenda Slide 19: 	**SAY**: Here is a real world example to demonstrate the need for the quality agenda within Universal Health Coverage. A major experiment to provide pregnant women with vouchers that incentivized the mothers to deliver their babies in the hospital was launched. The assumption was that giving birth in a hospital was better than giving birth at home and the number of maternal deaths would decrease. However, what actually happened was an increase in maternal deaths. The fact remained that the quality of care in hospitals was worse than in the care received in homes by traditional birth attendants. **READ THE QUOTE:** Margaret Chan said at the World Health Assembly in May 2012: "What good does it do to offer free maternal care and have a high proportion of babies delivered in health facilities if the quality of care is sub-standard or even dangerous?" **SAY**: The last thing we need is Universal Coverage with poor quality care that does not benefit people or may even harm them. The cube shows the gap in quality care that is often being provided.
Pause	**ASK**: Are there any questions before we take a quick break?
Break – 15 minutes	**ANNOUNCE:** Tell participants this is a 15-minute break.

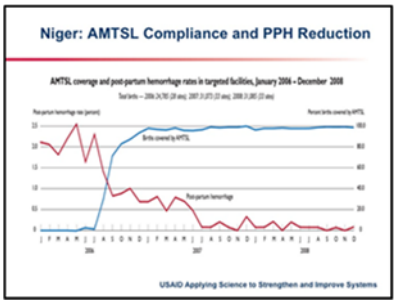
Module 4: Overview of Improving Health Care, Part 1

Time: 40 minutes

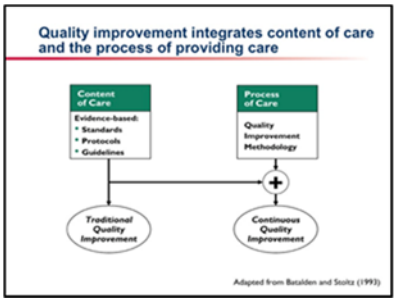
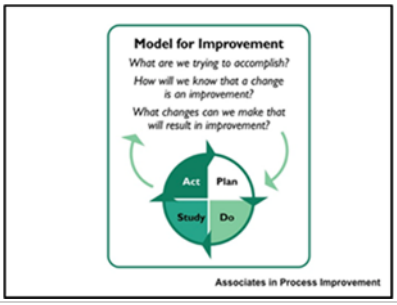
After this module, participants should be able to:

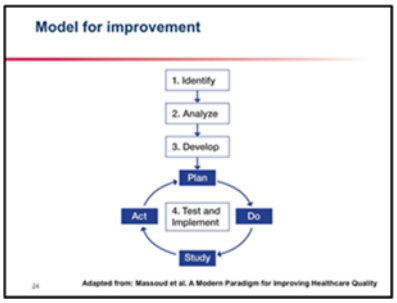
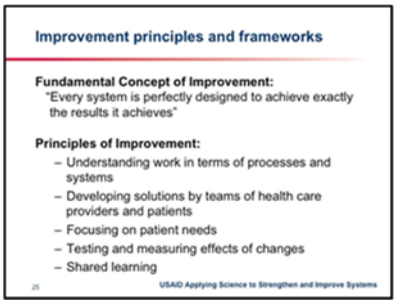
- Understand the terminologies surrounding improvement science
- Discuss real world examples where improvement science was applied to improve quality of care

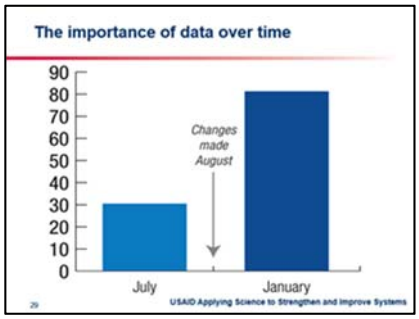
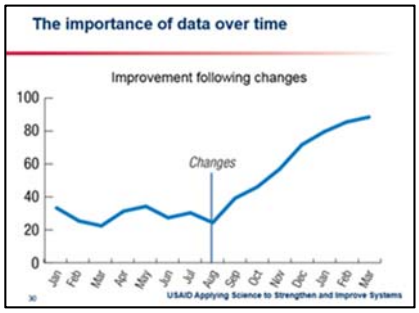
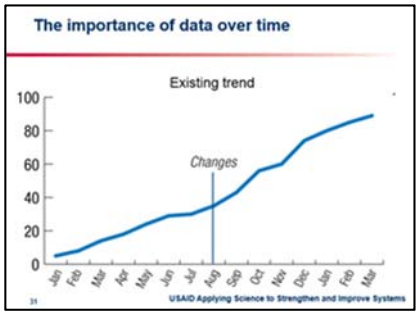
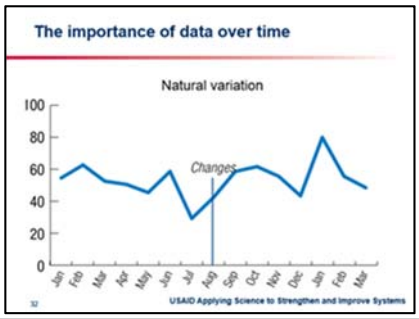
PRESENTATION VISUAL	FACILITATOR'S MAIN POINTS
Overview of improving health care, Part 1 Slide 20:  	**SAY:** Now, we will go over the basic ideas of improving health care and demonstrate these concepts with real world examples.
Ways to improve quality Slide 21: 	**SAY:** There are many ways to improve health care. Over the years, people have improved care through experience and knowledge. There have been many scientific discoveries that have led to significant improvements in health care. For example, the discovery of penicillin. Research is an important way in which we improve health care. Often, trial and error have yielded improvements in health care. However, we are not here to talk about any of these. We are here to talk about a deliberate systematic way to make any interdependency better.
Improvement science Slide 22: 	**ASK:** Ask participants to turn to the page 18 in their Participant Guide. Ask them to read to themselves the words in the box at the top of the page. **ASK:** What do each of the terms in this box mean? Delivery science Implementation science Execution science Quality improvement Quality management Continuous quality improvement Performance improvement **LISTEN:** Listen and respond to participant's answers.

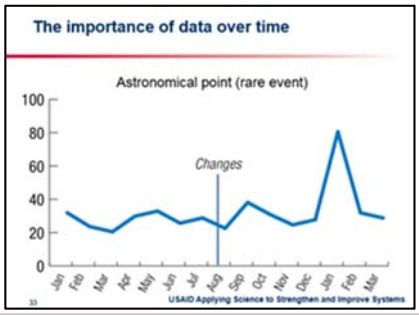
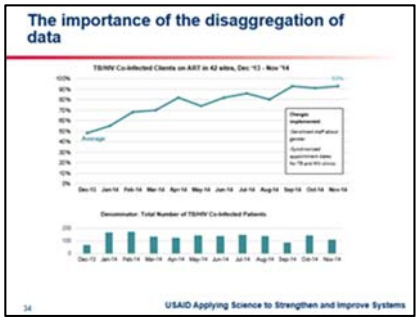
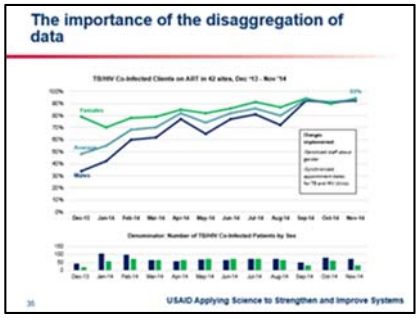
PRESENTATION VISUAL	FACILITATOR'S MAIN POINTS
	SAY: They are pretty much all the same with a short twist. Taking what we know to work and making it happen. The truth is they all basically mean the same thing. There are lots of terms to describe quality improvement. The article mentioned writes about all the 100+ names used to describe the different methodologies; however, they are pretty much all the same with a small twist. The general idea is taking what we want to happen and what's going to work and making it happen. The Pseudoinnovation article (citation below) talks about all the 100+ names used to describe the methodologies in improvement science. Walshe K. Pseudoinnovation: the development and spread of healthcare quality improvement methodologies. *Int J Qual Health Care* 2009; 21:153-9.
Niger: AMTSL compliance and PPH reduction Slide 23:  	**SAY:** This is an example of quality improvement science in action. In this example, the purpose of the project was to reduce the percentage of maternal mortality that was happening in Niger. There are three primary causes of maternal mortality worldwide: post-partum hemorrhage (bleeding happens after delivery), septicemia (infection after delivery), and obstructed labor. By far, the number one cause of maternal mortality is post-partum hemorrhage. However, there is evidence-based intervention for post-partum hemorrhage (PPH) called the Active management of third stage of labor (AMTSL). AMTSL has three components, but the most important component is giving the patient a dose of the drug Oxytocin. The drug is a hormone that has the ability to contract the mother's uterus. The drug is given in the third stage of labor when the head and right shoulder of the infant has been delivered. The intervention is to wait to this to administer the dose, because by the time the drug is acting in the mother's body, the newborn and placenta are already out. Now, lots of bleeding occurs during birth. This happens, because the uterus is made up of lots of muscle fiber that go in many directions and consequently, lots of blood vessels that need a constant supply of blood. Over the nine months of pregnancy and especially while giving birth, the muscles of the uterus get very tired and become very relaxed and flabby. This causes a lot of blood to ooze out of the uterus. Because of a simple physiological mechanism of the Oxytocin drug that squeezes the blood vessels, the muscles of the uterus stay contracted, reducing the amount of blood flow, and saving the mother's life. The second component of AMTSL is controlled core contractions, which means delivering the placenta in a particular way that does not cause any damage. The third component is to external uterine massage, which is massaging the mother's belly, which also causes the uterus to contract.

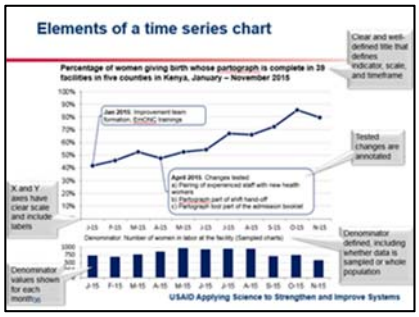
PRESENTATION VISUAL	FACILITATOR'S MAIN POINTS
	Now that we know these three components, let's take a look at this graph. **DESCRIBE:** Describe the elements of the graph. The blue line indicates the percentage of compliance with all three components of AMTSL. These births are given a score of 1. If any one of the components is missing, the birth is given a score of 0 and is not indicated in the blue line. As you can see on the chart, when the measurements were first taken, almost no women were getting all three components of AMTSL. **ASK:** What do you think are some reasons for this? Why are the mothers not receiving all or any of the components of AMTSL? **LISTEN:** Listen and respond to participant's answers. **SAY**: Now, what if we know that Oxytocin is available and all of the medical staff are trained on how to administer the drug. **ASK**: Why do you think the intervention was not happening? **LISTEN**: Listen and respond to participant's answers. **SAY**: One of the properties of Oxytocin is that it is thermally unstable. It must be kept cold or it will become inactive. To be effective, Oxytocin must be kept on ice or inside of a fridge. Niger is a hot country with many power outages. Another complication is that most babies are born at night. And during the night, the Oxytocin is kept under lock and key in the fridge in the pharmacy. The pharmacist works during the day and keeps the key with him, so the rest of the staff is unable to get to the Oxytocin. This is quite the predicament! An improvement team came to the health facility and worked with the staff to figure out the best intervention. The first step for the team was figuring out what they are trying to accomplish. Their goal was to reduce the maternal mortality through the provision of AMTSL. How will they know when they are effective? They must measure the amount of intervention. How will they know they really being effective? They also measure the amount of occurrences of post-partum hemorrhage. The best way to figure out the appropriate intervention is to get the full team of people, including the pharmacist and midwife, involved in the creation of the intervention. Ask them how they can reorganize care delivery to allow the medicine to get to the women who need it. A couple of good suggestions came out of the discussion. How about we place the fridge in the delivery room? The hospital didn't have money for second fridge. The selected intervention was to put doses of Oxytocin in prefilled syringes and place them in a cooler with an ice pack. How come this intervention ended up working? The intervention team couldn't go to the health center say that we need fridge in every room or that pharmacist needs to be available all night. Thinking of the context of the health care system, there are many things that were not possible. No

PRESENTATION VISUAL	FACILITATOR'S MAIN POINTS
	one was going to spend money in the system to get another fridge or another pharmacist, but a cooler and ice pack is practical and affordable. The health center staff and intervention team developed a contextually appropriate solution that helped take practically nobody getting the appropriate care to practically everybody getting the care that they need. **ASK**: How did they know the intervention was the right one? **LISTEN**: Listen and respond to participant's answers. **SAY**: Take a look back the graph and look at the red line, which indicates a serious drop in post-partum hemorrhage. It comes right at the same time as the intervention and the increased use of AMTSL. At the heart of improvement is using established medical science, organizing care of delivery to allow us to use the established medical science, and finding solutions are simple to implement. Also, the best solutions come from the health workers themselves. They have a profound knowledge of their systems. They own the interventions and when they see them work, they become very proud of what they've accomplished.
Quality improvement integrates content of care and the process of providing care Slide 24:  	**SAY:** Quality improvement integrates content of care and the process of providing care thereby establishing what is known to work to reach the person that needs it. This model was adapted from Batalden and Stoltz (1993). The content of care is the subject matter knowledge about medicine. It is the interventions, the diagnostics, and the understanding of what works for improvement. Content of care does lead to improvement. We can do a lot of these interventions, however, without reaching and improving the outcomes of any patients. The process of care, however, is the bigger issue in health care. How can we make a system work in such a way that we get the results that we want?
Model for Improvement Slide 25:  	**SAY:** The Model for Improvement is all about testing changes to see if they yield the results we want. The model specifically looks at: *What are we trying to accomplish? How will we know we achieved it? What changes can we make?* The first step is to plan what change you would like to test (plan), then implement the change (do), analyze if the change has achieved the result you were looking for or not (study), if it has achieved good results then you should scale up (act) or if it has not achieved the intended results consider testing a new change and begin the process again.

PRESENTATION VISUAL	FACILITATOR'S MAIN POINTS
Model for Improvement Slide 26:  	**SAY:** In "A Modern Paradigm for Improving Healthcare Quality" published in 2001, Massoud and colleagues use an earlier improvement model, which is slightly easier to use for teaching purposes. The model for improvement's steps involve identifying a problem, analyzing the issue, and developing a solution to test using PDSAs. The model allows you to think about the specific context of the system that you are working in as well as map out the processes that are currently occurring. The case study portion of this course will use the above model to work through the exercises.
Improvement principles and frameworks Slide 27:  	**SAY:** The fundamental concept of improvement is that every system is perfectly designed to achieve exactly the results it achieves. Change is at the heart of improvement. Measurement itself is not an improvement. Nothing necessarily changes when all we are doing is measuring. There is a Palestinian proverb that says "*you can weigh a cow every day, but that is not going to make it fatter".* If we continue doing the same thing without making any changes, we will continue to get the same results. Though, after changes are implemented, we must measure to see if an improvement in being made. The key to improvement is change, but not every change is an improvement. The key principles of improvement are: • Understanding work in terms of processes and systems • Developing solutions by teams of health care providers and patients • Focusing on patient needs • Testing and measuring effects of changes • Shared learning
Employee engagement Slide 28: 	**SAY**: In order for a quality improvement initiative to work, it has got to make sense for the individuals proving the care. It must appeal to them intellectually and morally. Getting employees engaged in an initiative is at the heart of improvement.

PRESENTATION VISUAL	FACILITATOR'S MAIN POINTS
The importance of data over time Slide 29:  	**SAY:** It is important to understand what the most appropriate figure or graph is to show results. Take a look at this bar chart. **ASK:** What does it tell you? Can you see if there was a change in the results when changes were tested by quality improvement teams?
The importance of data over time Slide 30:  	**ASK:** How is this chart different from the previous one? **SAY:** This chart is a time-series chart. It tracks data over time. Here, the chart shows that when changes were tested, there was improvement. **ASK:** Is this chart easier to understand than the previous bar chart? What makes this easier to understand?
The importance of data over time Slide 31:  	**ASK:** What does this chart tell you? **SAY:** This chart however shows that there was already improvement happening. It is hard to claim the changes made by the improvement team caused the improvement to occur further or not.
The importance of data over time Slide 32:  	**SAY:** This chart shows there is natural variation occurring. Again the changes are not clearly making an improvement in the results.

PRESENTATION VISUAL	FACILITATOR'S MAIN POINTS
The importance of data over time Slide 33:  	**SAY:** This chart shows an astronomical point, or a rare event. In this case, it would be interesting for the quality improvement teams to look back at what happened in January to cause the jump in results and what happened in February to cause them to drop back.
The importance of the disaggregation of data Slide 34:  	**SAY:** Look at this graph of TB/HIV co-infected clients on ART during an improvement activity; it shows great progress in getting TB/HIV co-infected clients on ART. **ASK:** Do you think we will see the same results if we disaggregated by sex? **SAY:** An important part of improvement activities is to collect and analyze data separately for males and females—called sex-disaggregated data, or data disaggregated by sex.
The importance of the disaggregation of data Slide 35:  	**SAY:** This graph shows the same results, however it is now disaggregated by sex. This illustrates an important gap between TB/HIV co-infected females and males on ART. 79% of females were retained in care but only 34% of males were retained in care. By knowing this information, the improvement teams were able to target the men who were not being retained in care, as well as continue with activities to increase the women retained in care. As can be seen in the graph, within 10 months, gaps between women and men were closed and 90% of co-infected clients were retained in care. **ASK:** What are some other ways to disaggregate data?

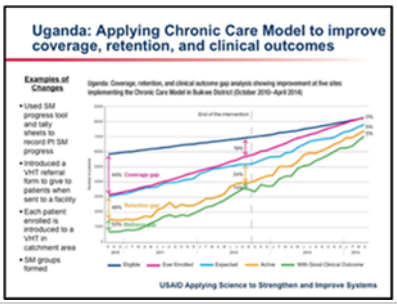
PRESENTATION VISUAL	FACILITATOR'S MAIN POINTS
Elements of a time series chart Slide 36:  	**SAY:** Take a look at the time series chart pictured. These are the important elements to having a strong time-series chart. We will go into further detail during the case study.
Pause	**ASK**: Are there any questions before we take a quick break?
Short break – 5 minutes	**ANNOUNCE:** Tell participants this is only a 5-minute break.

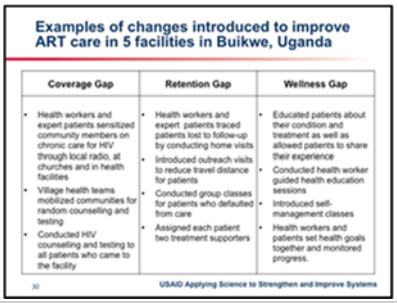
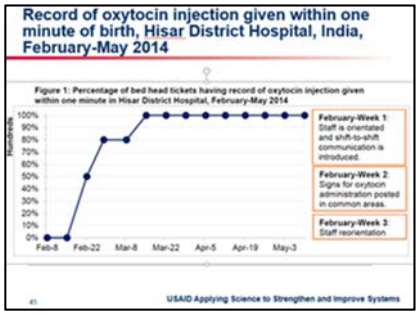
Module 4: Overview of Improving Health Care, Part 2

Time: 40 minutes

After this module, participants should be able to:

- Discuss real world examples where improvement science was applied to improve quality of care
- Describe changes that were made to see improved quality of care

PRESENTATION VISUAL	FACILITATOR'S MAIN POINTS
Overview of Improving Health Care, Part 2 Slide 37: 	**SAY:** We've gone through a few of the basic ideas of quality improvement. Now, we're going to dive deeper into some real world examples of quality improvement in action.
What is good quality care for patients who need antiretroviral therapy (ART)? Slide 38: 	**ASK:** What do you think constitutes good quality care for patients who need anti-retroviral therapy? **SAY:** In this example, the USAID ASSIST Team defined quality care with three components. Coverage: Those who need the care, receive the care. Retention: Those who receive the care, stay in care. Wellness: Those who stay in care do well in care.
Uganda: Applying Chronic Care Model to improve coverage, retention, and clinical outcomes Slide 39:  	**SAY:** Utilizing these three components, the team developed a model to measure and improve the gaps in coverage, retention, and wellness. These gaps can be seen in the time-series chart pictured. The dark blue line indicates the estimate for patients on antiretrovirals in five health care centers the project worked with in Buikwe District, Uganda. The pink line is the PEPFAR number of patients ever enrolled in treatment. The difference between the dark blue and pink lines is the coverage gap. The light blue line shows the data for the patients that are expected to be treated at the five facilities, removing any patients that may have transferred to another facility or passed away. The yellow line indicates

PRESENTATION VISUAL	FACILITATOR'S MAIN POINTS
	patients who come to their appointments. The difference between the light blue line and the yellow line is the retention gap. Finally, the green line indicates good clinical outcome of patients on treatment. The difference between the yellow line and the green line is the wellness gap. The graph shows that in October 2010 the baseline for coverage, retention, and wellness of patients on ARTs had large gaps of 44%, 49%, and 53% respectively. After the teams began testing changes (some examples are included in the box below), the gaps began to close over time. At the end of ASSIST's intervention period, the coverage, retention, and wellness gaps were 19%, 24%, and 14% respectively. Improvement teams at the five facilities continued to test changes and improve the quality of care for patients beyond the intervention site. They continued to collect and analyze data and were able to close the coverage gap completely by April 2014. The retention and wellness gaps were also improved greatly, reducing to 5% each.
Examples of changes introduced to improve ART care in 5 facilities in Buikwe, Uganda Slide 40:  Examples of changes introduced to improve ART care in 5 facilities in Buikwe, Uganda Coverage Gap • Health workers and expert patients sensitized community members on chronic care for HIV through local radio, at churches and in health facilities • Village health teams mobilized communities for random counselling and testing • Conducted HIV counselling and testing to all patients who came to the facility Retention Gap • Health workers and expert patients traced patients lost to follow-up by conducting home visits • Introduced outreach visits to reduce travel distance for patients • Conducted group classes for patients who defaulted from care • Assigned each patient two treatment supporters Wellness Gap • Educated patients about their condition and treatment as well as allowed patients to share their experience • Conducted health worker guided health education sessions • Introduced self-management classes • Health workers and patients set health goals together and monitored progress. 30 USAID Applying Science to Strengthen and Improve Systems	**SAY:** These are some examples of the changes the teams conducted to close gaps. **HIGHLIGHT:** Highlight one change from each column.
Record of oxytocin injection given within one minute of birth, Hisar District Hospital, India, February-May 2014 Slide 41:  Record of oxytocin injection given within one minute of birth, Hisar District Hospital, India, February-May 2014 Figure 1: Percentage of bed head tickets having record of oxytocin injection given within one minute in Hisar District Hospital, February-May 2014 Percentage 100% 90% 80% 70% 60% 50% 40% 30% 20% 10% 0% Feb-8 Feb-22 Mar-8 Mar-22 Apr-5 Apr-19 May-3 February-Week 1: Staff is orientated and shift-to-shift communication is introduced. February-Week 2: Signs for oxytocin administration posted in common areas. February-Week 3: Staff reorientation. 41 USAID Applying Science to Strengthen and Improve Systems	**SAY:** The Hisar District Hospital in the state of Haryana in India delivers approximately 250 to 300 babies a month, approximately ten percent of all deliveries in the district. A quality improvement team was formed in the hospital to improve the administration of oxytocin to reduce post-partum hemorrhage. Because of workload issues, the team were not giving oxytocin to all women immediately after delivery. To resolve these issues, the team decided to try keeping prefilled syringes with oxytocin and to improve the communication about the new changes to all nurses working on different shifts. The team found that a printed notice with the message to use prefilled syringes along with staff reorientation improved knowledge of these new changes and following this, all women have received oxytocin in the first minute after delivery. These changes can be tried in other facilities also struggling with communication issues between shifts. For more information on how communication was improved between nursing shifts to improve care in Hisar District Hospital, read the Hisar case study on the ASSIST website.
Pause	**ASK:** Are there any questions before we take a quick break?

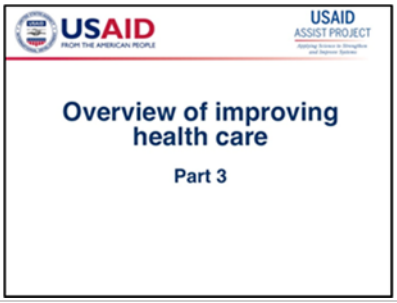
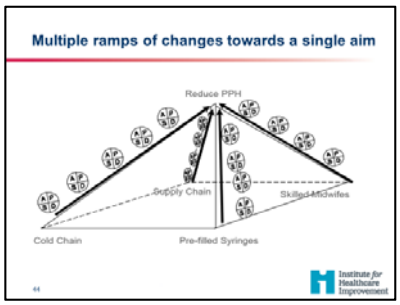
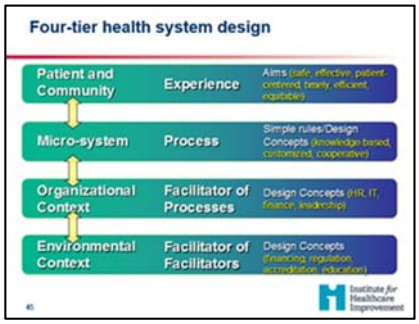
PRESENTATION VISUAL	FACILITATOR'S MAIN POINTS
Break – Either 90 minutes for lunch, or if training began in the afternoon, break for the day,	**ANNOUNCE:** Tell participants the length of the break and when the training will resume.

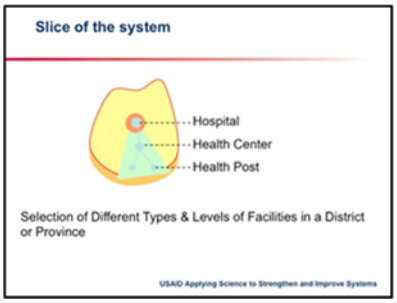
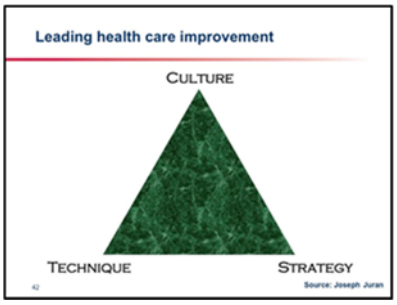
Module 4: Overview of Improving Health Care, Part 3

Time: 40 minutes

After this module, participants should be able to:

- Describe testing multiple changes to achieve a single aim
- Understand various levels of the health care system

PRESENTATION VISUAL	FACILITATOR'S MAIN POINTS
Overview of improving health care, Part 3 Slide 43:  	
Multiple ramps of change towards a single aim Slide 44:  	**SAY:** This image describes the idea that multiple things that are coming together towards a single aim. There is not just one thing, but the sum total of multiple things going on, that produces a good health outcome. When setting out to accomplish an aim, it is possible to have multiple areas of change. The figure shows the different areas that could affect reducing PPH. Going back to the previous example in Niger, there were multiple changes that were tested simultaneously in order to achieve the desired result, reducing PPH. The areas addressed during the improvement work was health worker competence, supply chain, cold chain, and pre-filled syringes. These areas were those identified as needing improvements. Not only one change was tested within each area. Although only a few changes were highlighted in the previous example, numerous Plan-Do-Study-Act (PDSA) cycles were implemented in Niger in order to achieve the aim of reducing PPH through AMTSL.
Four-tier health system design Slide 45:  	**SAY**: Good care happens when the patient receives it, but this happens within a system with several other layers. There is a larger micro-system, organizational context, and overarching environmental context in which a patient's experience is embedded. All these factors must be considered during the improvement process.

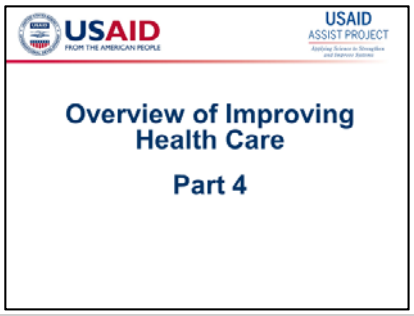
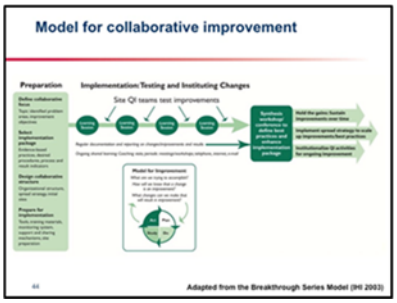
PRESENTATION VISUAL	FACILITATOR'S MAIN POINTS
Slice of the system Slide 46:  	**SAY:** It is important to consider all levels when improving. The various levels of the health care system are all interrelated, as can be seen above. The diagram illustrates the slice of the system concept. This concept is utilized to understand how the whole system works and is also a very good tool in planning for scaling up improvement efforts. Taking a slice of the system means that when selecting the sites to work in, select sites at the various levels of the system, which represent the levels of the health care system to which the improvement work will be eventually spread. It incorporates the key players and leaders in the health care system.
Leading health care improvement Slide 47:  	**SAY:** It is important to note that people with little to no formal knowledge of improvement science can still improve. These types of people have the intuition that if we continue to do what we are doing, we will continue to get the same results. If we want different results, we need to do something different. However, with the right training of techniques, they will be able to improve at a much greater scale. The selection of what to improve and how to do it is equally as important as technique, as is the consideration of the culture and environment of the work that is being conducted.
Pause	**ASK**: Are there any questions before we take a quick break?
Short break – 5 minutes	**ANNOUNCE:** Tell participants this is only a 5-minute break.

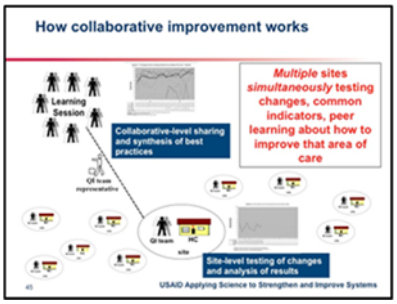
Module 4: Overview of Improving Health Care, Part 4

Time: 40 minutes

After this module, participants should be able to:

- Describe collaborative improvement

PRESENTATION VISUAL	FACILITATOR'S MAIN POINTS
Overview of Improving Health Care, Part 4 Slide 48:  	
Model for collaborative improvement Slide 49:  	**SAY:** This figure shows the model for collaborative improvement developed under the USAID HCI Project. Collaborative improvement has three phases. The first phase is the preparation phase. This phase is when the focus of the collaborative is defined, including the improvement objectives. The implementation package is also developed during this stage. The implementation package should consist of evidence-based practices, desired procedures, as well as process and result indicators for measuring and evaluating the changes that are tested in phase two. Preparing for collaborative improvement also requires planning and strategic thinking of the organizational structure of the improvement teams, the initial sites that are going to be included during implementation as well as a strategy for spreading the work beyond the initial sites. During phase one as well it is important to prepare materials and resources that are necessary for the implementation of improvement work. This means that there must be a monitoring system in place, resources for holding learning sessions with the improvement teams involved in the work, and site preparation to begin the work. The second phase of collaborative improvement is implementation. Usually there are at least four learning sessions that occur on a quarterly basis. These learning sessions are designed to bring together the improvement teams working at different facilities (on the same aim) to attend a one or two day meeting where they share changes that were tested, what worked, and what did not in their respective environments. In between these learning sessions, improvement teams test new changes (perhaps ones they learned from another facility's improvement team at a learning session) and continue to monitor the results. They report back on progress at future learning sessions.

PRESENTATION VISUAL	FACILITATOR'S MAIN POINTS
	Phase two also involves coaching visits from improvement experts. Coaches give improvement teams advice on improvement approaches and provide support through in-person visits, phone calls, or other means. These visits are there to provide support to improvement teams throughout their improvement journey. The final phase in the model for collaborative improvement is scaling up the efforts beyond the initial sites. This phase begins with a meeting to harvest the knowledge gained throughout the implementation process of improvement teams. The goal of the meeting is to put together a change package that is to be implemented during the scale up. The change package consists of the best practices that occurred during the implementation phase.
How collaborative improvement works Slide 50:  	**ATTENTION- THIS SLIDE CONTAINS ANIMATION** **SAY:** Collaborative improvement builds on the efforts of individual quality improvement teams but links them in important ways that heighten the impact of their efforts. This approach was originally developed by the Institute for Healthcare Improvement about 15 years ago and has been used extensively in the US and other developed countries. How does it work? Just like the MUAC team example, it starts with individual teams testing changes and analyzing their results (using time series charts to assess whether their changes led to improvement). But now other teams are also working on the same issues at the same time These teams get together periodically to share their changes and results so they can learn from each other. This periodic sharing, known as learning sessions, also has the effect of inducing teams to compete against each other in a friendly way to get the best results For the collaborative as a whole, the results are validated, consolidated and synthesized. This facilitates rapid gains across all teams because the consolidation of best practices out of the work of all teams helps all teams to move forward, faster. So, collaborative improvement is simply multiple teams simultaneously testing changes, using common indicators and peer learning about what are the most effective changes to improve the same area of care.
Pause	**ASK**: Are there any questions before we take a quick break?
Break – 15 minutes	**ANNOUNCE:** Tell participants this is a 15-minute break.

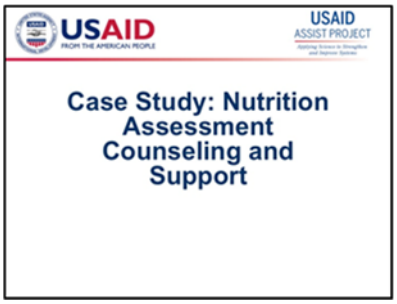
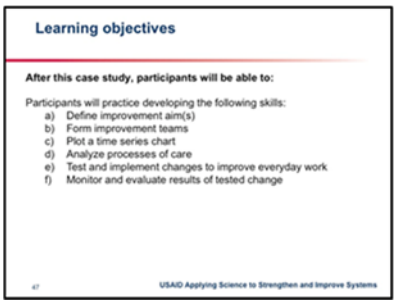
Module 5: Case Study – Nutrition Assessment, Counseling, and Support

Time: Up to 6 hours (for all six sections combined)

After this module, participants should be able to:

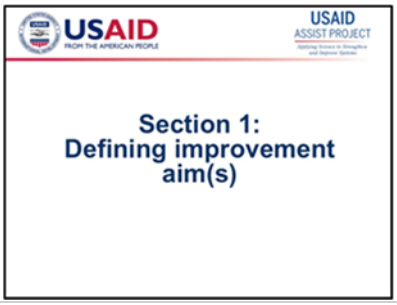
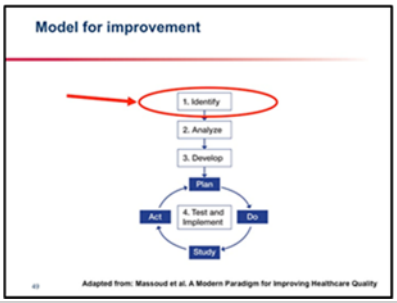
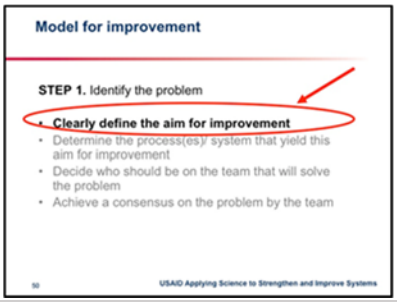
- Define improvement aim(s)
- Form improvement teams
- Plot a time series chart
- Analyze processes of care
- Test and implement changes to improve everyday work
- Monitor and evaluate results of tested change

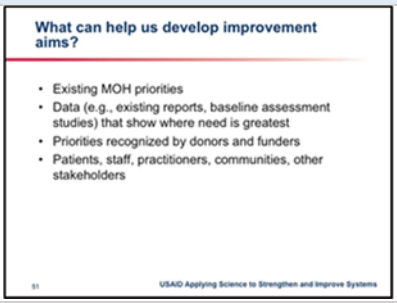
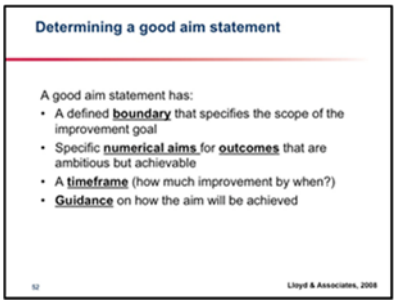
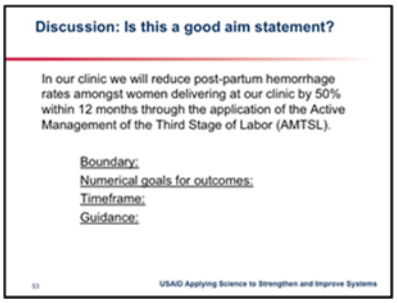
This first section is estimated to take 10 minutes.

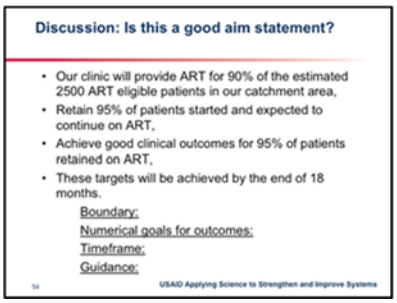
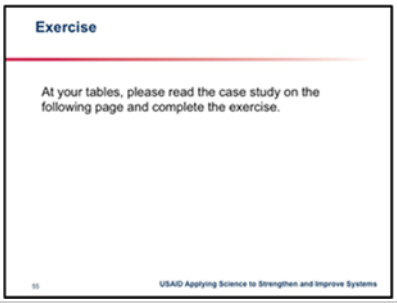
PRESENTATION VISUAL	FACILITATOR'S MAIN POINTS
Opening and recap	**ASK**: What has been some of your favorite things you learned so far? Any questions? Comments?
Case Study: Nutrition Assessment, Counseling, and Support Slide 51:  	**SAY:** Throughout the remainder of the course, you will be working in small groups and interacting with a real improvement project that happened in Uganda, going through the sequence of conducting a quality improvement project from start to finish. The six sections are: 1. Defining improvement aims 2. Forming the improvement team 3. Understanding the current process 4. Developing Indicators 5. Setting up and plotting a time series chart 6. Developing, testing and implementing changes Each section follows the same sequence. It begins with a short introduction, a case study to read, then the questions to answer, followed by your group's discussion and the full class debrief.
Learning objectives Slide 52:  	**SAY:** Throughout the case study you will practice developing the following skills: a) Define improvement aim(s) b) Form improvement teams c) Plot a time series chart d) Analyze processes of care e) Test and implement changes to improve everyday work f) Monitor and evaluate results of tested change

Case Study Section 1: Defining Improvement Aim(s)

Time: 40-60 minutes

PRESENTATION VISUAL	FACILITATOR'S MAIN POINTS
Section 1: Defining Improvement Aim(s) Slide 53:  	**SAY:** All improvement starts with aim. If we don't know where we're going, any road will get us there. **ASK:** What is an aim statement?
Model for improvement Slide 54:  	**SAY:** Step 1 in beginning an improvement project is identifying the problem.
Model for improvement Slide 55:  	**SAY:** We need to clearly define the aim for improvement.
What can help us develop improvement aims? Slide 56:	**SAY:** There are available resources for developing improvement aims. • Existing MOH priorities • Data that show where need is greatest (e.g., existing reports, baseline assessment studies, service utilization data, epidemiological data, perform new assessments) • Priorities recognized by donors and funders • Patients and staff (questionnaires and interviews) • Practitioners, communities, and other stakeholders

PRESENTATION VISUAL	FACILITATOR'S MAIN POINTS
	
Determining a good aim statement Slide 57: 	**SAY:** A good aim statement asks what we are about to improve. It helps us specify the scope and define boundaries. **SAY:** Setting numeric targets is very important, as well. It's hard to determine how much change you can impact. Sometimes you'll exceed, and sometimes your target might be overly ambitious and might not be able to succeed The elements of a good aim statement are: • A defined **boundary** that specifies the scope of the improvement goal (what?) • Specific **numerical aims** for **outcomes** that are ambitious but achievable (how much?) • A **timeframe** (by when?) • **Guidance** on how the aim will be achieved (how?) **SAY:** Using this definition let's go through an example together.
Discussion: Is this a good aim statement? Slide 58: 	**READ:** Read the statement below. ***Statement #1***: In our clinic we will reduce post-partum hemorrhage rates amongst women delivering at our clinic by 50% within 12 months through the application of the Active Management of the Third Stage of Labor (AMTSL). **SAY:** Discuss this aim statement in your groups for 5 minutes. Is this a good aim statement? Does it have a boundary? Numerical goals for outcomes? A timeframe? Guidance? **ASK:** Ask for a volunteer for each component of the aim statement to share. ***Answers:*** Does it have a boundary? "Our Clinic" not the community, not the whole community, and "reducing post-partum hemorrhage" Numeric goal? reduction of 50% of women Timeframe: 12 months Guidance: AMTSL

PRESENTATION VISUAL	FACILITATOR'S MAIN POINTS
Discussion: Is this a good aim statement? Slide 59:  	**SAY**: Let's do another one. **READ**: Read the statement below. ***Statement #2***: Our clinic will provide ART for 90% of the estimated 2500 ART-eligible patients in our catchment area, retain 95% of patients started and expected to continue on ART, and achieve good clinical outcomes for 95% of patients retained on ART. These targets will be achieved by the end of 18 months. **SAY**: Discuss this aim statement in your groups for 5 minutes. Is this a good aim statement? Does it have a boundary? Numerical goals for outcomes? A timeframe? Guidance? **ASK**: Ask for a volunteer for each component of the aim statement to share. ***Answers:*** Boundary: Our Clinic, ART Numeric goals: 90, 95, 95 Any comments on these? Very ambitious, set a "stretch target" and try to achieve as much as you can. demotivating effect Timeframe: 18 months Guidance: No theory of change, prototype work, and there's a very high target
Case Study Section 1 Exercise Slide 60:  	**SAY:** Now let's define an aim. Turn to page 48 in your participant guide and read the case. Answer the questions on page 49. Take 10 minutes to discuss within your groups. **CHECK IN:** After 10 minutes, check if groups need more time. **ASK:** Ask for 2-3 volunteers to share their responses. **SAY:** Turn to Appendix A, page 97, to see the aim statement the team in Uganda used.

Case Study Exercise Part 1: Defining an Improvement Aim

The head of a clinic, Dr. Samson, was informed by his district manager that improving the nutritional status of HIV positive clients attending ART clinic was a district priority for the year. The clinic head was aware that his clinic had a number of challenges to overcome – an already overstretched care team, members of the team who did not appreciate the importance of good nutrition in HIV care and high patient load.

Dr. Samson knew that despite these challenges, improvements could still be made to ensure that all the clients in his clinic would have a good nutritional status, which would in turn have a good impact on his clients' clinical outcomes. He met with the head of the ART clinic, and they agreed that one of the ways to achieve this would be to integrate nutrition services into routine HIV/AIDS care services. During this meeting, they reviewed the processes entailed in providing good nutrition care and support to clients and prioritized assessing clients' nutrition status. They knew that focusing on assessment would enable them identify malnourished clients and take decisive action to treat and support them.

It was agreed that middle-upper arm circumference (MUAC) measurements would be the method of choice for assessment and categorization of clients.

Develop an aim statement for Dr. Samson's project by answering the questions on the next page.

Instructions

When answering these questions, you should remember that your goals should be ambitious, but achievable. An ambitious goal that is not realistic will demotivate you and your colleagues, while a realistic goal that is not ambitious will fail to motivate you to make as much of a change as you are capable of making.

Case Study Exercise, Part 1: Defining an Improvement Aim

Where will your change be implemented: (A) _____our HIV/ART clinic_____ (a

location such as a town, clinic, or office)

What outcome are we trying to change: (B) _____improve nutritional status_____

(Should be a tangible result, such as a decrease or increase in something that matters in health care)

By what amount are we trying to change it: (C) _____90%_____

(Should be a percentage or some other numerical value)

When do you expect to see this this result happen: (D) ____in 6 months_____

(An amount of time or by a certain date)

What will you do/use to achieve this result: (E) _____assess all clients using

MUAC_____

(What intervention, method, tool, or resource will you employ to make the change?)

Put together your responses to complete the aim statement for your improvement project:

In (A) _____our clinic_____, we will (B) ___improve the nutritional status for our clients

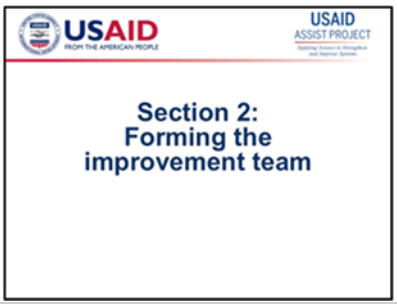
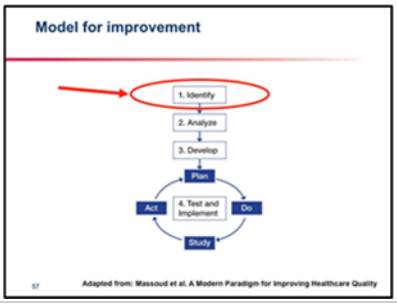
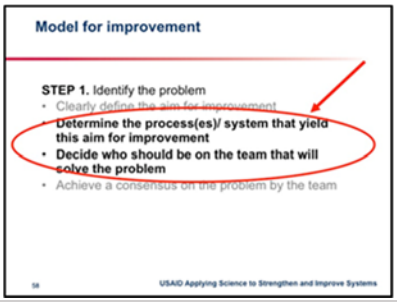
by (C)_____90%_____ within/by (D) _____12 months_____

through (E)_____the use of MUAC_____

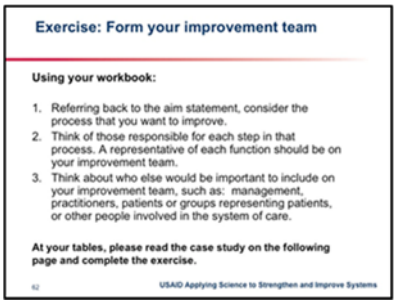
using/by/through (E) _____assessing all our clients using
MUAC_____.

Case Study Section 2: Forming the Improvement Team

Time: 40 minutes

PRESENTATION VISUAL	FACILITATOR'S MAIN POINTS
Section 2: Forming the Improvement Team Slide 61: 	
Model for improvement Slide 62: 	**SAY:** Now that we know what we're doing, we need to think about the people we need on the team to help us accomplish the work. We will invite them to sit on the improvement team, as they are the ones actually involved in the work. The person who comes up with the solution to their own problem will be the most likely person to see through the implementation. The notion of empowerment is extremely strong here. People begin to realize they can be the change they wish to see.
Model for improvement Slide 63: 	**SAY:** Determine the process(es)/ system that yield this aim for improvement Decide who should be on the team that will solve the problem.
Why is teamwork important for improvement? Slide 64:	**SAY:** Improvement is about figuring out the interdependencies that occur to give the end result. It is therefore important to include team members who understand the different parts of the system and can give their input into suggested changes. Health care processes consist of inter-dependent steps that are executed by different people fulfilling different professional functions. Quality faults often occur in the hand-over between people in different steps.

PRESENTATION VISUAL	FACILITATOR'S MAIN POINTS
	Given the opportunity, staff can often 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 team member, which empowers organizations.
Teamwork Slide 65: 	**SAY:** When you get started, you will need to think about your process in order to decide who needs to be on your team. However, you need to work with the assembled team to be able to fully understand the process. As a result, in the real world, building the team can become an iterative process where you realize after you fully analyze your system that you forgot to include someone important on your team. A representative for the different steps of the process of a patient visit should be included in the team. People are not resistant to change; however, they hate *being* changed. It is more effective to ask them *how can we do this better?*
Team roles and responsibilities Slide 66: 	**SAY:** When forming a team, a representative from each of the different functions in the process should be present. No function should be missing; otherwise knowledge and insight about the steps of the process might be missing. The team leader sets the agenda, coordinates the stakeholders, and forms the link between all of the members. In health care, the more that we can involve patients, the more beneficial the improvement will be, as well. Patient involvement makes a huge difference in the final outcome of a change process, as patients have a powerful and different perspective than the health care worker. Patient participation could be in the form of surveys, interviews, check-ins, even sitting on improvement teams. You should choose patients who are familiar with the context of the facilities and s/he or their families have received services from the facility more than once. **REAL WORLD EXAMPLE:** **SAY**: In Russia, chronically ill patients needed to make large sweeping lifestyle changes. The traditional interventions at the hospital were not working. The health care team brought patients into the clinic and asked them what might be helpful for them to make these lifestyle changes. The patients knew that the doctor at the clinic went on nightly walks. At the patients' suggestion, the clinic began sponsoring the evening walks where patients walked alongside the doctor discussing good health practices. As the patients proposed the activity, the health promotion activity was successful. Health promotion activities such as this are generally more related to chronic care than acute care. With acute care, the patient sees the doctor very few times – once, maybe twice. This is a very different type of

PRESENTATION VISUAL	FACILITATOR'S MAIN POINTS
	interaction than with chronic care. For example, when a patient has cancer or diabetes, medical staff that are managing their care and lifestyle over time frequently see them. However, we all know physicians do not do the majority of care. The patient and family also take part. Physicians are there to support the management of care, while the patient drives the process.
Exercise: Form your improvement team Slide 67:  Exercise: Form your improvement team Using your workbook: 1. Referring back to the aim statement, consider the process that you want to improve. 2. Think of those responsible for each step in that process. A representative of each function should be on your improvement team. 3. Think about who else would be important to include on your improvement team, such as: management, practitioners, patients or groups representing patients, or other people involved in the system of care. At your tables, please read the case study on the following page and complete the exercise. 62 USAID Applying Science to Strengthen and Improve Systems	**SAY**: Turn to page 56 in your participant guide and read through the exercise. Using your workbook: 1. Refer back to the aim statement, consider the process that you want to improve. 2. Think of those responsible for each step in that process. A representative of each function should be on your improvement team. 3. Think about who else would be important to include on your improvement team, such as: management, practitioners, patients or groups representing patients, or other people involved in the system of care. **SAY**: Take 10 minutes to discuss and complete the exercise. **CHECK IN:** After 10 minutes, check if more time is needed. **ASK:** Volunteers to share their answers. **SAY:** Turn to Appendix A, page 98, to see what the team did.
Debrief and closing	**SAY:** Today, we covered half of the case study. Tomorrow, we will continue working on the case study and discuss how we understand the current process, develop indicators, plot them, and test and implement changes.

Case Study Exercise Part 2: Form Your Improvement Team

Doctor Samson and the ART clinic manager considered the process involved in providing good nutrition care for the HIV positive clients in the ART clinic. They looked at the entire clinic flow in order to identify all of the people who contribute to the clients' nutritional care. There is a string of staff members with whom a client interacts upon arrival at the clinic, from the reception staff leading to the nursing staff, the clinicians and the dispensing staff.

In order for nutrition care to integrate into HIV care, certain clinic staff members will be especially affected in the way they do their work. In fact, the changes even affect clerical staff in some ways. Dr. Samson and the ART clinic manager knew that any effective change that takes into account the contributions of all of these people would require their direct involvement in this improvement project.

While considering all of these things, they made a list of those involved and tried to narrow down the team to include as many individuals as possible without making the team too large.

Case Study Exercise, Part 2: Form the Improvement Team

Referring back to the aim statement you developed, consider the process that you want to improve. Think of those responsible for each step in that process. Think about whom else would be important to include on your improvement team, such as: management, practitioners, patients or groups representing patients, or other people involved in the system of care. A representative of each function should be on your improvement team.

Who is involved in the process we are changing that needs to be part of the team?

What part of the process / what role?	Who performs the function?
• Getting the clients to the clinic • Reception, orientation, registration • Assessing nutritional status • Caring for malnourished clients • Prescribing therapeutic feeds	• Family member, community linkage team • Receptionist, nursing assistant • Nurses, clinicians • Doctors: Dr. Samson

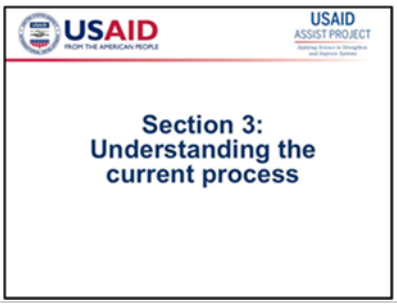
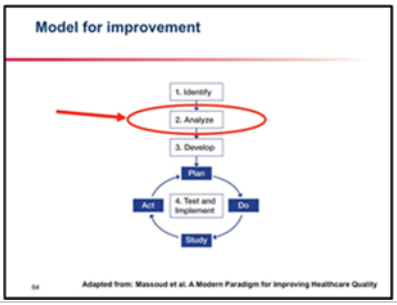
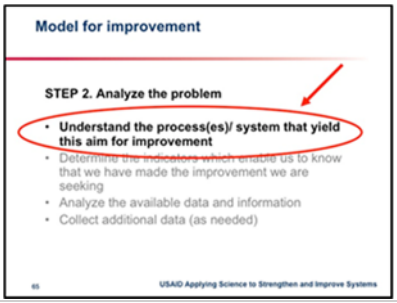
Are there other stakeholders or contributors that are not directly involved in the process, but contribute to successful outcomes? Think about the wider system in which you work.

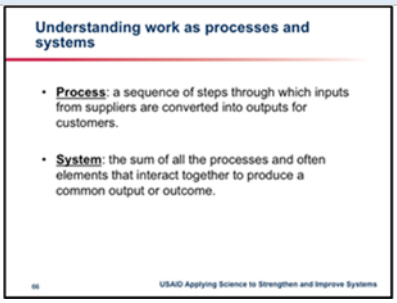
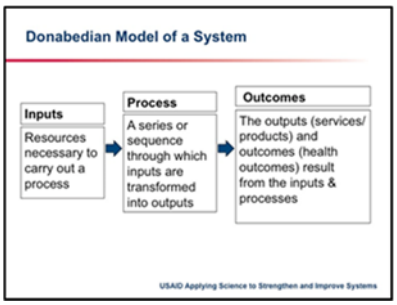
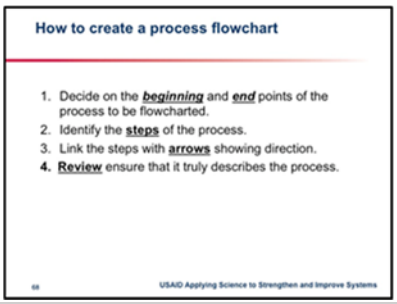
How does this process affect others?	Who are they?
• Filing/Record-keeping • Dispensing ready-to-use therapeutic food • Linking clients from the community to the facility	• The data clerk • Dispenser or pharmacist • Patients • Community

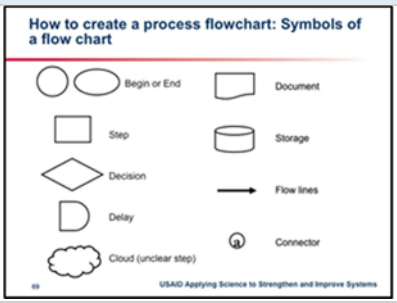
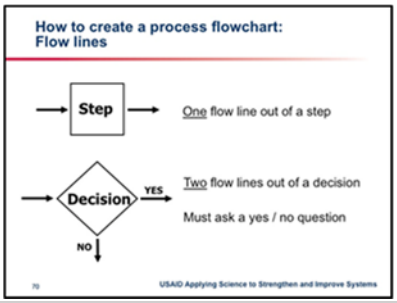
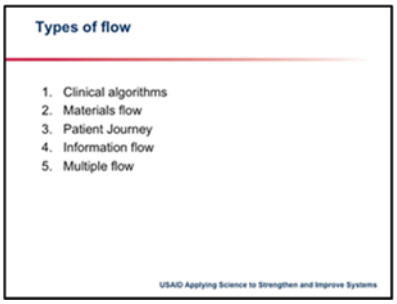
When you have filled in all of the individuals above, narrow down the group by circling those who are necessary to have involved. Of those remaining, will the team be able to function well and produce real effective change without them? Make sure all of the necessary people are included but that the team is not too large or too small to be able to function well. An ideal team size is 5 to 9 people.

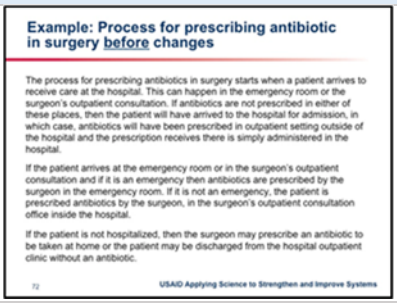
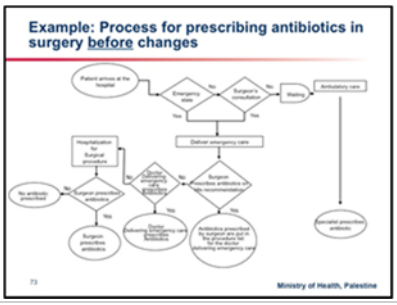
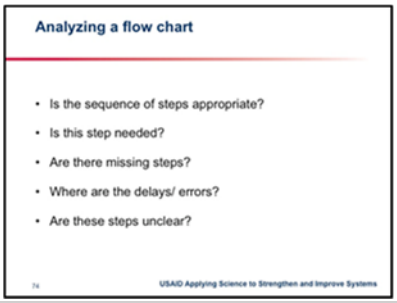
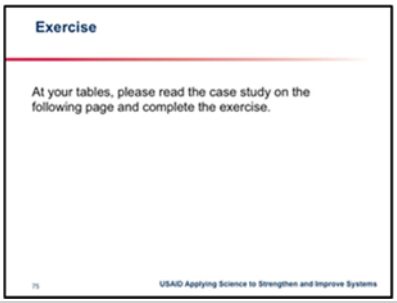
Case Study Section 3: Understanding the Current Process

Time: 40-60 minutes

PRESENTATION VISUAL	FACILITATOR'S MAIN POINTS
Opening and recap	**ASK**: What has been some of your favorite things you learned so far? Any questions? Comments? **SAY:** So far, we have defined our aim and formed the improvement team Today, we will learn how to draw a flowchart, develop indicators, how to draw a time series chart, and discuss developing and testing changes.
Section 3: Understanding the Current Process Slides 68:  	**SAY**: Now we will continue with the case study exercise, focusing on how to understand what is the current process.
Model for improvement Slide 69:  	**SAY:** We need to analyze our current process and situation to understand where we are. The Nolan model does not specifically address this.
Model for improvement Slide 70:  	**SAY:** Let's think about the processes within the system that yield the aim for improvement.
Understanding work as processes and systems Slide 71:	**SAY:** For this training, we are going to concentrate on understanding work at the process level, but keep in mind that processes are a piece of the greater health care system. Often in improvement, although the improvement effort may initially be focused on one health care process, in the effort to improve that process

PRESENTATION VISUAL	FACILITATOR'S MAIN POINTS
	it may be necessary to look at related processes and other parts of the overall system. All processes put together make up the system. For example, when we're managing patients who require the NACS process. NACS is one process that fits into a bigger system of patient care. The health care workers might separate these, but as far as the patient is concerned, they are part of the same service. All of the services from a clinic can be thought of as processes and systems and can be expressed in discrete steps. For example, the patient arriving to an outpatient clinic has multiple discrete steps.
Donabedian Model of a System Slide 72: 	**SAY:** One of the fundamental ideas of quality improvement is to get people to see that they are part of a bigger system and that not only do they need to do their specific job well but they also need to make sure that the system works. Donabedian is one of the fathers of quality improvement. He wrote that all systems could be looked at in terms of inputs, processes, and outcomes/ outputs. Processes are key because they represent *how* to use your inputs. It is true that a lack of resources would cause issues in the improvement, however, even if all the resources are available, it does not guarantee that we will get where we want to go. For example, even having the medicine does not mean that the diagnosis is right or the correct treatment is right or that the medicine is given in a timely fashion, etc. One way to understand a process is to diagram it. Diagramming a process is called flowcharting. Flowcharting is a simple method originating in engineering science.
How to create a process flowchart Slide 73: 	**SAY:** There are four steps in creating a process flowchart. 1. Decide on the beginning and end points of the process to be flowcharted. 2. Identify the steps of the process. 3. Link the steps with arrows showing direction. 4. Review to ensure that it truly describes the process.
How to create a process flowchart: Symbols of a flowchart Slides 74:	**SAY:** These are the basic symbols for flowcharts that are used in the systems engineering field.

PRESENTATION VISUAL	FACILITATOR'S MAIN POINTS
	
How to create a process flowchart: Flow lines Slide 75: 	**SAY:** A square depicts a step in the process. Only one flow line can stem from a step. A decision is depicted by a diamond. Two flow lines must come out of a decision. The decision should ask a yes or no question.
Types of flow Slide 76: 	**SAY:** There are different types of flow. 1. **Clinical algorithms.** For example, a patient comes in with a fever; you ask what are the options? The options are a) malaria, b) respiratory tract infection, c) diarrheal, d) etc. What do you do? You perform the test. What if the test is negative? This is how a physician thinks through the presentation of patient to lead them to a diagnosis. 2. **Materials flow.** Resources ordered, prepared, and transported to the hospital. For example, food, laundry, pharmaceuticals, etc. 3. **Patient journey.** Patients flowing through the system. 4. **Information flow.** For example, a patient is registered in the logbook. We find their outpatient records. That file goes to the station where they take the temperature, weight, etc. Then, the file goes to the physician, etc. 5. **Multiple flow.** More often than not, we're not just recording simple processes. Many processes are being intertwined. For example, the clinical diagnosis is made, then the pharmacy produces the prescription for the patient, and the patient chart captures both of these items.
Example: Process for prescribing antibiotic in surgery <u>before</u> changes Slide 77:	**SAY:** Read the process on page 63 in your participant guide to understand the flow of steps.

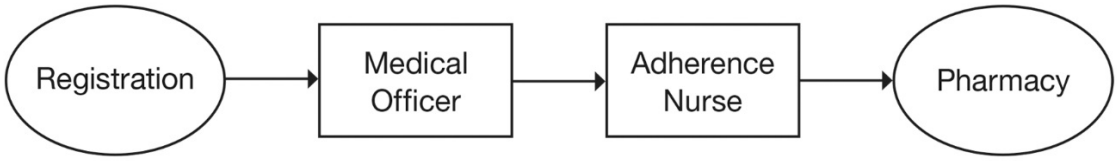
PRESENTATION VISUAL	FACILITATOR'S MAIN POINTS
	
Example: Process for prescribing antibiotic in surgery <u>before</u> changes Slide 78: 	**SAY**: Now look at this flowchart. This maps out the processes from the previous example. **ASK**: Is this easier to understand? **SAY:** In some cases, creating a flow chart will make you realize that there are many processes in the system of care that are unclear. In this case, rationalizing those steps may be key in making improvements.
Analyzing a flowchart Slide 79: 	**SAY:** When analyzing a flowchart, there are a few questions to ask yourself: • Is the sequence of steps appropriate? • Are all the steps needed? • Are there any missing steps? • Are there any delays or errors? • Are any of the steps unclear?
Case Study Exercise for Section 3 Slide 80: 	**SAY:** Turn to page 65 in your participant guide and read the exercise. Take 10 minutes to discuss and complete the exercise. **CHECK IN**: After 10 minutes, check if more time is needed. **ASK:** Volunteers to share their answers. **SAY:** Turn to Appendix A page 99 to see what the team did.
Pause	**ASK**: Are there any questions before we take a quick break?
Short break – 5 minutes	**ANNOUNCE:** Tell participants this is only a 5-minute break.

Case Study Exercise Part 3: Understand the Current Process

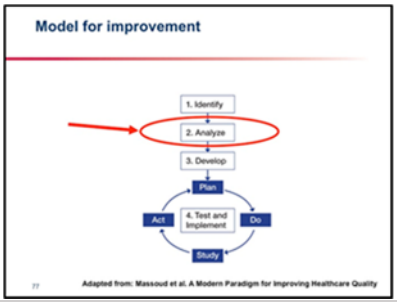
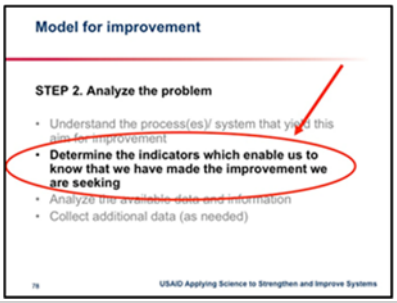
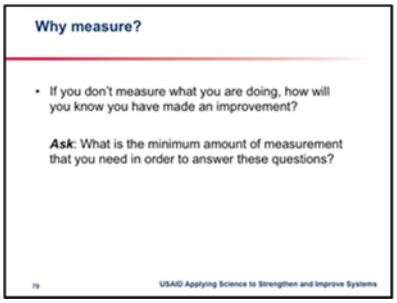
The team decided to map the process by which HIV-positive patients are currently receiving care. After initial reception of the registration desk, the patient sees a medical officer who examines the patients and prescribes a treatment or other interventions, as necessary. The patient then proceeds to see an adherence nurse who discusses drug usage and other matters with the patient. Upon completion, the patient goes to the pharmacy where he picks up his treatment before leaving the health center.

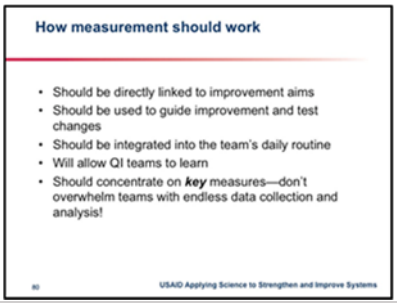
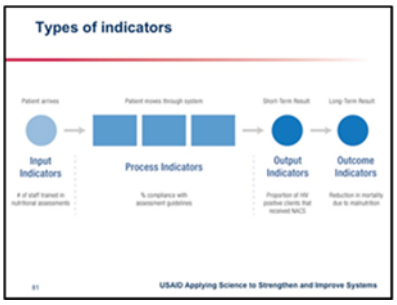
Instruction to participants: Draw a flowchart below using the symbols depicted on p. 53 of the Training Participant Guide to illustrate the flow of the HIV-positive patient in the core process as it is today.

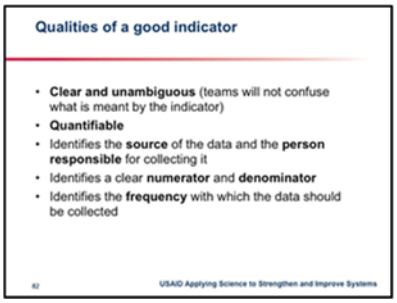
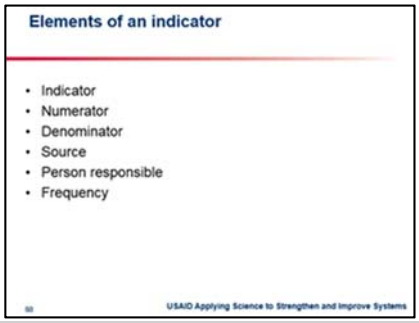
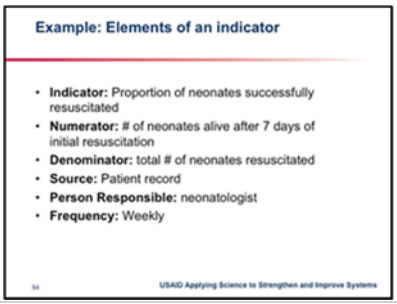
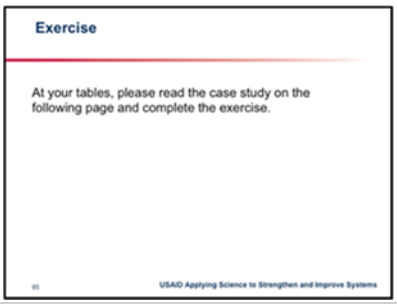
The below flow chart illustrates the flow of the HIV-positive patients in the core process as it is described above.



Case Study Section 4: Developing Indicators

PRESENTATION VISUAL	FACILITATOR'S MAIN POINTS
Section 4: Developing Indicators Slide 81: 	**SAY**: Developing indicators is how we complete the testing and evaluation of our improvement. It is at the core of quality improvement. It is how we figure out how to know if the changes we are implementing are achieving the improvement we are seeking.
Model for improvement Slide 82:  	**SAY:** The second step is to analyze the problem.
Model for improvement Slide 83:  	**SAY:** We need to determine the indicators that enable us to know that we have made the improvement we are seeking.
Why measure? Slide 84:  	**ASK:** Why do we measure? **SAY:** If you do not measure what you are doing, how will you know you have made an improvement? Ask yourself *what is the minimum amount of measurement that you need in order to answer these questions?* The rule of thumb is to collect the minimum amount of data necessary to answer the question. Collecting data is a burden. It is a burden for each health care worker. No one goes into the field of health care to collect data; people go in to help

PRESENTATION VISUAL	FACILITATOR'S MAIN POINTS
	patients. However, we need to collect data to know what we're doing is working or not. Health care workers' engagement is higher if they know why they are collecting that they are. If they know there is some sort of improvement, they will be more likely to collect data. We see a lot of incorrect data going through the system. No matter how well you process the data, if you put garbage in, you'll get garbage out. The key is to be judicious about the data you ask people to collect. Should not overwhelm teams with too much data collection. Instead evaluate what data already exists. What is useful? What else is necessary?
How measurement should work Slide 85:  	**SAY:** How measurement should work • It should be directly linked to improvement aims • It should be used to guide improvement and test changes • It should be integrated into the team's daily routine • It should allow QI teams to learn • It should concentrate on ***key*** measures—don't overwhelm teams with endless data collection and analysis!
Types of indicators Slide 86:  	**SAY:** Using Donabedian's model where we have inputs, processes, outputs, and outcomes, we can establish indicators at each of these levels. Examples of each type of indicator are included in the figure. Input indicators are the easiest to collect, but don't tell us much (ex: number of people trained) Process indicators are sometimes difficult to collect, but often key to the improvement process (ex: % of injections given according to standards) Coverage indicators are especially important if increasing coverage is part of the aim for improvement, but can also be important regardless to show impact Outcome indicators are often the most difficult to collect, but they are the ultimate measure of improvement (ex: case fatality rate of maternal deaths due to PPH) It is important to remember that changes can have unintended consequences. Also, other factors can be influencing the system and affecting outcomes. It is important to remember to look at the system from different angles, including cost, patient satisfaction, staff satisfaction, unintended consequences, and so on. Having balancing indicators that monitor for unintended effect is also important.

PRESENTATION VISUAL	FACILITATOR'S MAIN POINTS
Quality of a good indicator Slide 87:  	**SAY:** In short, a good indicator is defined in such a way that allows for it to be collected and measured *consistently*. Qualities of a good indicator are: • Clear and unambiguous (teams will not confuse what is meant by the indicator) • Quantifiable • Identifies the source of the data and the person responsible for collecting it • Identifies a clear numerator and denominator • Identifies the frequency with which the data should be collected • Indicators are proportions or percentages.
Elements of an indicator Slides 88:  	**SAY:** Here are the elements of a complete indicator.
Example: Elements of an indicator Slide 89:  	**SAY:** Here is an example of a well-defined indicator.
Case Study Exercise for Section 4 Slide 90:  	**SAY:** Turn to page 73 in your participant guide and read the exercise. Fill in the tables on pages 73 and 74. Take 10 minutes to discuss and complete the exercise **CHECK IN**: After 10 minutes, check if more time is needed. **ASK:** Volunteers to share their answers. **SAY:** Turn to Appendix A page 100 to see what the team in Uganda did.

PRESENTATION VISUAL	FACILITATOR'S MAIN POINTS
Pause	**ASK**: Are there any questions before we take a quick break?
Break – 15 minutes	**ANNOUNCE:** Tell participants this is a 15-minute break.

Case Study Exercise, Part 4: Developing Indicators

The improvement team looked at how they can effectively measure whether or not they achieve an improvement. They knew that they should start to immediately collect data so that they have a baseline to compare against in the coming months. The team began to develop indicators by revisiting their aim statement: "In our clinic, we will improve the nutritional status of HIV clients by 90% within 6 months by assessing all our clients using MUAC."

From this statement, they knew they needed accurate data on the numbers of HIV-positive clients coming to the clinic, how many of those have their nutritional status assessed, and how many clients were found to be malnourished. These are both clear and measurable numbers that are already collected through patient registers. These numbers represent the output indicator, which will tell them whether or not the change is working.

In order to know how well the team was implementing the changes, they also needed to know how many of the clients had their nutritional status assessed using MUAC. This is not something that they had measured or recorded systematically before. The team discussed how to best record this information. During the discussion, the staff focused on the clients' care card, which is a card filled out by nurses and clinicians when routine care is provided to clients. The card had a spare column, and so the team decided that this would be the best place to record the MUAC measurements. They also agreed that the daily attendance register would enable them to know how many clients came into the clinic each week.

By using the spare column on the care card, the team will now be able to record the MUAC measurements of each client who comes to the clinic; they can then categorize these measurements according to the guidelines to determine if clients are severely or moderately acutely malnourished or are normal. Using this categorization, the team can then decide what sort of care can be provided to acutely malnourished clients.

Instructions

As you fill out the form below identifying your indicators, ask yourself whether or not they fulfill all of the following qualities:

- Clear and unambiguous (teams will not confuse what is meant by the indicator)
- Quantifiable
- Identifies the source of the data and the person responsible for collecting it
- Identifies a clear numerator and denominator
- Identifies the frequency with which the data should be collected

Output / Outcome Indicator: Whether or not the change is making a real improvement

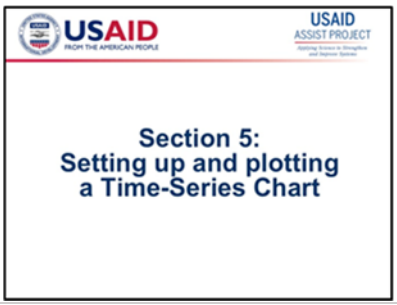
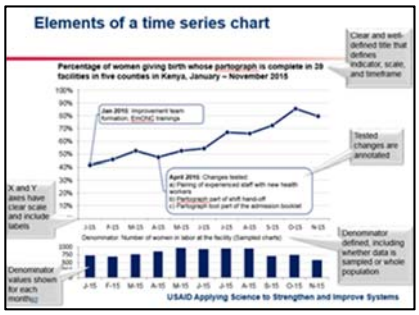
Indicator: Describe what you are measuring	The percentage of HIV-positive clients in the clinic who are assessed for nutritional status using MUAC and found to be malnourished
Numerator: The number of times your process succeeded	# of HIV-positive clients who are found to be malnourished clients (red and yellow MUAC)
Denominator: The total number of times you ran your process	# of HIV-positive clients assessed using MUAC
Source: Where you are getting your data from	Clients' care card/register
Responsible person: Individual who will ensure that the data is collected and maintained	Nurse, nursing assistant
Frequency: How often it will be collected	Clients' charts reviewed monthly

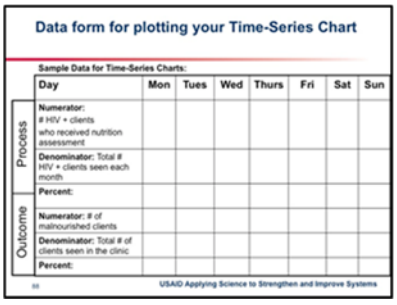
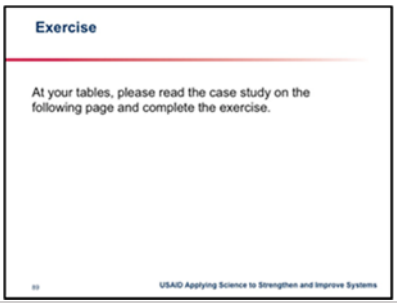
Process Indicator: Whether or not your change is being implemented

Indicator: Describe what you are measuring	% of HIV-positive clients assessed for malnutrition using MUAC
Numerator: The number of times your process succeeded	# of HIV-positive clients who had their nutritional status assessed using MUAC
Denominator: The total number of times you ran your process	# of HIV-positive clients seen in the clinic
Source: Where you are getting your data from	Client cards
Responsible person: Individual who will ensure that the data is collected and maintained	Nurses and data clerk
Frequency: How often it will be collected	Weekly, followed by monthly

Case Study Section 5: Plotting a Time Series Chart

Time: 40-60 minutes

PRESENTATION VISUAL	FACILITATOR'S MAIN POINTS
Section 5: Setting up and plotting a time series chart Slide 91:  	**ASK:** What is a time series chart? **SAY:** A time series chart tracks data trends over time. It can be plotted on a daily, weekly or monthly basis. The x-axis is the time. In the graph below, the unit of time is month. The y-axis is the indicator that the improvement team is tracking.
Elements of a time series chart Slide 92:  	**SAY:** This time series chart plots the percentage of children under age five triaged upon arrival, out of all presenting children. **SAY:** The boxes in gray point out the key elements that should be in a properly labeled time series chart. The purpose of these elements is to ensure that those examining our results have enough information to be able to accurately interpret the graphs. Norms for time series charts are presented below in three categories: a set of norms valid for any charts and then additional specifications for charts of individual QI team data and for charts of aggregated data across sites. These norms should be built into the way charts are automatically generated by Excel and adhered to for any data presentation (paper presentation or electronic, at a learning session, an in-country presentation, etc.). All time series charts should have: • **A clear, well-defined title**: A clear and well-defined title that expresses who, what, when, and where. • **Labeled X-axis and Y-axis**: Axes should include a "scale" such as 0 – 100% and a "label" which describes what variable or indicator is being represented on the axis. • **Denominator definition**: The criteria for being counted in the denominator. Numerator definition: The criteria for being counted in the numerator. • **Denominator values**: If the indicator being shown is a percentage, the corresponding denominator for each measurement period should be presented. • **Data source**: Brief descriptions of the source of data (i.e., register or care cards) • **Sampling strategy**: If data for the denominator come from a sample, rather than all cases that fit denominator definition in that

PRESENTATION VISUAL	FACILITATOR'S MAIN POINTS
	period, state how sampling was done (e.g., systematic sample of 10 records). Time series charts showing data for one site or one QI team should also have: • **Annotate key tested changes**: Annotations should be of two categories: timing of key changes and other key events that might explain changes in results over time. Key changes represent interventions, which relate to substantial changes in the value of the indicator (positive or negative). Time series charts showing aggregated data across multiple sites should also have: • **Number of sites reporting for each measurement period**: For each point on the graph, the total number of sites included in the aggregated measure should be presented.
Data form for plotting your time series chart Slide 93:  Data form for plotting your Time-Series Chart Sample Data for Time-Series Charts: Day | Mon | Tues | Wed | Thurs | Fri | Sat | Sun Process: Numerator: # HIV + clients who received nutrition assessment Process: Denominator: Total # HIV + clients seen each month Process: Percent: Outcome: Numerator: # of malnourished clients Outcome: Denominator: Total # of clients seen in the clinic Outcome: Percent: USAID Applying Science to Strengthen and Improve Systems	**SAY:** Here is a sample data form to collect data to plot on the time-series chart. This is the form the team in Uganda created to record the data. The clinic data clerk records the data from the register and clients' cards every week into a journal. Each week's entry needs to include the total number of clients who were seen in the clinic, the number of clients who had a MUAC assessment, and the number found malnourished. The improvement team member in charge of data began plotting this information on a time series chart to allow the team to see the change in both their process indicator and their outcome indicator over time. This chart was posted on the wall in the records room, which is also used as the team meeting space, so that everyone could see and discuss it together. The journal was kept close by so that other team members were able to make additional notes and comments for everyone's benefit.
Case Study Exercise for Section 5 Slide 94:  Exercise At your tables, please read the case study on the following page and complete the exercise. USAID Applying Science to Strengthen and Improve Systems	**SAY:** Turn to page 81 in your participant guide and read the exercise. Take 10 minutes to discuss in your groups and complete the exercise. **CHECK IN**: After 10 minutes, check if more time is needed**.** **ASK**: Volunteers to share their answers. **SAY:** Turn to Appendix A pages 101-102 to see the correct answer. **ASK:** If there are any questions. *Please see below for clarification of the correct answer.*
Pause	**ASK**: Are there any questions before we take a quick break?
Short break – 5 minutes	**ANNOUNCE:** Tell participants this is only a 5-minute break.

Case Study Exercise Part 5: Collecting and Plotting the Data

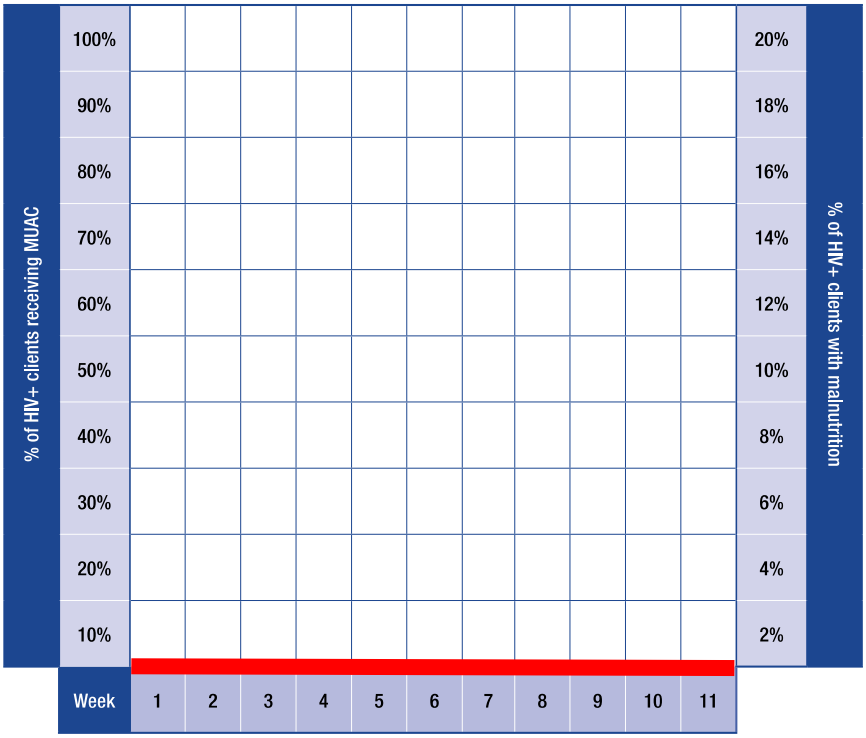
Now that indicators have been defined, we can begin to record the new data. The team created a data form for recording this information:

		Mon	Tue	Wed	Thu	Fri	Sat	Sun
Process	Numerator: # HIV-positive clients who received nutrition assessment							
	Denominator: Total # HIV-positive clients seen each month							
	Percent:							
Outcome	Numerator: # of malnourished clients							
	Denominator: Total # of clients seen in the clinic							
	Percent:							

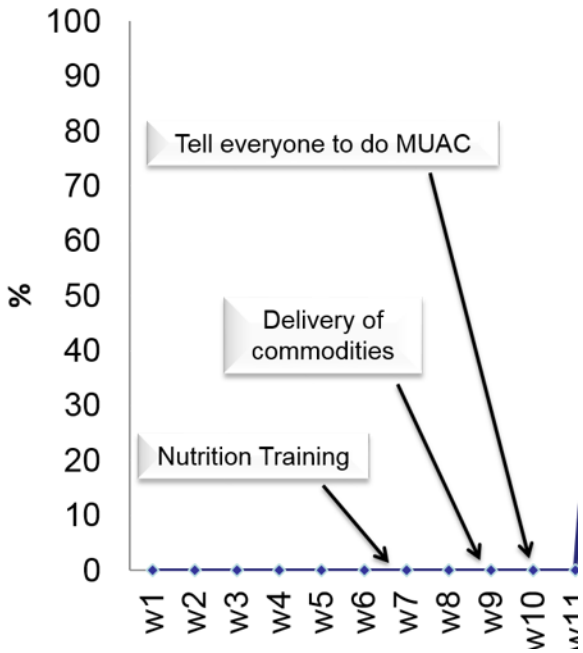
The clinic data clerk records the data from the register and clients' cards every week into a journal. Each week's entry needs to include the total number of clients who were seen in the clinic, the number of clients who had a MUAC assessment, and the number found malnourished.

The improvement team member in charge of data began plotting this information on a time series chart to allow the team to see the change in both their process indicator and their outcome indicator over time. This chart was posted on the wall in the records room, which is also used as the team meeting space, so that everyone could see and discuss it together. The journal was kept close by so that other team members were able to make additional notes and comments for everyone's benefit.

Percentage of clients whose nutritional status is assessed using mid-upper arm circumference. The red line shows that 0% of clients were assessed using mid-upper arm circumference for the first 11 weeks. This is because the facility had tested changes that did not actually have an effect on the number of patients that were assessed using MUAC.



		Week	1	2	3	4	5	6	7	8	9	10	11
Process indicator	**Numerator:** # of HIV positive clients reveiving MUAC assessment		0	0	0	0	0	0	0	0	0	0	0
	Denominator: # of HIV positive clients seen in the clinic		851	757	635	961	833	841	735	697	655	749	843
	Indicator: % of clients with malnutrition		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Outcome indicator	**Numerator:** # of clients with malnutrition		0	0	0	0	0	0	0	0	0	0	0
	Denominator: # of clients seen		851	757	635	961	833	841	735	967	655	749	843
	Indicator: % of clients with malnutrition		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

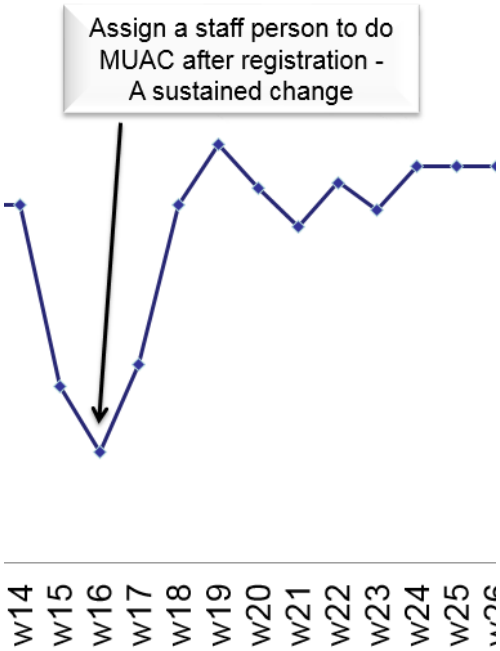


The first change occurred in week 7, implementing a nutritional training, did not have result in an increase in percentage of patients assessed. Staff knew how to measure nutritional status, so adding an additional training was not what was necessary.

The second change in week 8 was the delivery of commodities. This also did not result in an increase in percentage of patients' nutritional status measured.

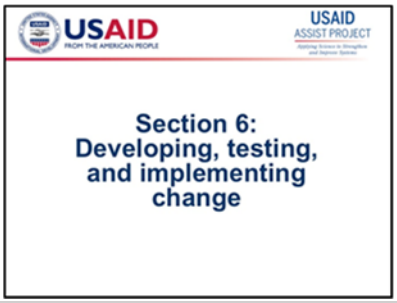
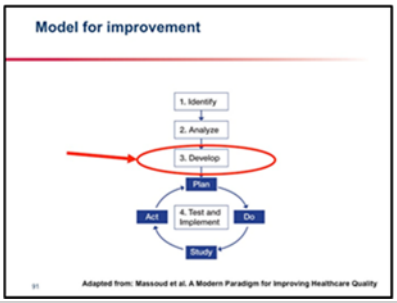
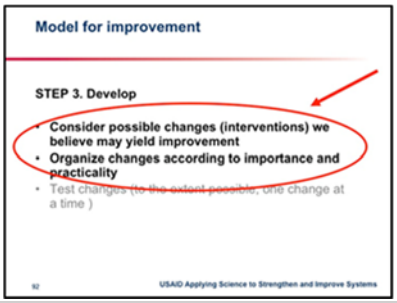
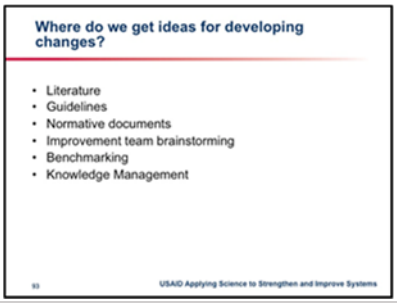
In week 10, everyone was instructed to do MUAC. However this still resulted in no change.

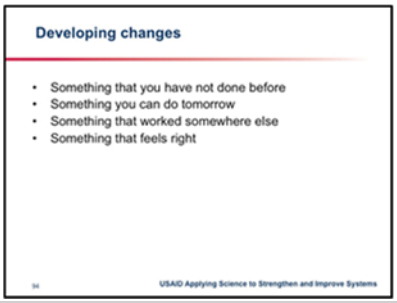
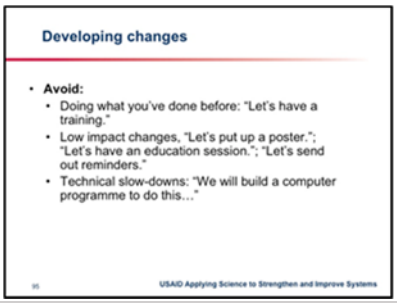
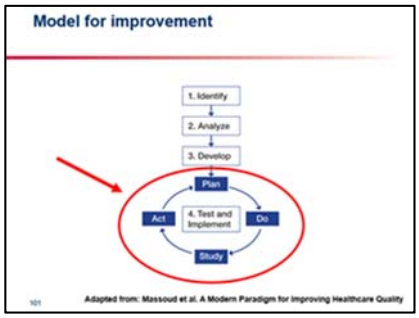
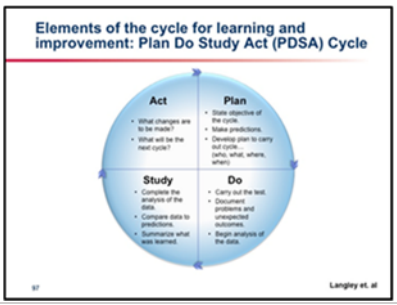
Positive results were seen only when there was a change made that actually assisted with decreasing the burden of staff. No one had actually been assigned to do this work, so staff were unaware who should be conducting MUAC, only that it should be done. By assigning a person to do MUAC, the change was sustained.

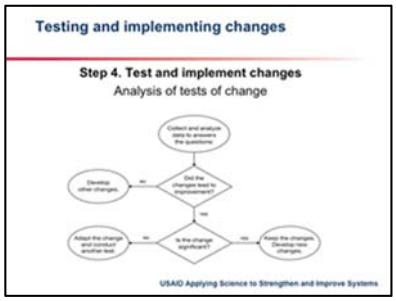
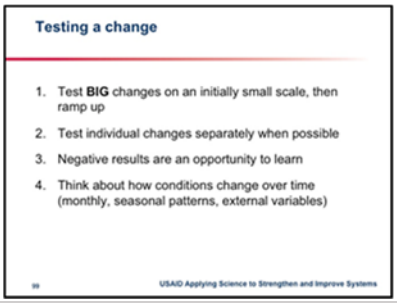
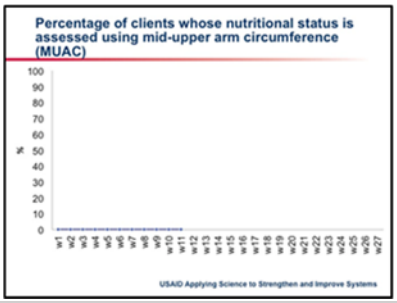
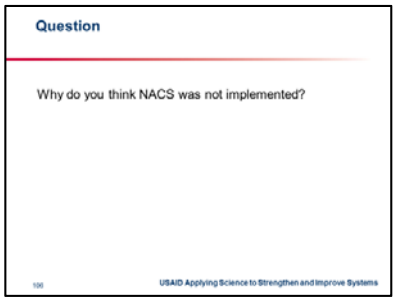


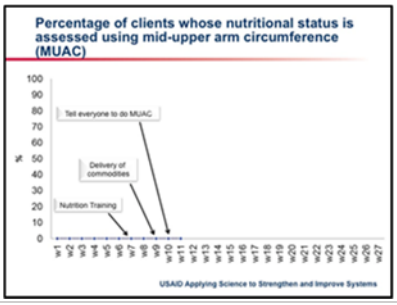
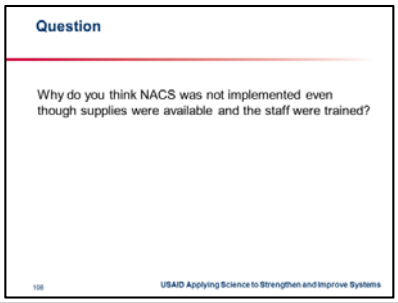
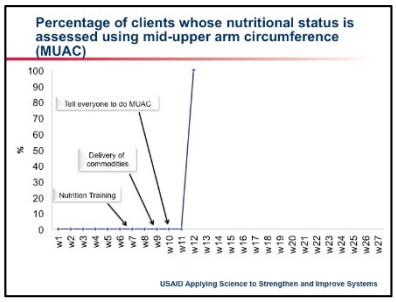
Case Study Section 6: Developing, Testing, and Implementing Change

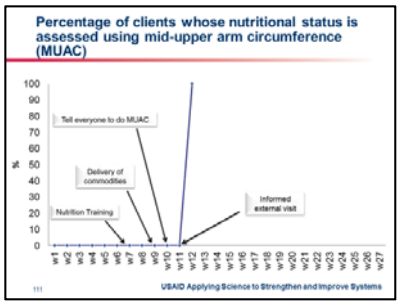
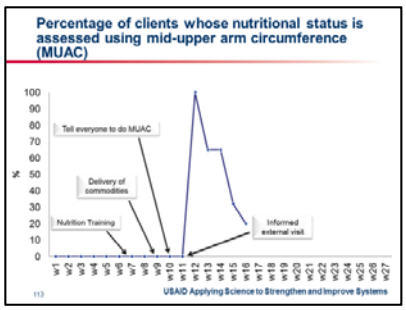
Time: 40-60 minutes

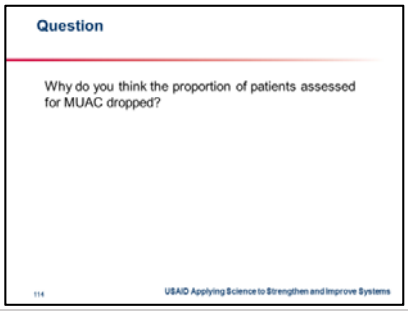
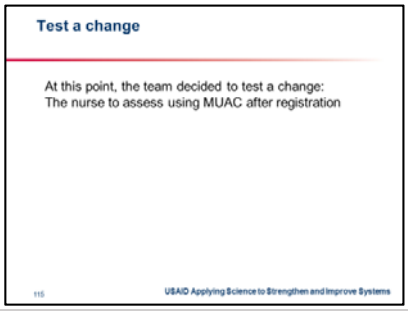
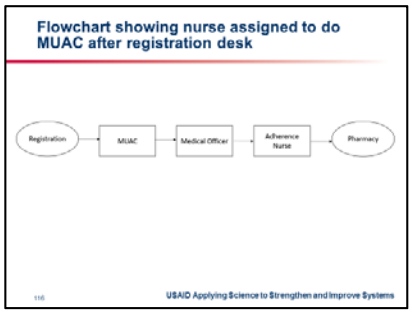
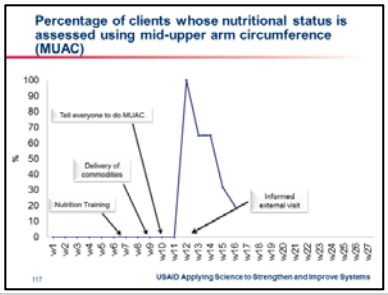
PRESENTATION VISUAL	FACILITATOR'S MAIN POINTS
Section 6: Developing, Testing, and Implementing Change Slide 95:  	**SAY:** Finally, in this section we move to the development, testing, and implementation of changes in processes and systems to improve quality.
Model for improvement Slide 96:  	**SAY:** Now we move on to Step 3: Develop the solution.
Model for improvement Slide 97:  	**SAY:** Consider possible changes (interventions) we believe may yield improvement Organize changes according to importance and practicality If we have many changes, we organize them based on priority to determine which we'll do first.
Where do we get ideas for developing changes? Slide 98:  	**SAY:** Ideas for developing changes come from: • Literature • Guidelines • Normative documents • Improvement team brainstorming • Benchmarking • Knowledge management

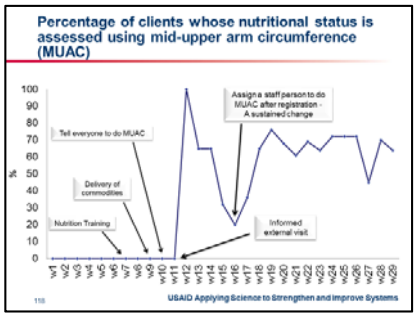
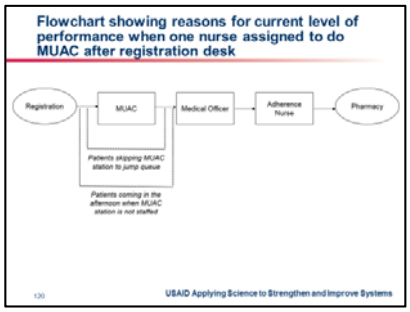
PRESENTATION VISUAL	FACILITATOR'S MAIN POINTS
Developing changes Slide 99:  	**SAY:** Changes should be something that you have not done before, you can do tomorrow, that worked somewhere else, and that feel right. Changes should not be something that you've done before, low impact, or full of technical slow-downs.
Developing changes Slide 100:  	**SAY:** Here are some tips for what to avoid when developing changes.
Model for improvement Slide 101:  	**SAY:** Now we will discuss plan-do-study-act (PDSA) cycles.
Elements of the cycle for learning and improvement: Plan-Do-Study-Act (PDSA) Cycle Slide 102:  	**ASK:** Who has heard of this cycle before? **ASK:** Can someone give an example of when they conducted a PDSA cycle? **SHARE:** Share a personal experience. **READ:** Read the slide.

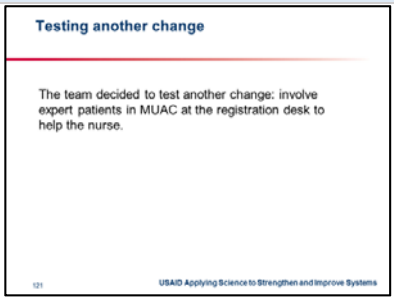
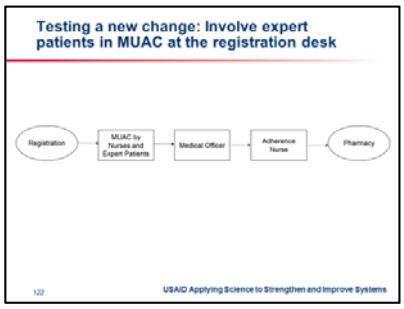
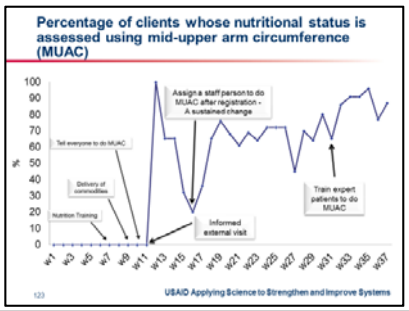
PRESENTATION VISUAL	FACILITATOR'S MAIN POINTS
Testing and implementing changes Slide 103:  	**SAY:** Here is a flow chart illustrating the PDSA cycle. **READ:** Read the flow chart and point to the different components.
Testing a change Slide 104:  	**SAY:** Tips for testing a change: • Test BIG changes on an initially small scale, then ramp up • Test individual changes separately when possible • Negative results are an opportunity to learn • Think about how conditions change over time (monthly, seasonal patterns, external variables)
Percentage of clients whose nutritional status is assessed using mid-upper arm circumference (MUAC) Slide 105:  	**SAY:** As you can see here, nothing happened for 3 weeks. No one did any work on assessing nutritional status using MUAC.
Question Slide 106:  	**ASK**: Why do you think NACS was not implemented even though supplies were available and the staff were trained? **SAY:** Most likely staff were too busy and nutrition was not a priority.

PRESENTATION VISUAL	FACILITATOR'S MAIN POINTS
Percentage of clients whose nutritional status is assessed using mid-upper arm circumference (MUAC) Slide 107:  	**SAY:** Here you can see what happened at the facility. The health care providers were trained, they had the commodities but still no one was implementing NACS.
Question Slide 108:  	**ASK:** Why do you think NACS was not implemented even though supplies were available and the staff were trained?
Percentage of clients whose nutritional status is assessed using mid-upper arm circumference (MUAC) Slide 109:  	**SAY:** In week 10 everyone was told to do MUAC. As you can see in week 11, this resulted in 100% of clients whose nutritional status was assessed with MUAC.
Question Slide 110:	**ASK:** What do you think happened here (causing the huge increase)?

PRESENTATION VISUAL	FACILITATOR'S MAIN POINTS
Percentage of clients whose nutritional status is assessed using mid-upper arm circumference (MUAC) Slide 111: 	**SAY:** The team was informed of an external visit to check the facility in week 11, causing 100% compliance.
Question Slide 112: 	**ASK:** What do you think happened next?
Percentage of clients whose nutritional status is assessed using mid-upper arm circumference (MUAC) Slide 113: 	**SAY:** Look at the graph now. After the first week of 100% compliance, the percentage of patients assessed using MUAC dropped dramatically.

PRESENTATION VISUAL	FACILITATOR'S MAIN POINTS
Question Slide 114:  	**ASK:** Why do you think the proportion of patients assessed for MUAC dropped? **SAY:** This occurred because there was only a short-term incentive to assess using MUAC. No change was made in the system to support this. It was unsustainable.
Test a change Slide 115:  	**SAY:** At this point, the team decided to test a change: The nurse would assess all patients using MUAC after registration.
Flowchart showing nurse assigned to do MUAC after registration desk Slide 116:  	**SAY:** Take a look at the flowchart for this changed process.
Percentage of clients whose nutritional status is assessed using mid-upper arm circumference (MUAC) Slide 117:  	**SAY:** Let's look at the chart again.

PRESENTATION VISUAL	FACILITATOR'S MAIN POINTS
Percentage of clients whose nutritional status is assessed using mid-upper arm circumference (MUAC) Slide 118:  	**SAY:** In Week 16 the team assigned a staff person (the nurse) to do MUAC after registration.
Question Slide 119: 	**ASK:** What do you think happened? Why did the results go down again?
Flowchart showing reasons for current level of performance when one nurse assigned to do MUAC after registration desk Slide 120:  	**SAY:** The flowchart wasn't showing everything. Patients began to skip the station to try and get ahead of other patients. Also, there was no staff member to conduct MUAC in the afternoon, causing all patients in the afternoon to not be assessed.
Testing another change Slide 121:	**SAY:** The team therefore decided to test another change: involve expert patients in MUAC at the registration desk to help the nurse.

PRESENTATION VISUAL	FACILITATOR'S MAIN POINTS
	
Testing a new change: Involve expert patients in MUAC at the registration desk Slide 122: 	**SAY:** Here you can see the flowchart with the new change.
Percentage of clients whose nutritional status is assessed using mid-upper arm circumference (MUAC) Slide 123: 	**SAY**: Let's look at the chart again. Here are the results of implementing the second change.
Question Slide 124: 	**ASK:** What do you think happened here? **SAY:** As time went on they were able to improve performance and sustain results. **SAY**: Conducting only one change usually is not the end of an improvement activity. A PDSA cycle is never ending. This case study takes you through one change that was made by the team, however it is important to consider other changes the team might have implemented in order to achieve these results.

PRESENTATION VISUAL	FACILITATOR'S MAIN POINTS
Debrief and closing	**SAY:** In your own improvement project(s), remember to refer to the multiple ramps of change to achieve the desired aim. These changes should be tracked over time in order to observe the improvements that are made, or not, in a time-series chart. The results should be shared and discussed within the quality improvement team as well as with other quality improvement teams working to achieve the same aim, in another context. This sharing will facilitate learning across different contexts and can stimulate further ideas for testing changes. Building the culture for improvement will instill the will to constantly improve quality of care. **ASK**: Ask if there are any questions on the material. **ASK**: Ask for verbal feedback on the course.
Evaluation	Distribute evaluation forms to all participants. Ask them to complete and return.

Appendix A: Sample Training Agenda

Day 1

Time	Duration	Topic
8:00	45 minutes	Introduction and Module 1: The USAID ASSIST Project and its Evolution
8:45	5 minutes	Break
8:50	40 minutes	Module 2: What Is Quality Health Care?
9:30	5 minutes	Break
9:35	40 minutes	Module 3: The Issue of Quality in Health Care
10:15	15 minutes	Break
10:30	40 minutes	Module 4: Overview of Improving Health Care, Part 1
11:10	5 minutes	Break
11:15	45 minutes	Module 4: Overview of Improving Health Care, Part 2
12:00		Lunch break
13:30	40 minutes	Module 4: Overview of Improving Health Care, Part 3
14:10	5 minutes	Break
14:15	40 minutes	Module 4: Overview of Improving Health Care, Part 4
14:55	15 minutes	Break
15:10	10 minutes	Module 5: Case Study – Nutrition Assessment, Counseling, and Support (Opening)
15:20	50 minutes	Case Study Section 1: Defining Improvement Aim(s)
16:10	5 minutes	Break
16:15	40 minutes	Case Study Section 2: Forming the Improvement Team
16:55	5 minutes	Closing of Day 1 and preview of Day 2

Day 2

Time	Duration	Topic
8:00	15 minutes	Recap of Day 1 and review of Day 2 agenda
8:15	60 minutes	Case Study Section 3: Understanding the Current Process
9:15	5 minutes	Break
9:20	50 minutes	Case Study Section 4: Developing Indicators
10:10	15 minutes	Break
10:25	60 minutes	Case Study Section 5: Plotting a Time Series Chart
11:25	5 minutes	Break
11:30	45 minutes	Case Study Section 6: Developing, Testing, and Implementing Change
12:15	15 minutes	Debrief and closing

Appendix B: Generic Participant Evaluation Form

Name (Optional):

Please be as honest and thoughtful about the following statements as much as possible as we will continue to make improvements to the workshop based on your feedback.

Rating Key: 1 - Strongly disagree 2 - Disagree 3 - Neither agree nor disagree 4 - Agree 5 - Strongly Agree U - Unknown

Evaluation Category	Evaluation Statement	Rating					
Workshop objectives	I understood the learning objectives.	1	2	3	4	5	U
	I am able to relate each of the learning objectives to the learning I achieved.	1	2	3	4	5	U
Workshop materials	The workshop materials were covered in enough detail.	1	2	3	4	5	U
	I found the workshop materials to be easy to navigate.	1	2	3	4	5	U
	I think the visual aids were appropriate for the course content.	1	2	3	4	5	U
	I think the workshop materials will be essential for my success.	1	2	3	4	5	U
Participant Needs	I will be able to immediately apply what I learned to my work.	1	2	3	4	5	U
	I was appropriately challenged by the material.	1	2	3	4	5	U
	I was given ample opportunity to practice the skills I was asked to learn.	1	2	3	4	5	U
	I felt the balance of lecture and activities contributed to my learning.	1	2	3	4	5	U
Facilitator	My learning was enhanced by the knowledge of the facilitator.	1	2	3	4	5	U
	My learning was enhanced by the experiences shared by the facilitator.	1	2	3	4	5	U
Environment	I was comfortable with the format of the workshop (3 hours per day for 3 days).	1	2	3	4	5	U
	I found the room atmosphere to be comfortable.	1	2	3	4	5	U

What aspect(s) of the workshop were **most** helpful to you?

What aspect(s) of the workshop were the **least** helpful to you?

What improvements do you think could be made to the workshop?

Appendix C: Facilitator Checklist of Materials and Tasks

Materials

Facilitator Materials:

- ☐ Facilitator Guide
- ☐ Participant Guide
- ☐ PowerPoint Presentation
- ☐ Agenda
- ☐ Evaluations
- ☐ Tent cards for names

Participant Materials (one per participant):

- ☐ Agenda
- ☐ Participant Guide
- ☐ Pens

Preparation Checklist

Two Weeks in Advance of the Workshop:

- ☐ Familiarize yourself with all the modules
- ☐ Remember to draw on personal experiences throughout the course, make note of when and where you will share these experiences as examples
- ☐ Review all the activities and materials
- ☐ Ensure that you have enough materials for participants
- ☐ Research your participants by finding out their roles before the session
- ☐ Reserve conference/training room
- ☐ Request the training room be set up with small group tables
- ☐ Ensure you have evaluations ready to be distributed on the final day

Day Before the Workshop:

- ☐ Test your presentation computer and projector
- ☐ Check to see how many participants you have for the session
- ☐ Ensure you have enough participant guides and evaluations for distribution
- ☐ Ensure the room is set up correctly: The ideal classroom for this training workshop has small tables with chairs dispersed around the room to encourage small group discussion during the case study portion of the course. It is recommended to have 4-5 people per table for best small group discussion. Ensure all participants have a clear line of sight to the presentation and the facilitator.

One Day After the Workshop:

- ☐ Summarize evaluation results and identify action items for next training

Appendix D: Training Slide Deck

USAID
FROM THE AMERICAN PEOPLE

USAID
ASSIST PROJECT
Applying Science to Strengthen and Improve Systems

Improving Health Care

M. Rashad Massoud, MD, MPH, FACP

Director, USAID ASSIST Project
Senior Vice President, Quality & Performance Institute
University Research Co., LLC

Learning objectives

After this course, participants will be able to:

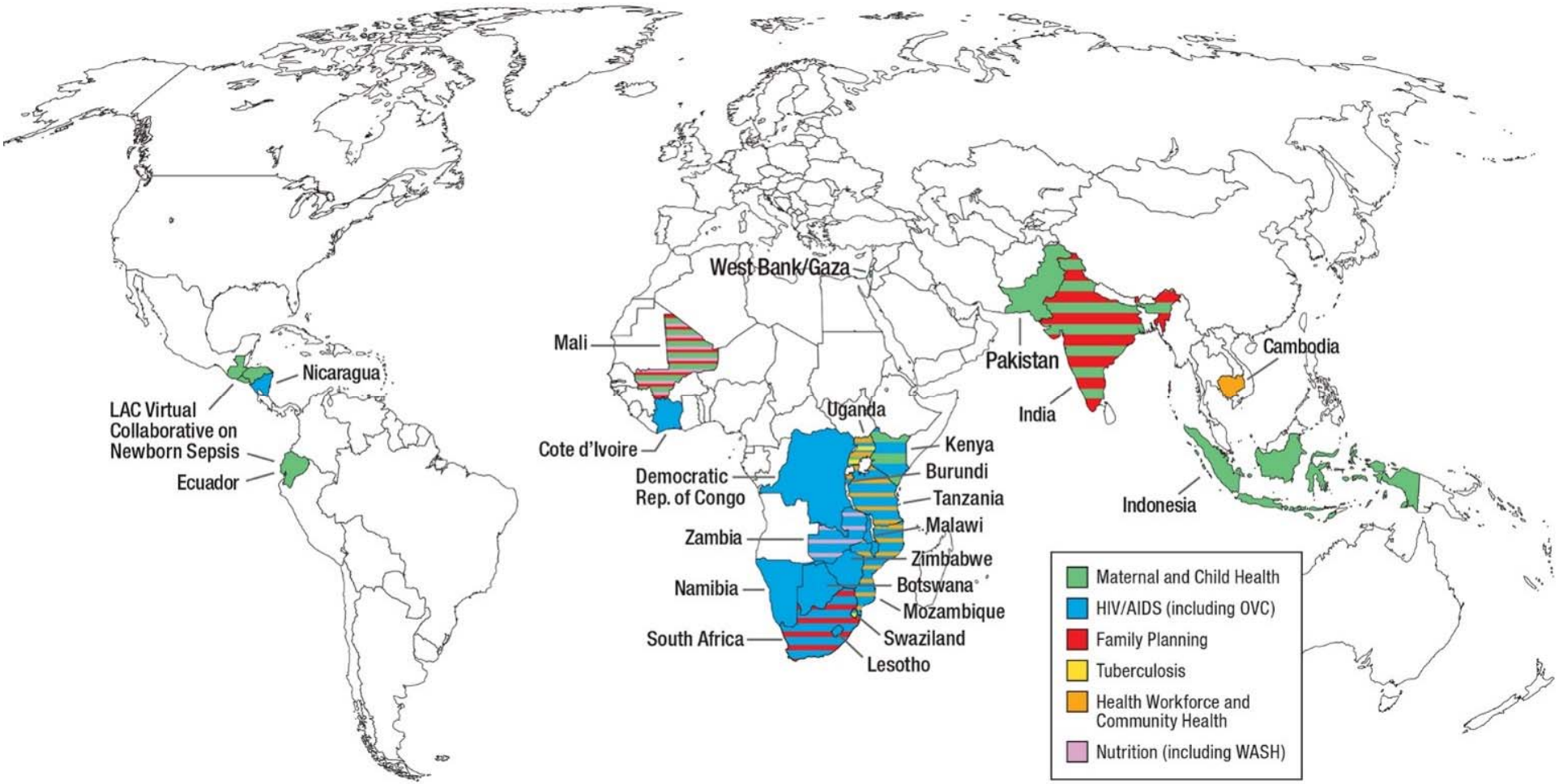
1. Articulate the key issue in health care quality
2. Explain the fundamentals underlying the science of improvement.
3. Give examples of successful improvements from different technical areas and geographical contexts
4. Participants will practice developing the following skills:
   a) Define improvement aim(s)
   b) Form improvement teams
   c) Plot a time series chart
   d) Analyze processes of care
   e) Test and implement changes to improve everyday work
   f) Monitor and evaluate results of tested change

USAID
FROM THE AMERICAN PEOPLE

USAID
ASSIST PROJECT
Applying Science to Strengthen and Improve Systems

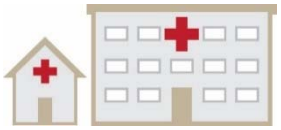
The USAID ASSIST Project and Its Evolution

ASSIST work in 2016



Scale of USAID ASSIST activities, March 2016

129 government and implementing partners (81 PEPFAR)



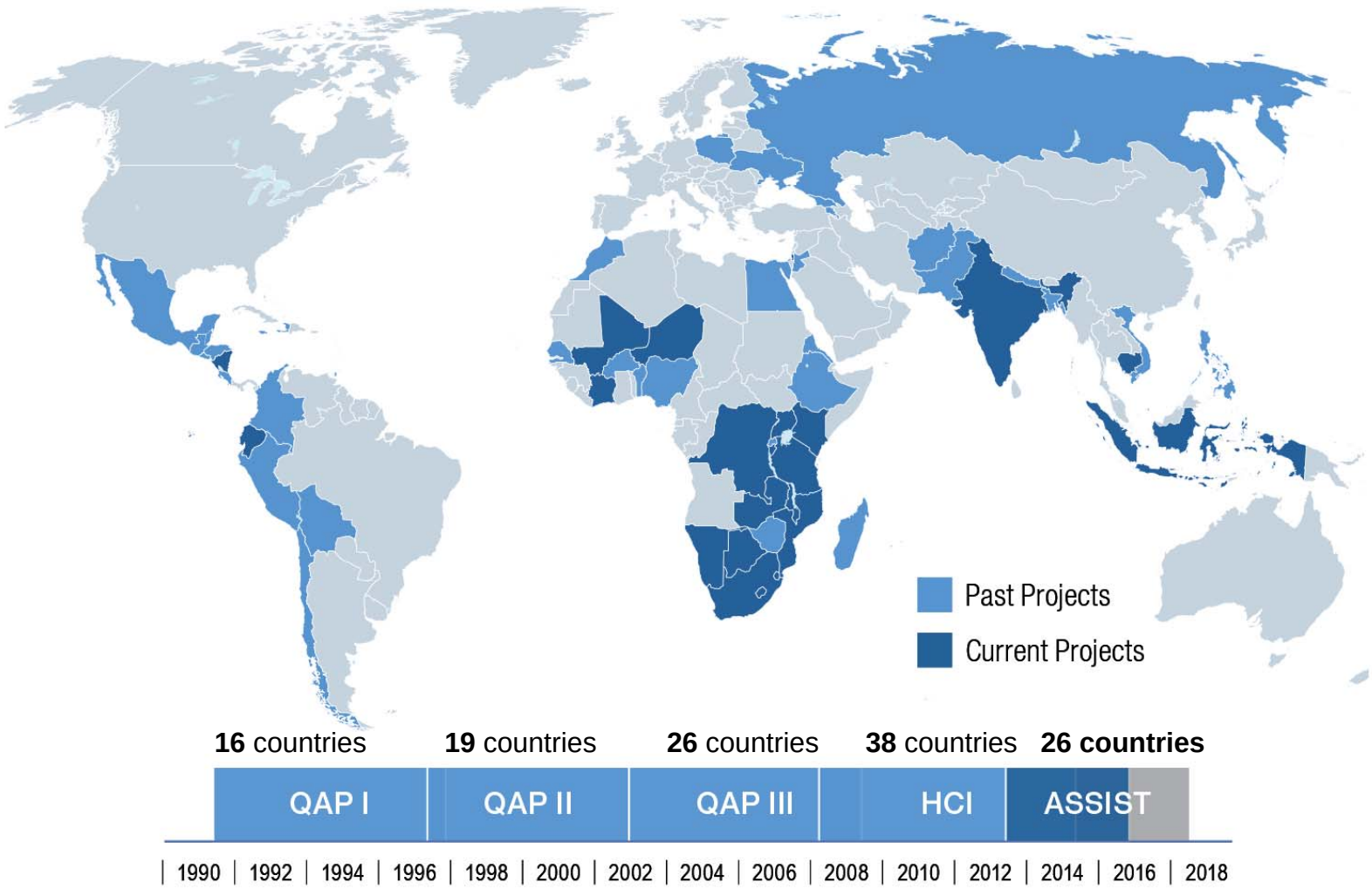
2,379 facilities (2,026 PEPFAR)

1,558 communities (1,248 PEPFAR)

2,840 quality improvement teams (2,473 PEPFAR)

90.9 million catchment population (86.8 million PEPFAR)

The history of the USAID ASSIST Project



USAID
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USAID
ASSIST PROJECT
Applying Science to Strengthen and Improve Systems

What Do We Mean by Quality Health Care?

Definition of health care quality

"The degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge"

Institute of Medicine, USA

What is quality care?

“Quality care is what happens at all the points of service along the continuum of care, and high quality care is a function of the system's ability to produce care that will address the client's needs in an effective, responsive and respectful manner…”

— David Nicholas

Dimensions of quality

Health systems should seek to make improvements in 6 areas or dimensions of quality (WHO definition):

- **Effective:** *delivering evidence-based care that results in improved outcomes and is based on need;*
- **Efficient:** *delivering care- which maximizes resource use and avoids waste*;
- **Accessible**: *delivering care that is timely, geographically reasonable, and provided in a setting where skills and resources are appropriate to medical need;*
- **Acceptable/patient-centered:** *delivering care which takes into account the preferences and aspirations of patients and the cultures of their communities;*
- **Equitable:** *delivering care which does not vary in quality because of personal characteristics such as gender, race, ethnicity, geographical location, or socioeconomic status;*
- **Safe:** *delivering care which minimizes risks and harm to patients.*

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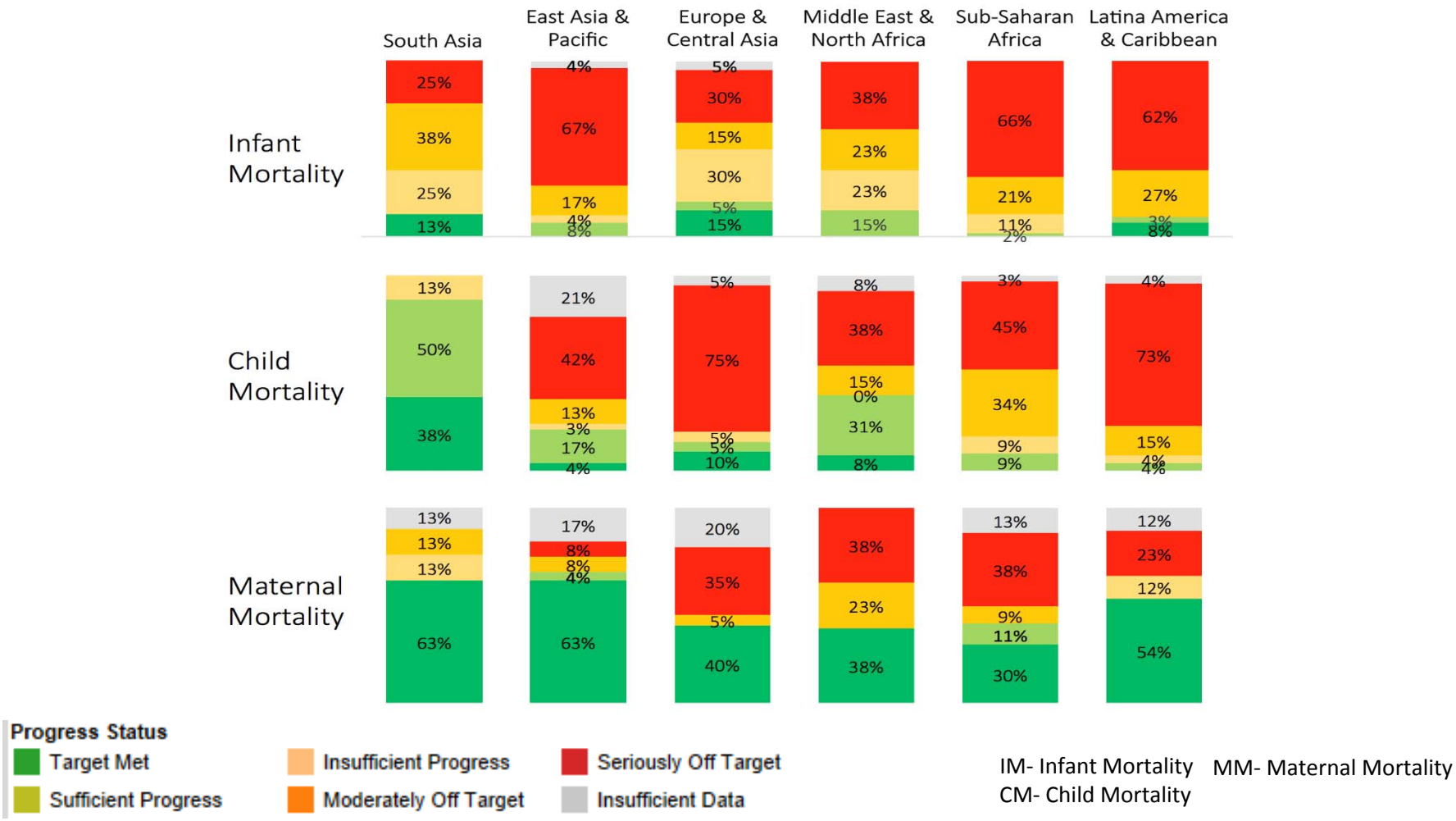
The Issue of Quality in Health Care

MDG progress: Goal 4 and 5 - reduce child, infant and maternal mortality



IM- Infant Mortality MM- Maternal Mortality
CM- Child Mortality

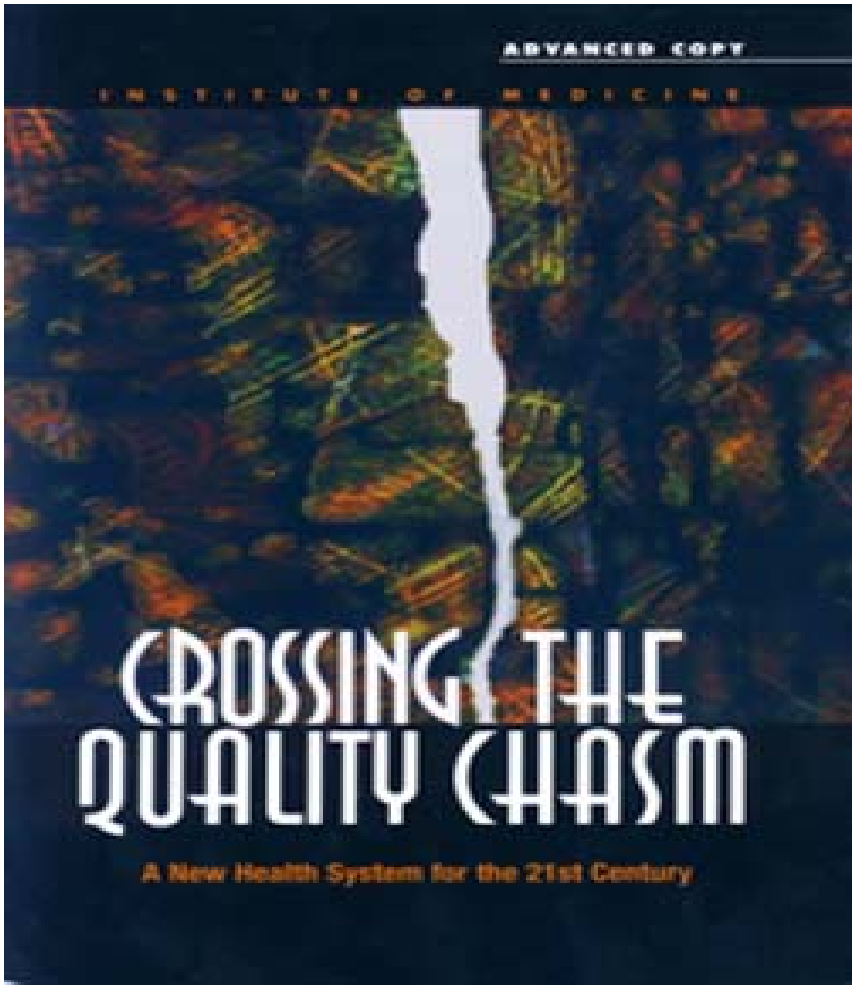
Source: World Bank 2015

McGlynn et al. NEJM 2003. "The quality of health care delivered to adults in the U.S."

54.9% of patients receive scientifically indicated care

439 indicators of clinical quality of care
30 acute and chronic conditions, plus prevention
Medical records for 6712 patients

The issue of quality in health care



"… Between the health care we have and the care we can have lies not only a gap, but a chasm…"

"… The problems come from poor systems – not bad people…"

What is the problem?

"The reality is straightforward. The power of existing interventions is not matched by the power of health systems to deliver them to those in greatest need, in a comprehensive way, and at an adequate scale."

- Margaret Chan
Director General
World Health Organization

What is the problem: World Bank

"The enormous investments that have been made in global health should have led to what we might have called a science of implementation and execution…

…We have just not focused on the enormous complexity of delivering health care in a way that keeps people healthy "

- Jim Kim, President
World Bank

Sustainable Development Goals

Source: https://sustainabledevelopment.un.org/sdgs

Sustainable Development Goal 3: Ensure healthy lives and promote well-being for all at all ages

By 2030, strengthen prevention and treatment to

- Reduce global maternal mortality ratio to less than 70 per 100,000 live births
- End preventable deaths of newborns and under-five children
- End the epidemics of AIDS, TB, malaria and neglected tropical diseases while combatting hepatitis, water-borne diseases and other communicable diseases
- Reduce by 1/3 pre-mature mortality from NCDs
- Reduce substance abuse

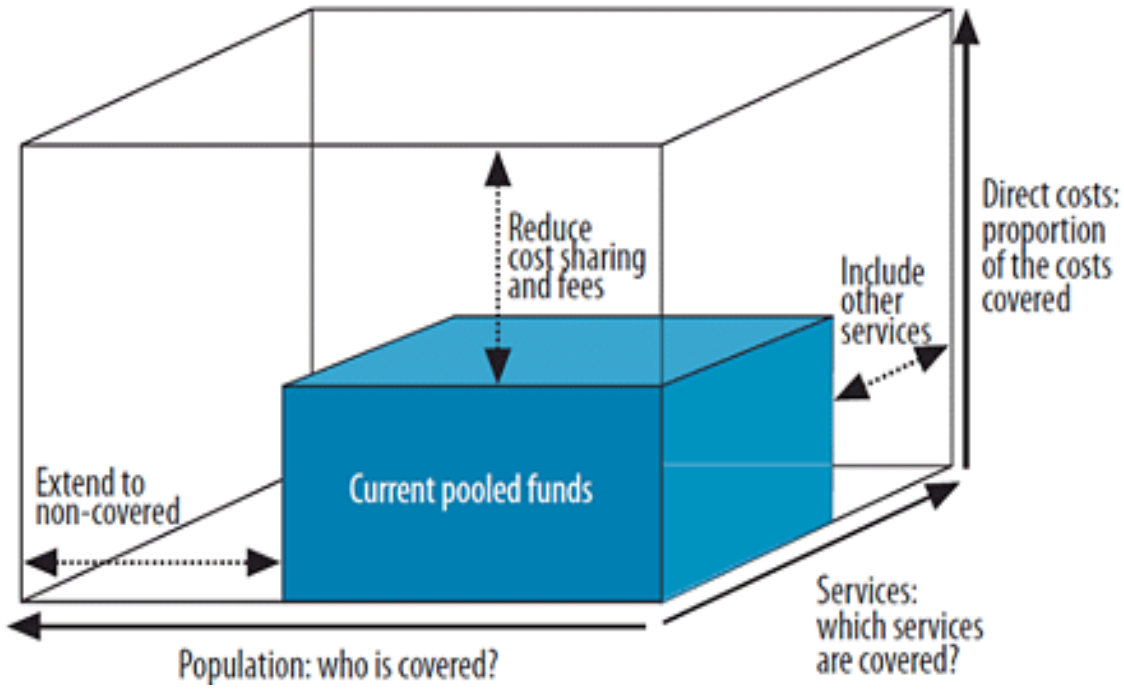
By 2030, ensure

- Universal access to sexual and reproductive health services
- Universal health coverage
- Support for R&E
- Increased health financing and recruitment, development and training and retention of the health workforce in developing countries
- Strengthened capacity of all countries for early warning and risk reduction as well as management of national and global health risks

Universal health coverage and safety/ quality agenda

"What good does it do to offer free maternal care and have a high proportion of babies delivered in health facilities if the quality of care is sub-standard or even dangerous?"

- Margaret Chan
World Health Assembly, May 2012



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Overview of Improving Health Care

Part 1

Ways to improve quality

- Through experience and knowledge
- As a result of a scientific advancement
- Through trial and error
- By experimenting
- By coincidence
- On the basis of quality improvement theory

Institute *for* Healthcare Improvement

Improvement science

Walshe K. **Pseudoinnovation: the development and spread of healthcare quality improvement methodologies.** *Int J Qual Health Care* 2009; **21**:153-9.

- **Implementation science**
- **Delivery science**
- **Execution science**
- **Quality improvement**
- **Quality management**
- **Continuous quality improvement**
- **Performance improvement**
- **+ many more**

International Journal for Quality in Health Care 2009; Volume 21, Number 3: pp. 153–159
Advance Access Publication: 23 April 2009

10.1093/intqhc/mzp012

Pseudoinnovation: the development and spread of healthcare quality improvement methodologies

KIERAN WALSHE

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Abstract

Background. Over the last two decades, we have seen the successive rise and fall of a number of concepts, ideas or methods in healthcare quality improvement (QI). Paradoxically, the content of many of these QI methodologies is very similar, though their presentation often seeks to differentiate or distinguish them.

Methods. This paper sets out to explore the processes by which new QI methodologies are developed and disseminated and the impact this has on the effectiveness of QI programmes in healthcare organizations. It draws on both a bibliometric analysis of the QI literature over the period from 1988 to 2007 and a review of the literature on the effectiveness of QI programmes and their evaluation.

Results. The repeated presentation of an essentially similar set of QI ideas and methods under different names and terminologies is a process of 'pseudoinnovation', which may be driven by both the incentives for QI methodology developers and the demands and expectations of those responsible for QI in healthcare organizations. We argue that this process has important disbenefits because QI programmes need sustained and long-term investment and support in order to bring about significant improvements. The repeated redesign of QI programmes may have damaged or limited their effectiveness in many healthcare organizations.

Conclusions. A more sceptical and scientifically rigorous approach to the development, evaluation and dissemination of QI methodologies is needed, in which a combination of theoretical, empirical and experiential evidence is used to guide and plan their uptake. Our expectations of the evidence base for QI methodologies should be on a par with our expectations in relation to other forms of healthcare interventions.

Keywords: quality management, measurement of quality, general methodology, healthcare system

Introduction

The last two decades have seen the rise and fall of a number of concepts, ideas or methods in healthcare quality improvement (QI). We have progressed from medical audit to clinical audit and to clinical governance; from total quality management to continuous QI and to business process re-engineering; from statistical process control to six sigma and to lean thinking. At times, keeping abreast of the latest 'new thing' in healthcare QI can seem to require almost constant attention to the journals, conferences, books and training events in this field. Paradoxically, given this appearance of constant change, the content of many of these QI methodologies is broadly very similar, though their presentation often seeks to differentiate or distinguish them.

The purpose of this paper is to explore how new QI methodologies (a term used very broadly to encompass concepts, ideas and empirical tools and techniques) are developed, diffused and adopted or taken up by healthcare organizations [1]; to discuss the impact this may have on the effectiveness of QI programmes in healthcare organizations; and to suggest how future innovations in this field might be better assessed.

The spread of QI methodologies: a bibliometric analysis

One way to measure the spread or uptake of ideas is through bibliometric statistics [2], charting the frequency with which

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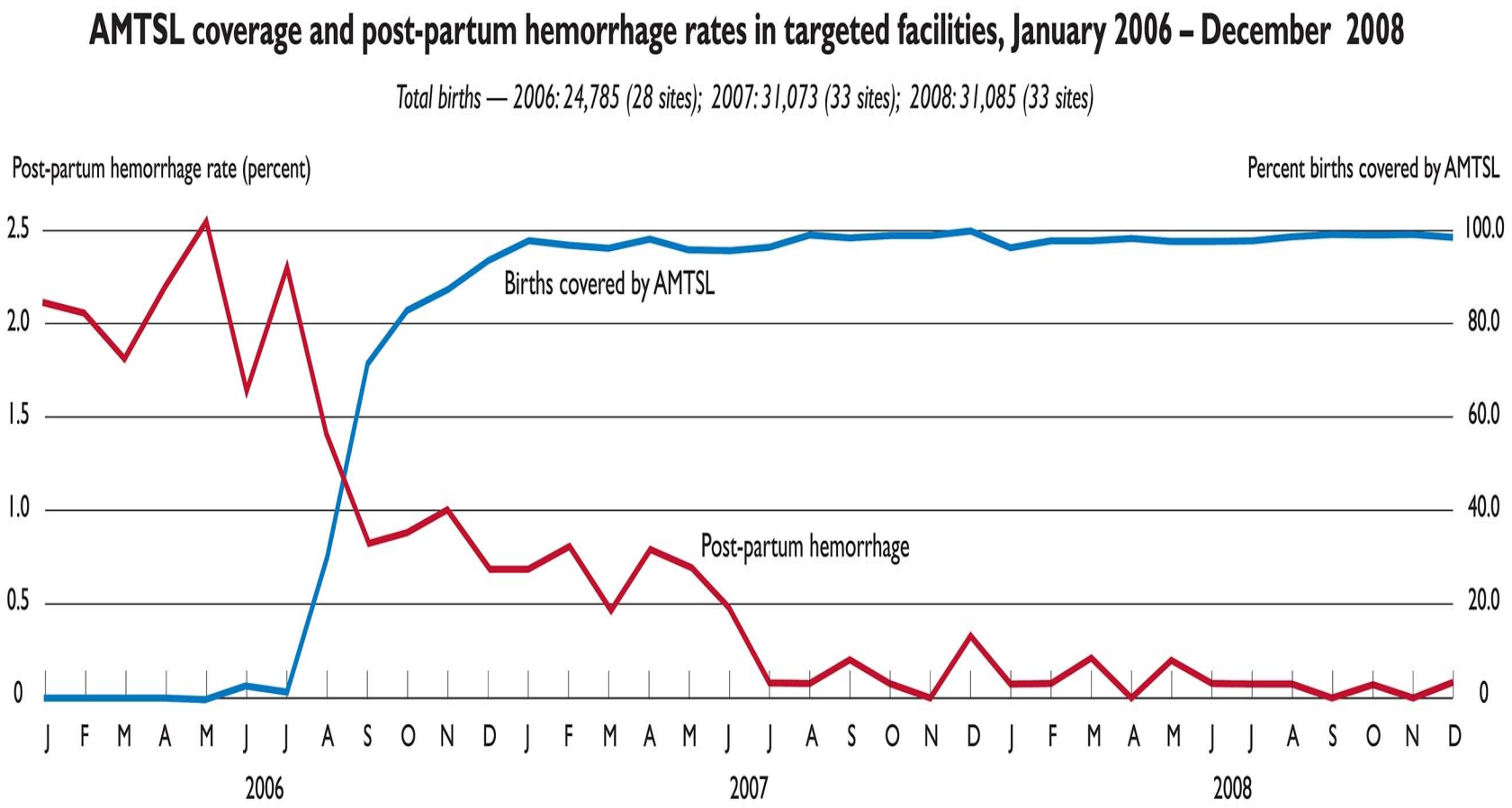
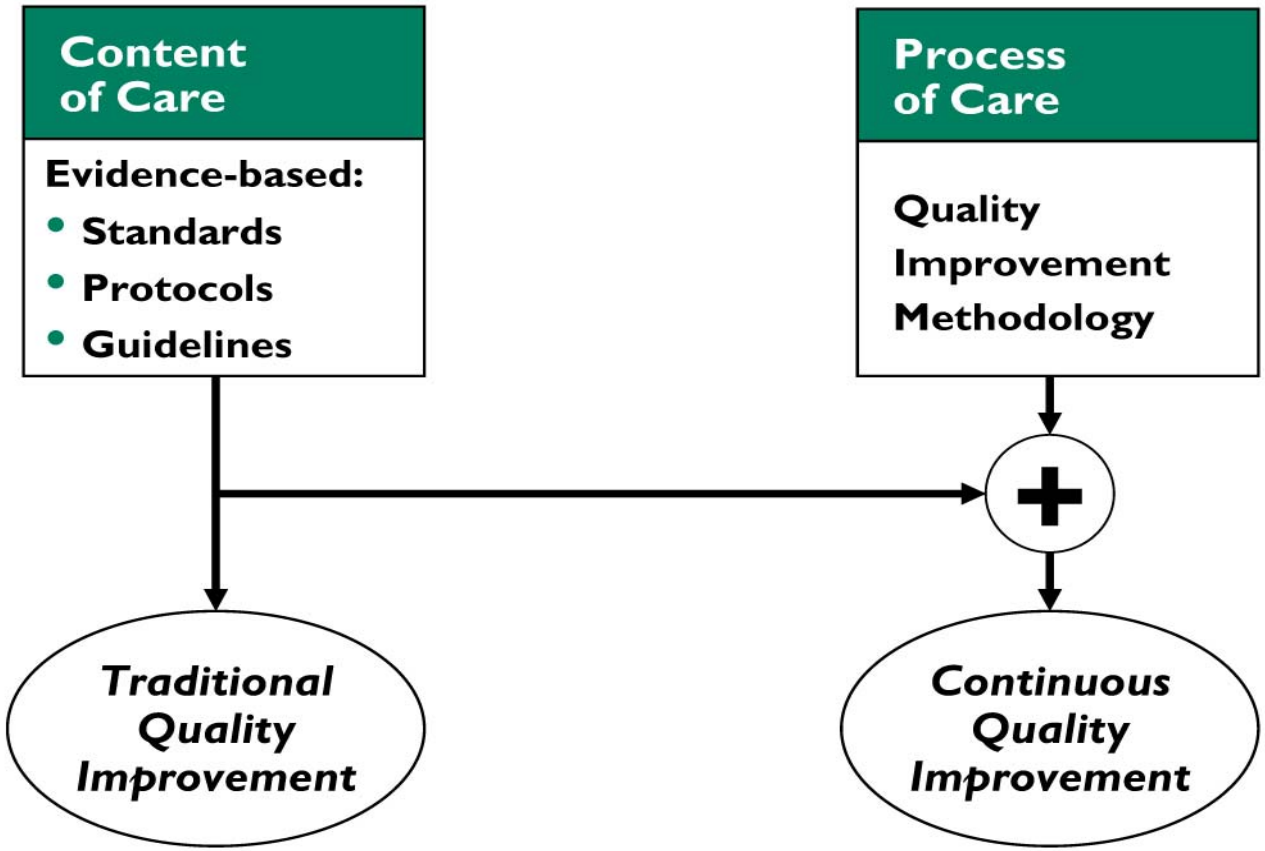
Niger: AMTSL compliance and PPH reduction



Quality improvement integrates content of care and the process of providing care



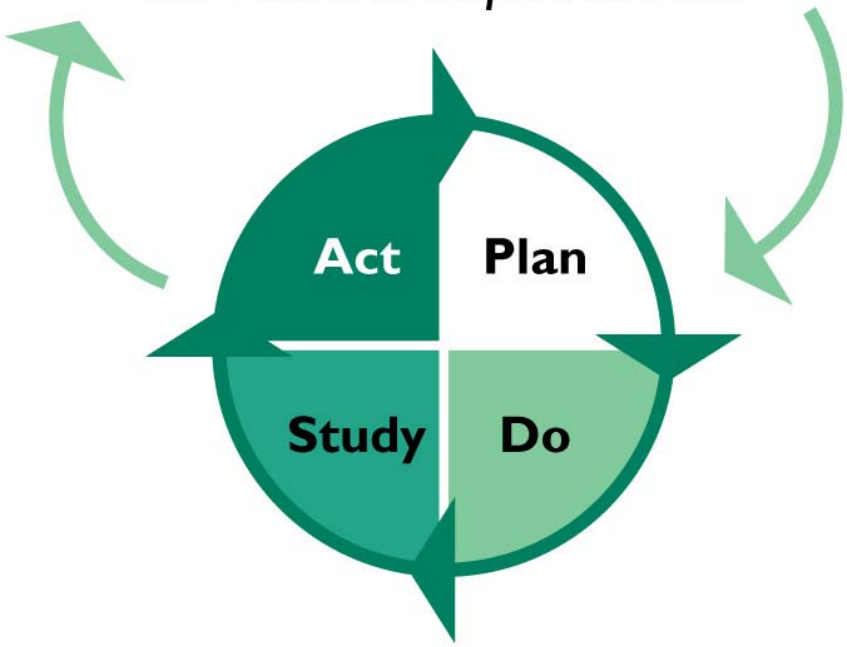
Adapted from Batalden and Stoltz (1993)

Model for Improvement

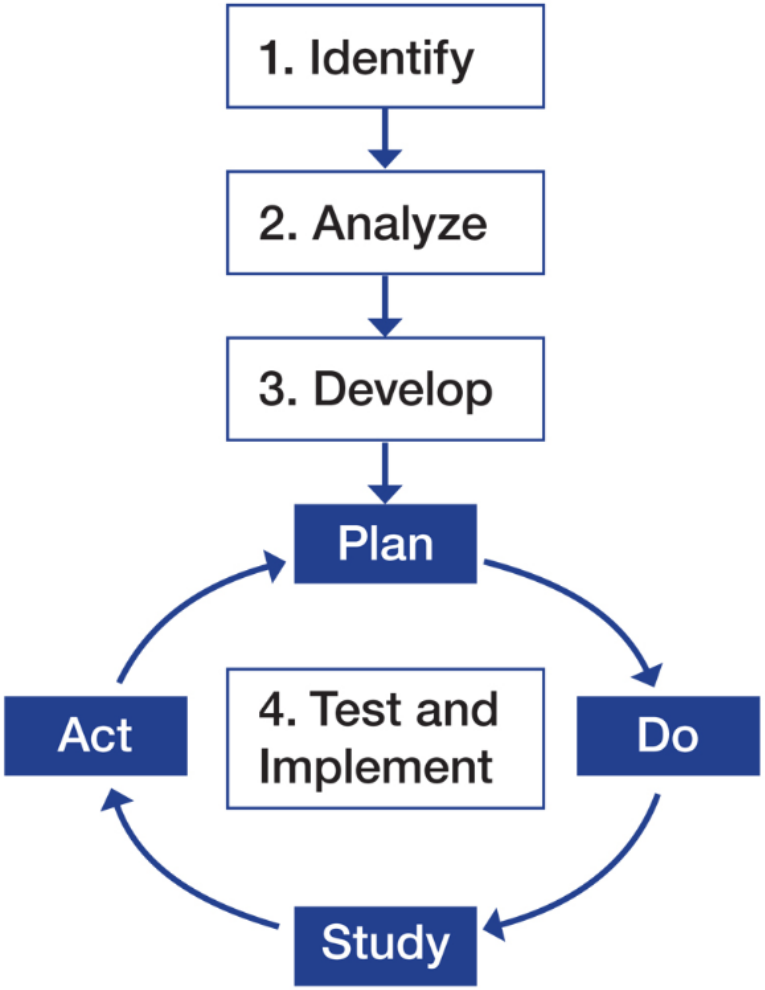
What are we trying to accomplish?

How will we know that a change is an improvement?

What changes can we make that will result in improvement?



Model for improvement



Adapted from: Massoud et al. A Modern Paradigm for Improving Healthcare Quality

Improvement principles and frameworks

Fundamental Concept of Improvement:

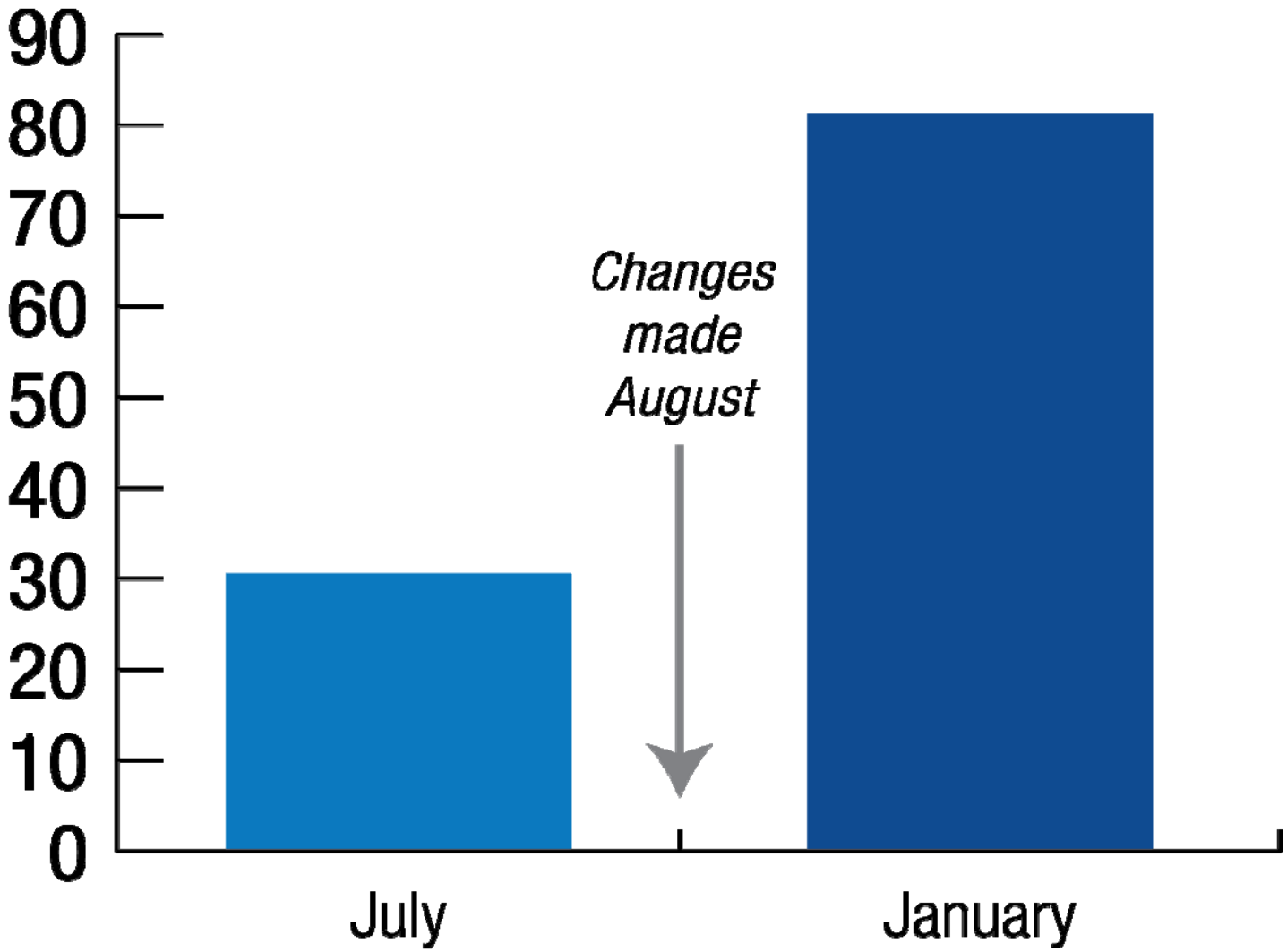
"Every system is perfectly designed to achieve exactly the results it achieves"

Principles of Improvement:

- Understanding work in terms of processes and systems
- Developing solutions by teams of health care providers and patients
- Focusing on patient needs
- Testing and measuring effects of changes
- Shared learning

Employee
Engagement
(…or lack thereof)

The importance of data over time



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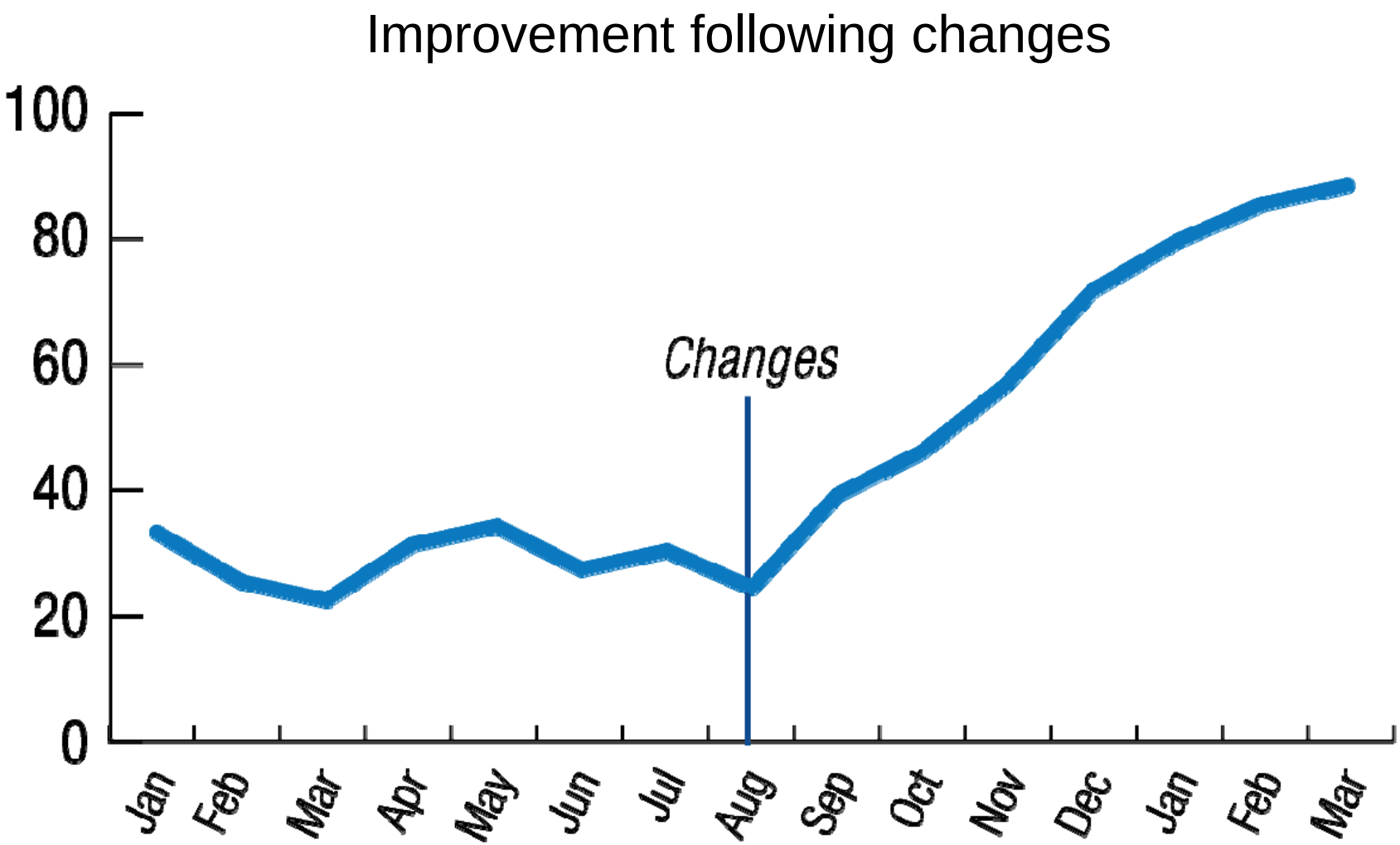

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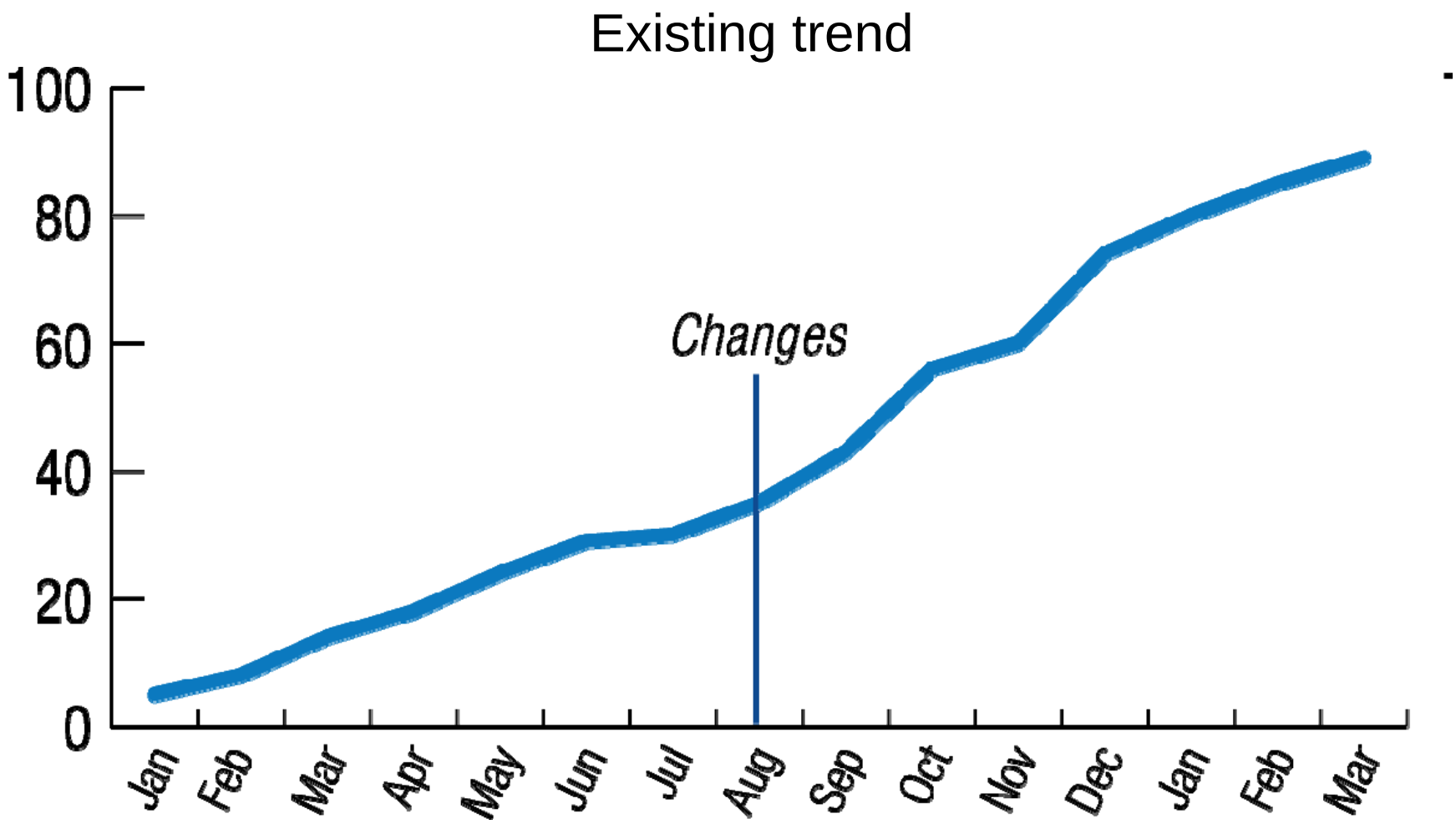

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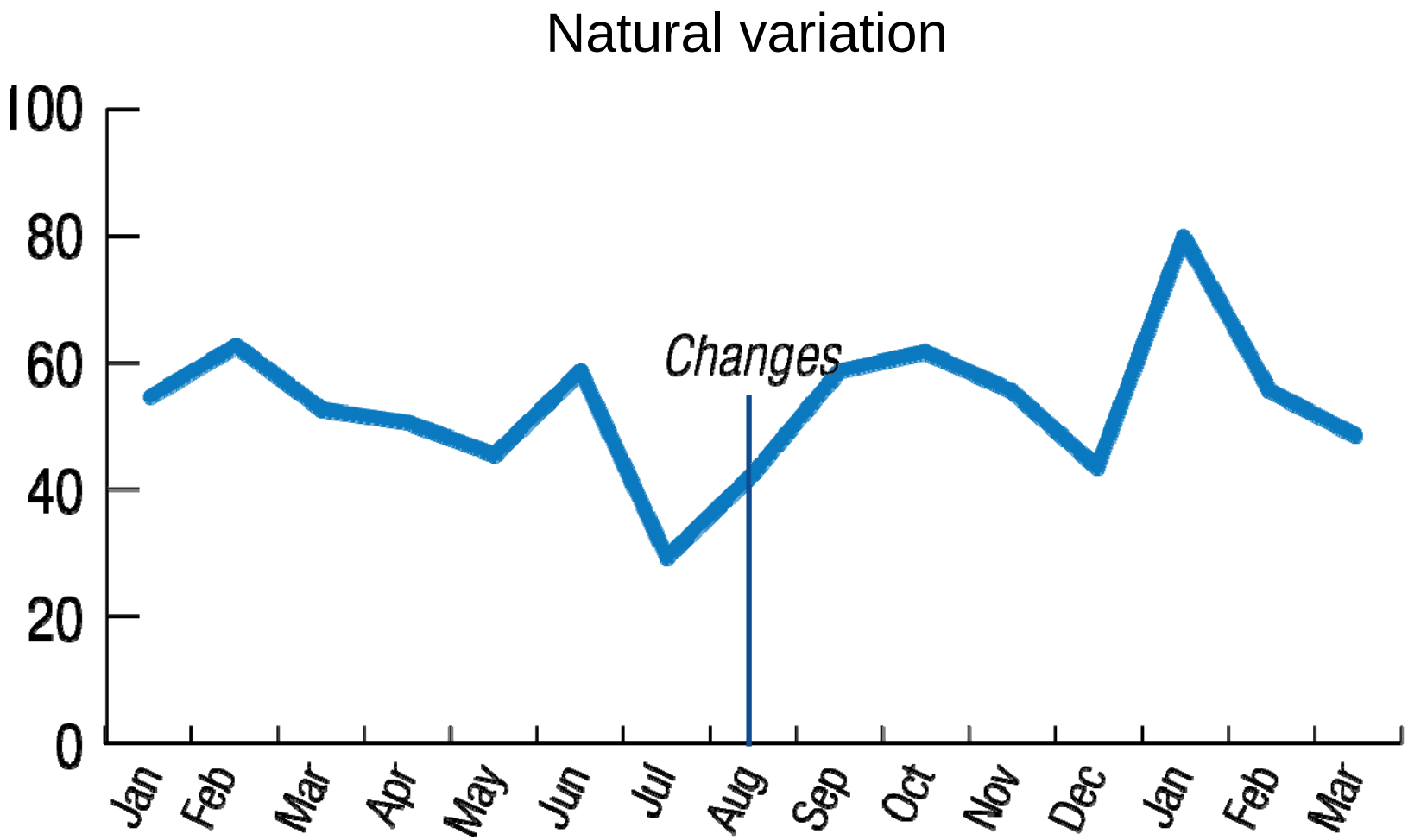

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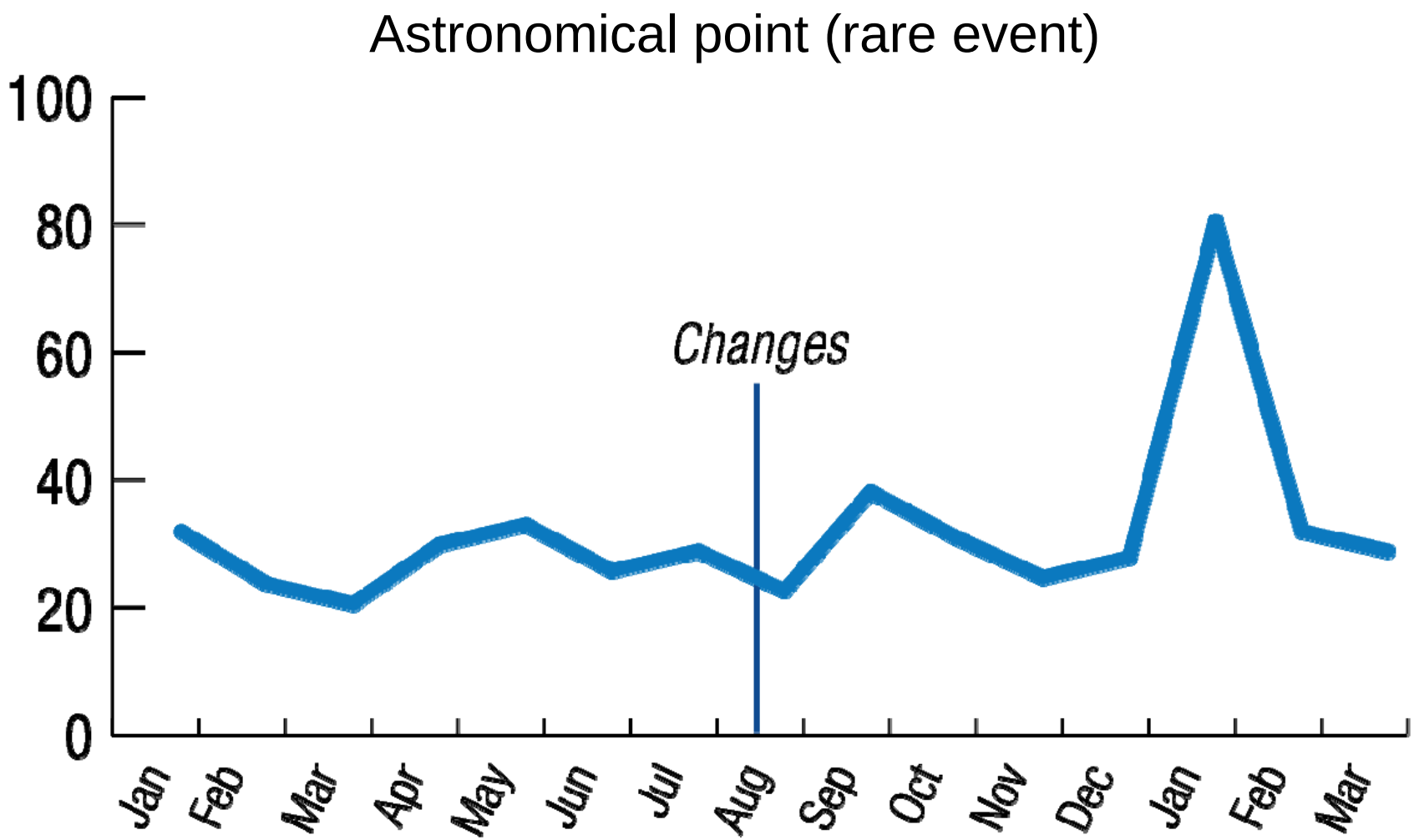
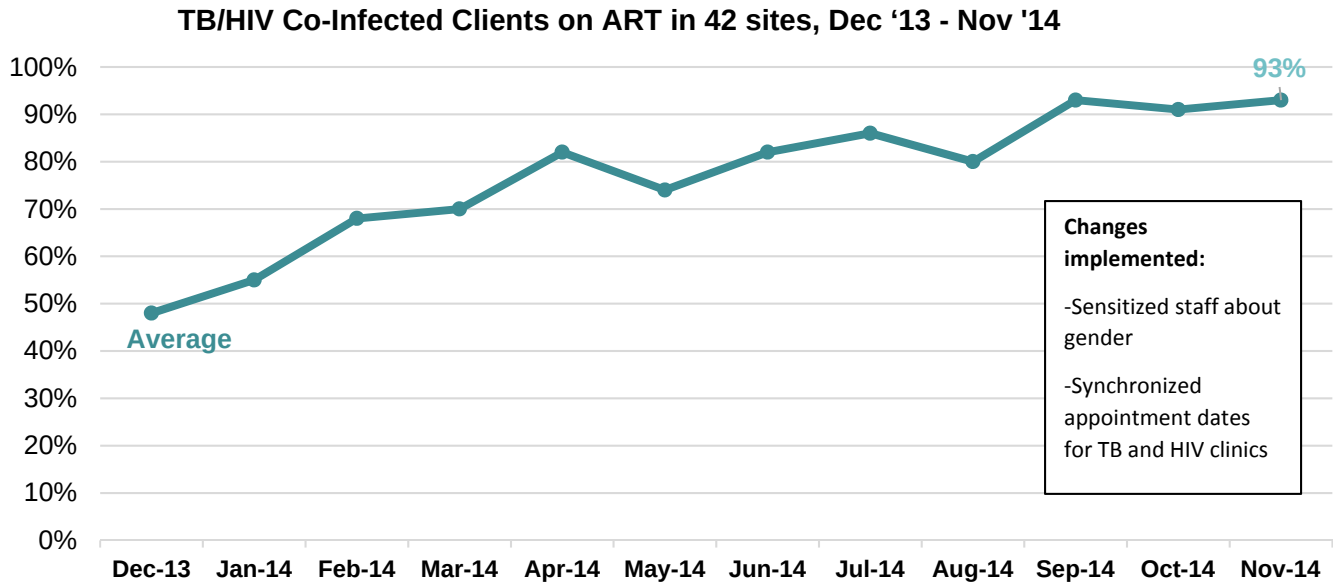
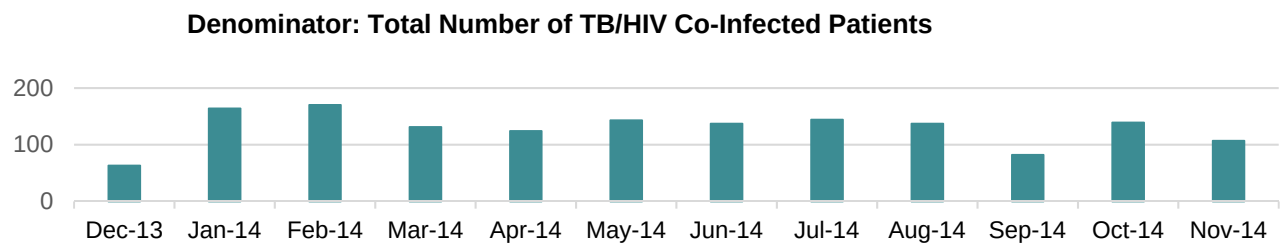


The importance of the disaggregation of data





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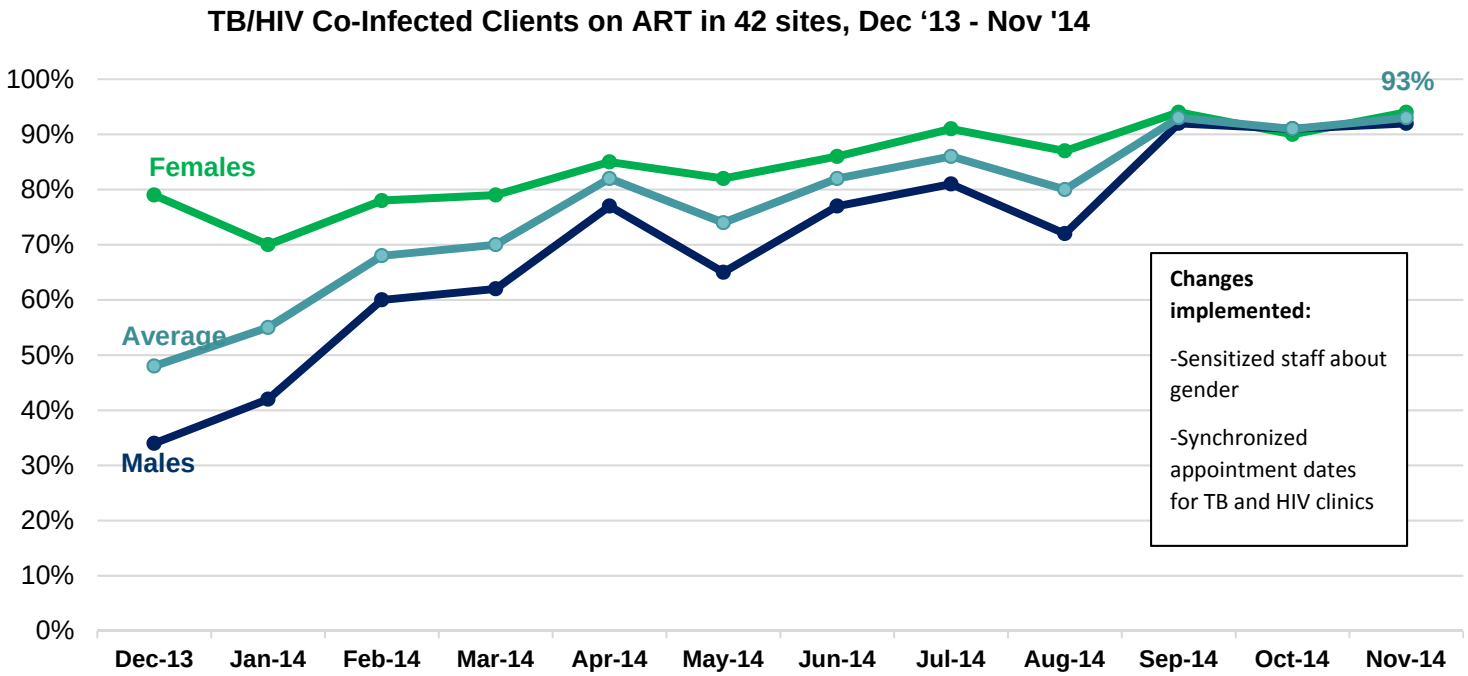
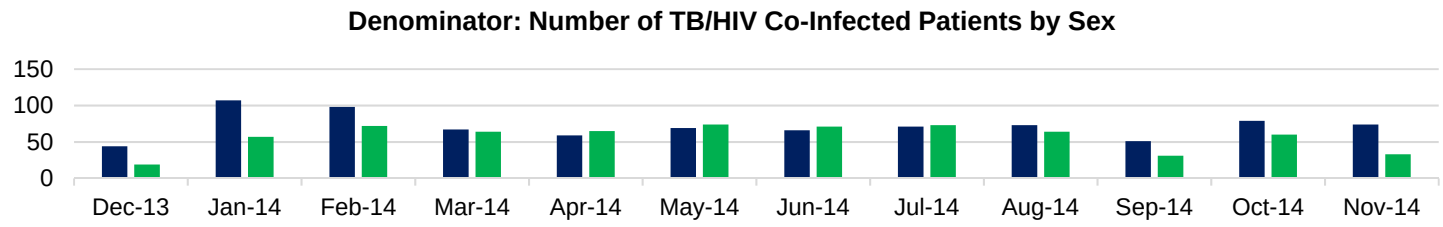
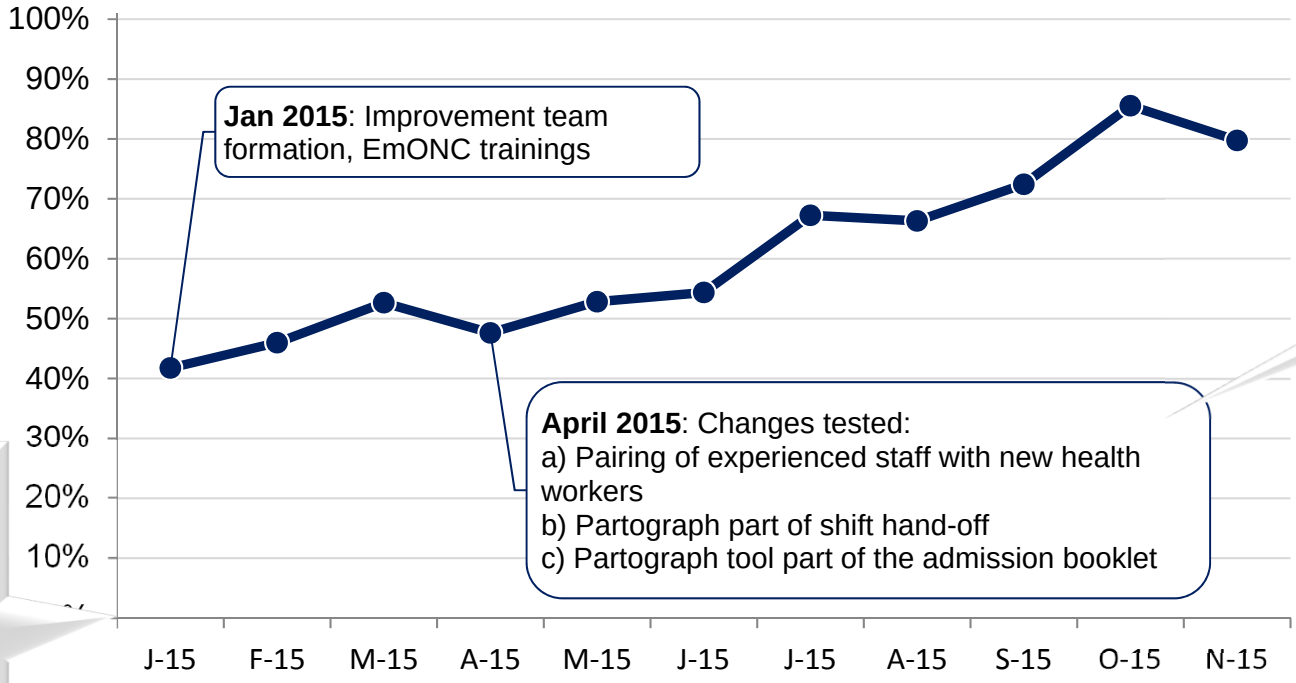




Elements of a time series chart

Clear and well-defined title that defines indicator, scale, and timeframe

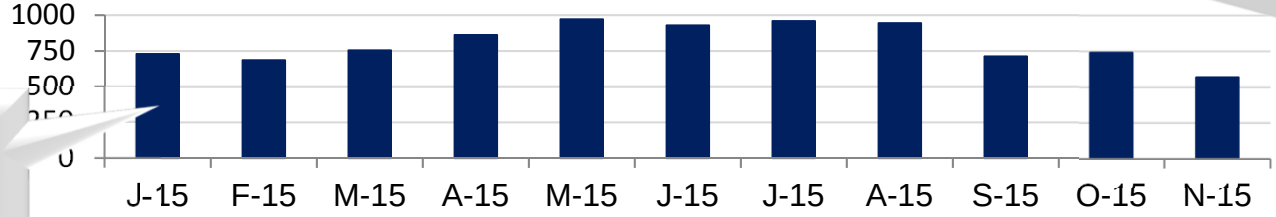
Percentage of women giving birth whose partograph is complete in 39 facilities in five counties in Kenya, January – November 2015



Tested changes are annotated

X and Y axes have clear scale and include labels

Denominator: Number of women in labor at the facility (Sampled charts)



Denominator defined, including whether data is sampled or whole population

Denominator values shown for each month

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Overview of Improving Health Care

Part 2

What is good quality care for patients who need antiretroviral therapy (ART)?

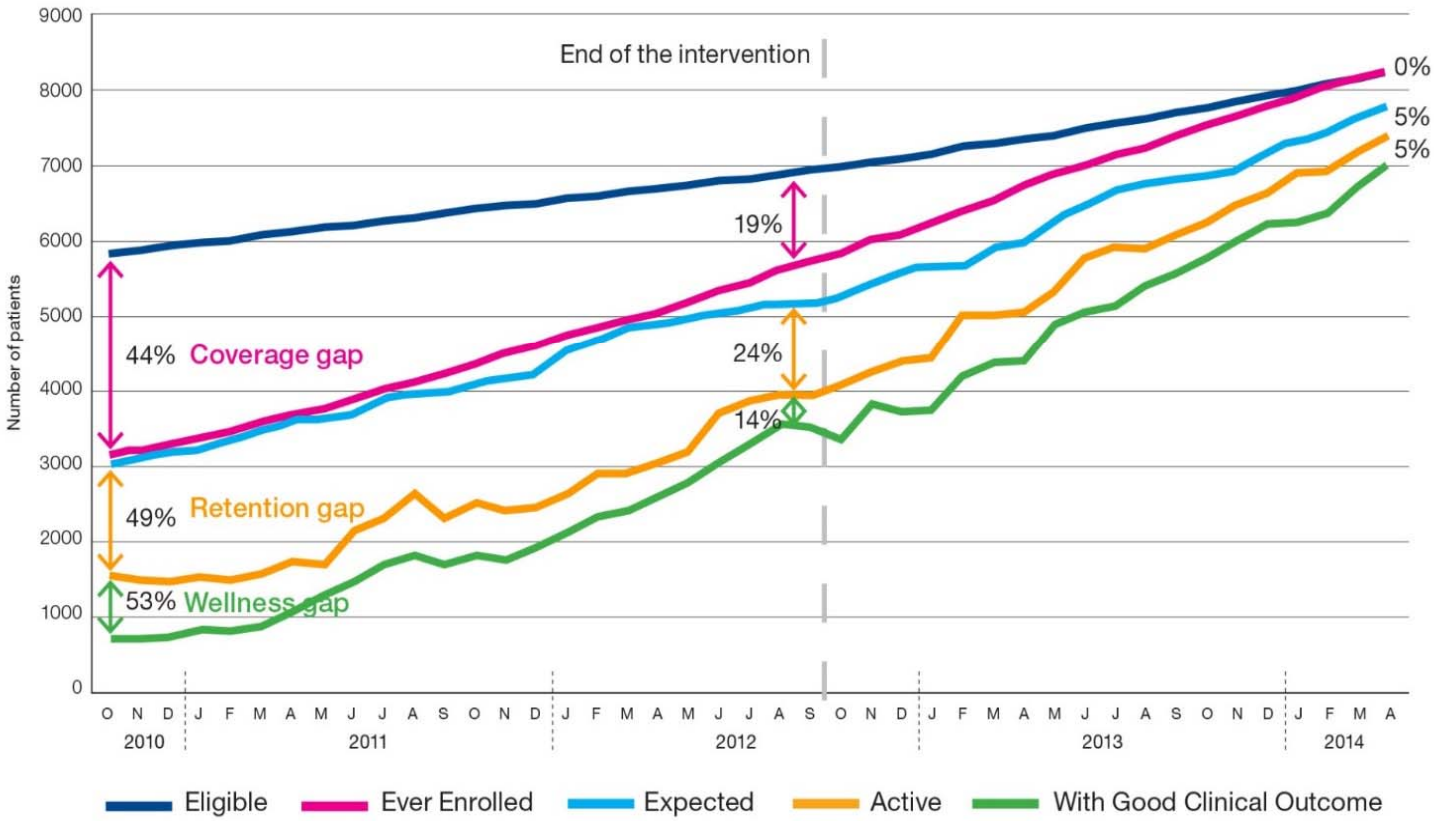
- Everyone who needs ART receives it
- Everyone who receives ART stays on it
- Everyone in care does well on ART

Uganda: Applying Chronic Care Model to improve coverage, retention, and clinical outcomes

Examples of Changes

- Used SM progress tool and tally sheets to record Pt SM progress
- Introduced a VHT referral form to give to patients when sent to a facility
- Each patient enrolled is introduced to a VHT in catchment area
- SM groups formed

Uganda: Coverage, retention, and clinical outcome gap analysis showing improvement at five sites implementing the Chronic Care Model in Buikwe District (October 2010–April 2014)

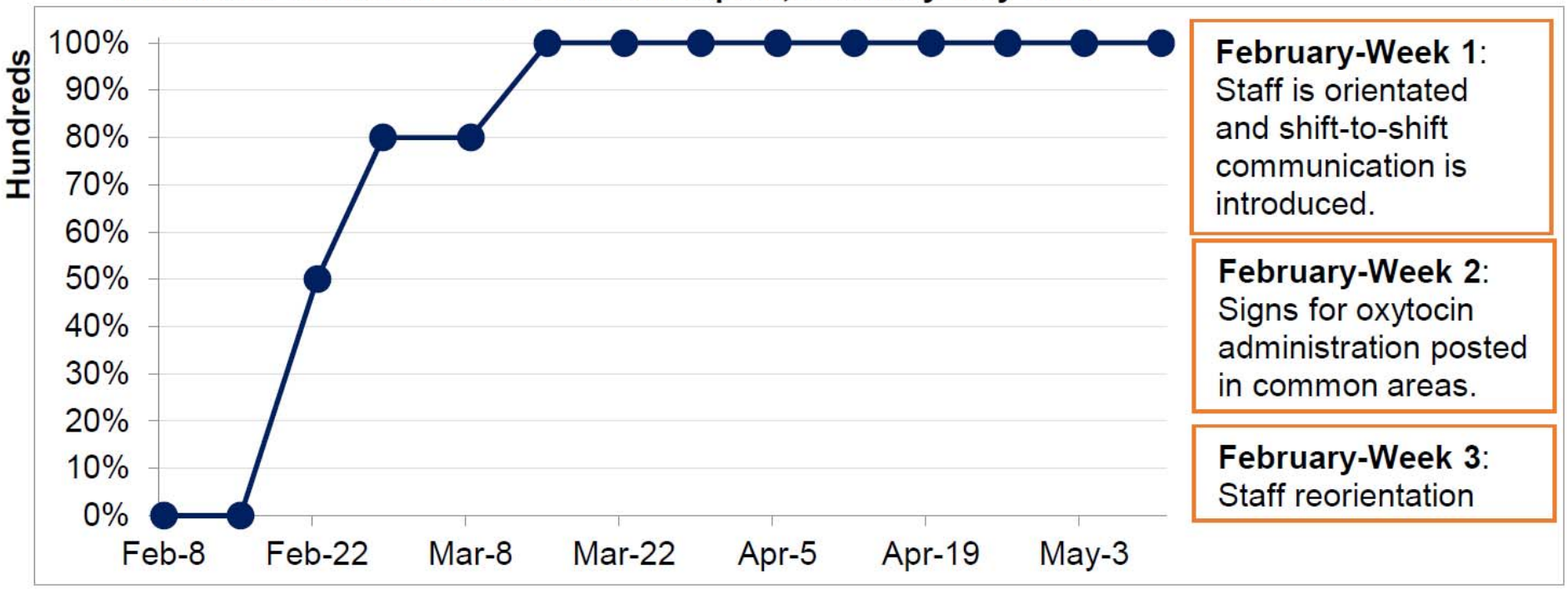


Examples of changes introduced to improve ART care in 5 facilities in Buikwe, Uganda

Coverage Gap	Retention Gap	Wellness Gap
• Health workers and expert patients sensitized community members on chronic care for HIV through local radio, at churches and in health facilities • Village health teams mobilized communities for random counselling and testing • Conducted HIV counselling and testing to all patients who came to the facility	• Health workers and expert patients traced patients lost to follow-up by conducting home visits • Introduced outreach visits to reduce travel distance for patients • Conducted group classes for patients who defaulted from care • Assigned each patient two treatment supporters	• Educated patients about their condition and treatment as well as allowed patients to share their experience • Conducted health worker guided health education sessions • Introduced self-management classes • Health workers and patients set health goals together and monitored progress.

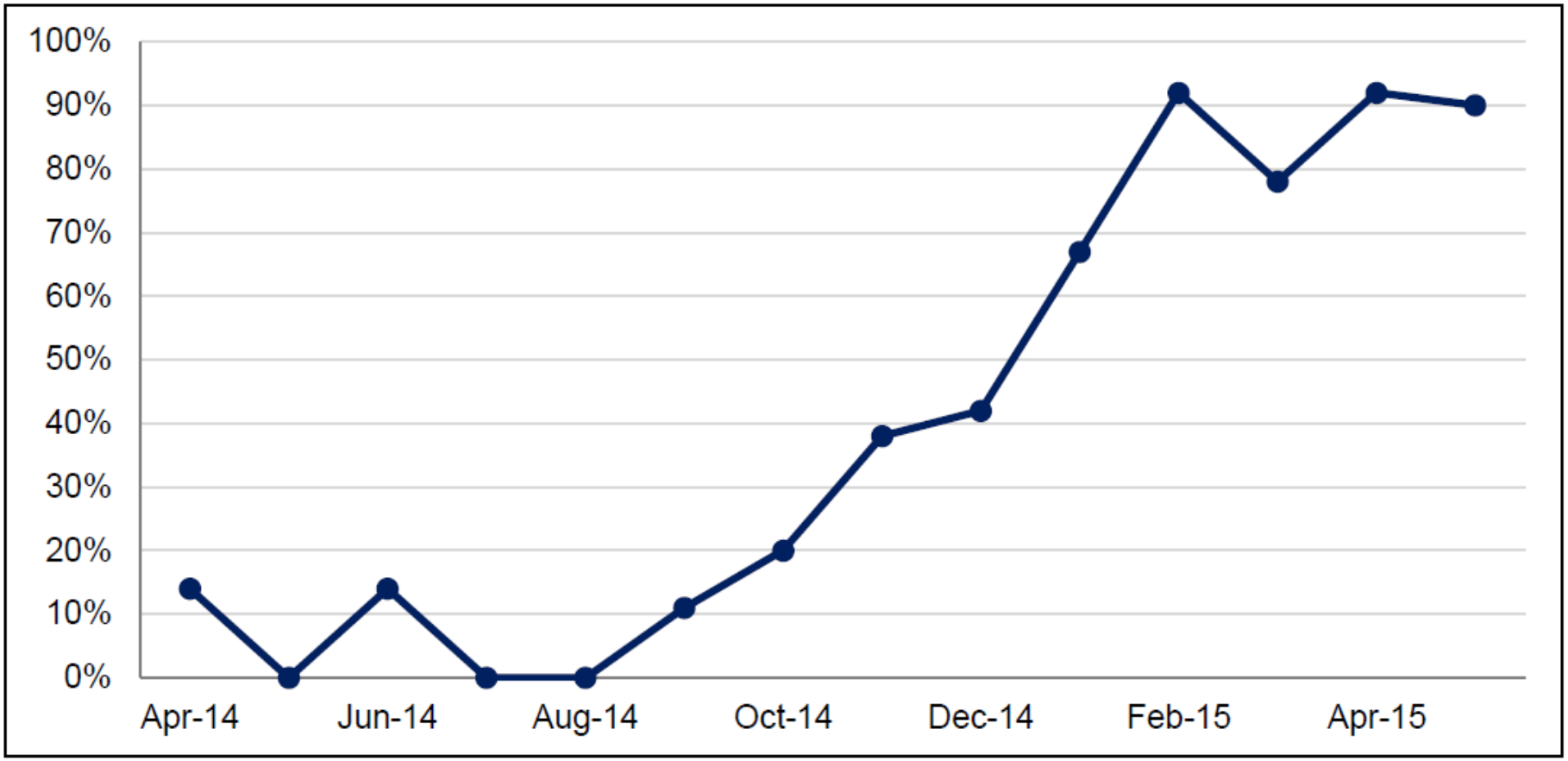
Record of oxytocin injection given within one minute of birth, Hisar District Hospital, India, February-May 2014

Figure 1: Percentage of bed head tickets having record of oxytocin injection given within one minute in Hisar District Hospital, February-May 2014



Scaling up quality improvement to reduce maternal and child mortality in Lohardaga District, Jharkhand, India

Figure 1: Percentage of pregnant women registered in the first trimester (within 12 weeks) out of total new ANC registered in the month, Jowang Public Health Centre, April 2014-May 2015



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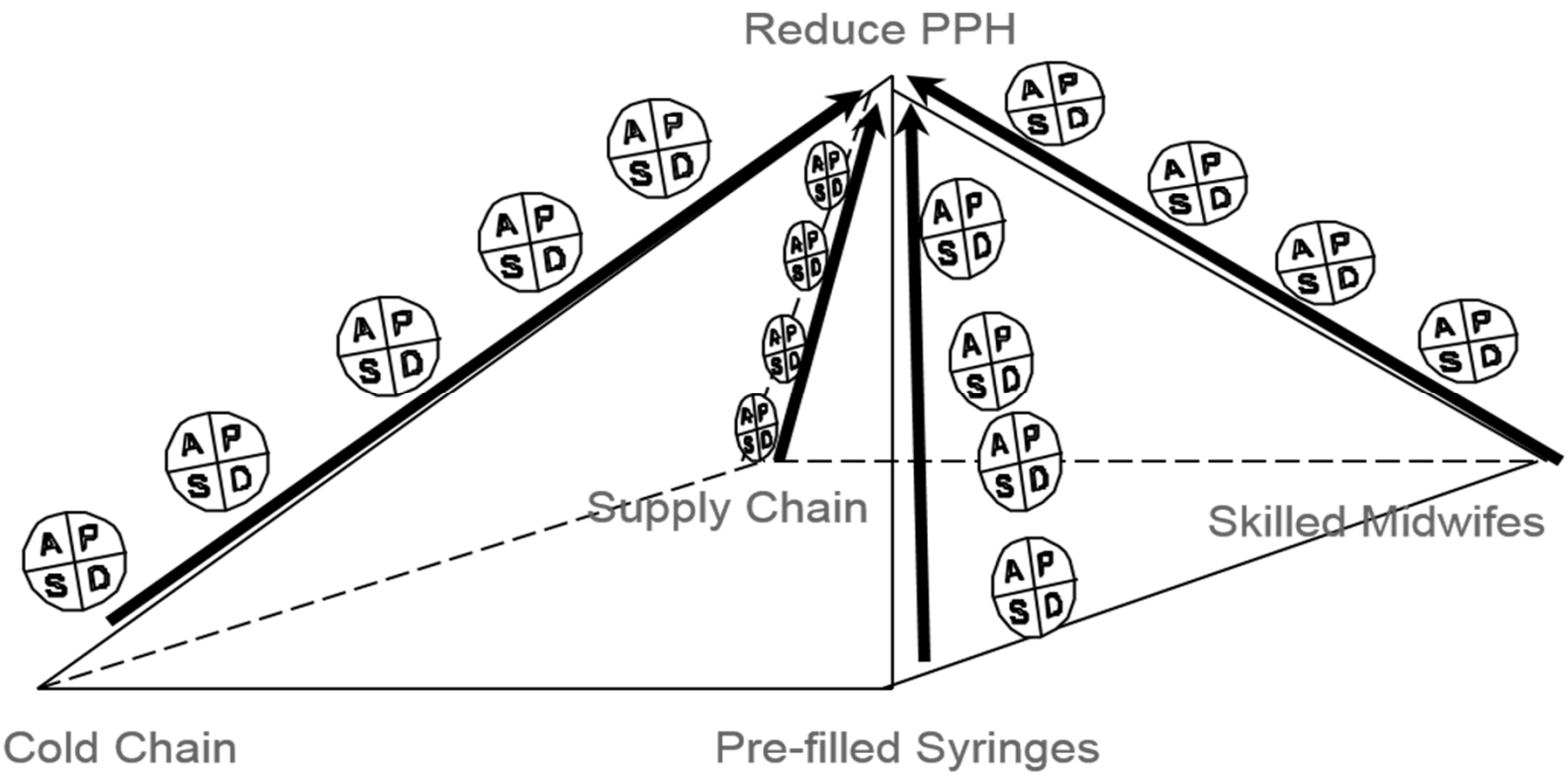
Overview of Improving Health Care

Part 3

Multiple ramps of changes towards a single aim



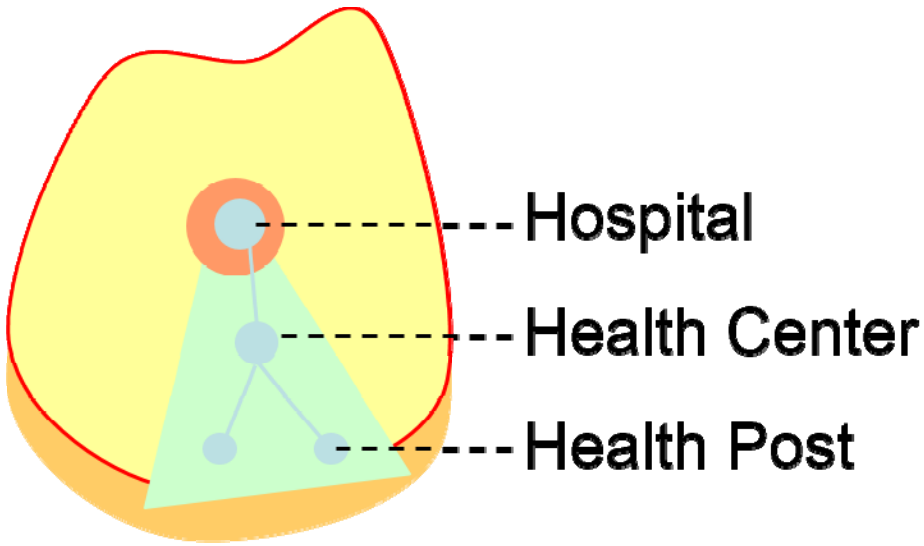
Institute for Healthcare Improvement

Four-tier health system design

Patient and Community	**Experience**	Aims (safe, effective, patient-centered, timely, efficient, equitable)
Micro-system	**Process**	Simple rules/Design Concepts (knowledge-based, customized, cooperative)
Organizational Context	**Facilitator of Processes**	Design Concepts (HR, IT, finance, leadership)
Environmental Context	**Facilitator of Facilitators**	Design Concepts (financing, regulation, accreditation, education)

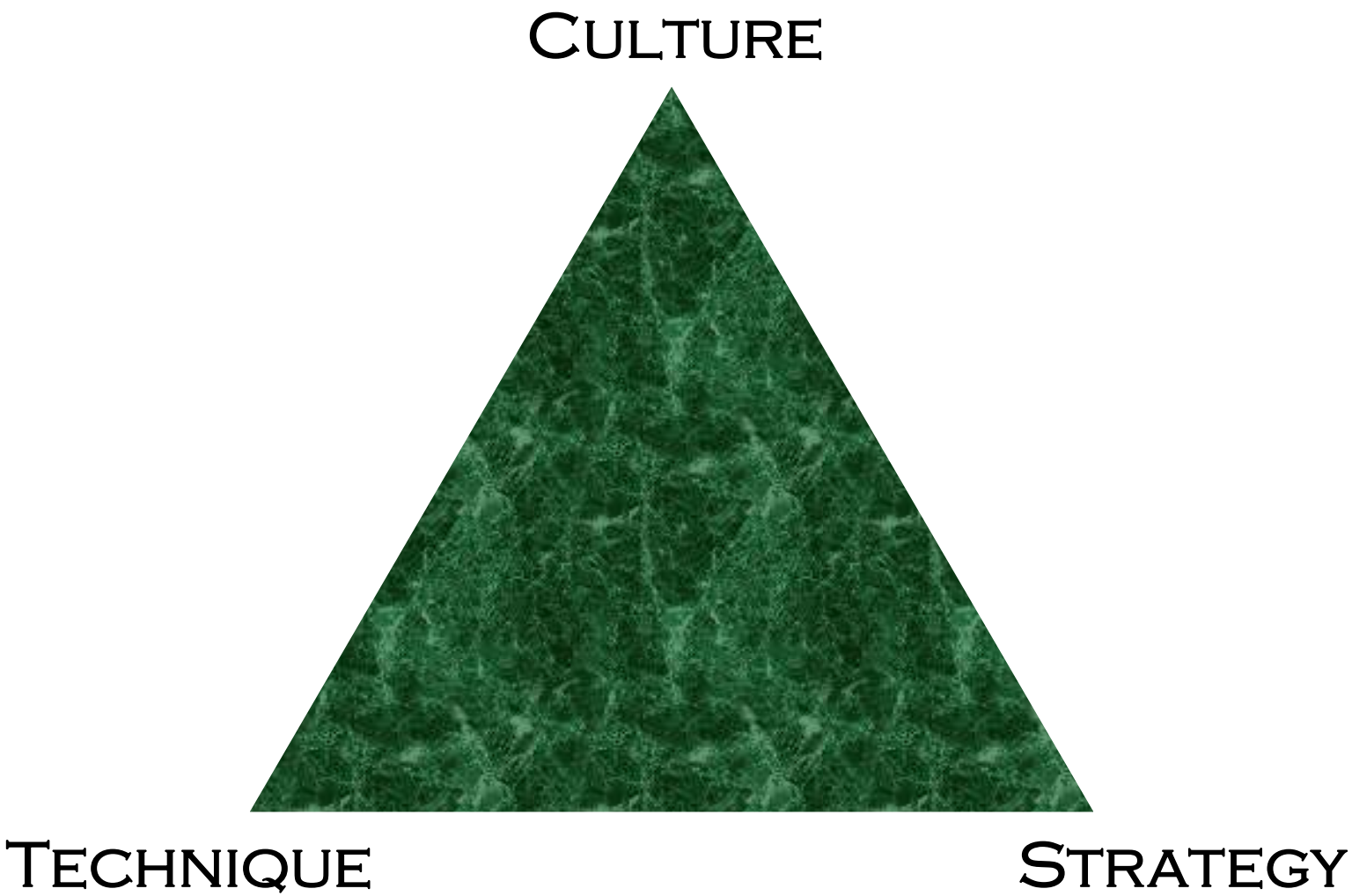
Institute for Healthcare Improvement

Slice of the system



Selection of different types and levels of facilities in a district or province

Leading health care improvement



Source: Joseph Juran

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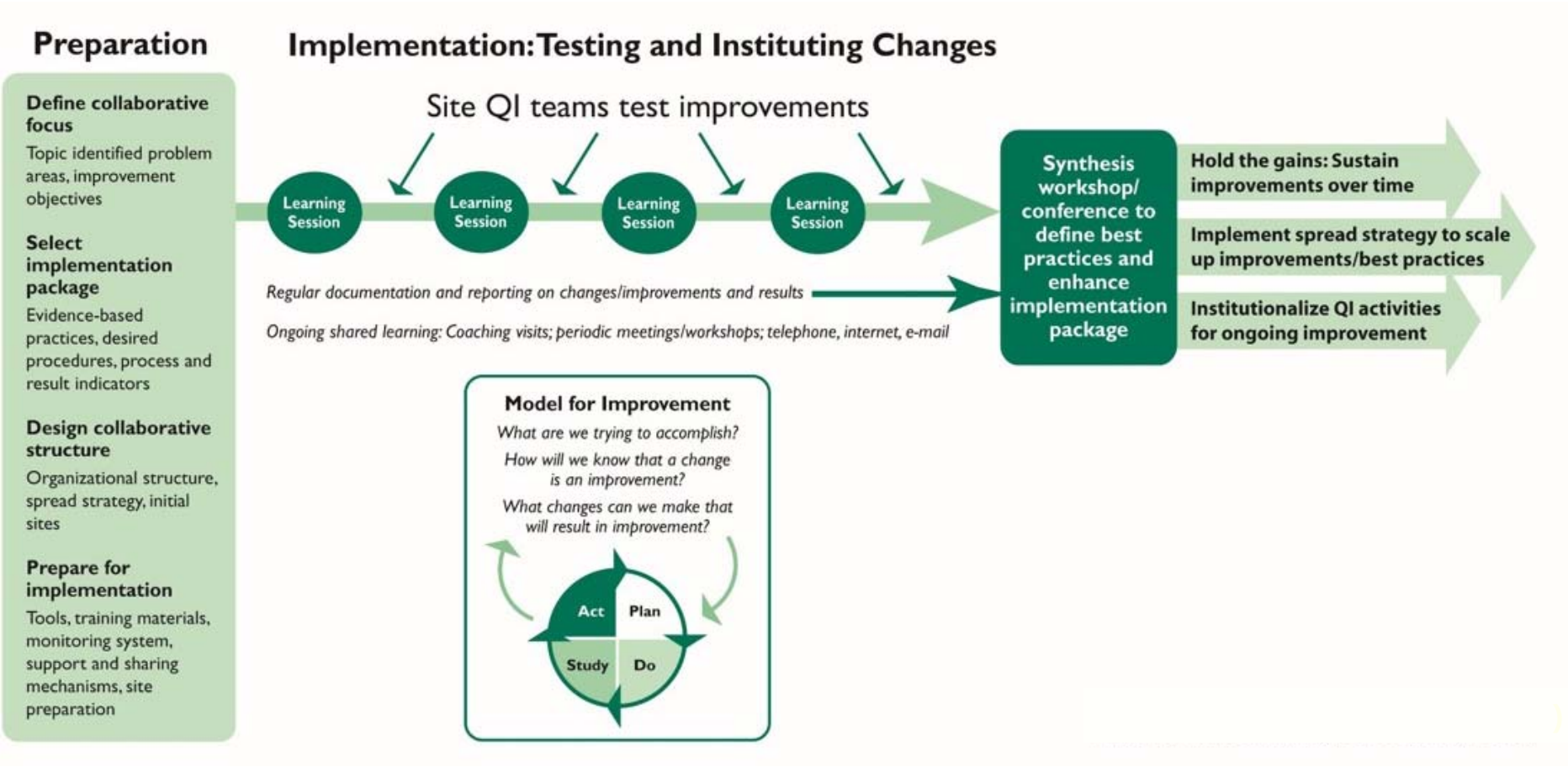
Overview of Improving Health Care

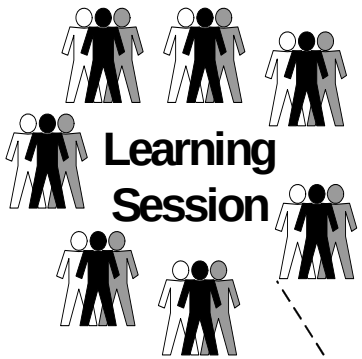
Part 4

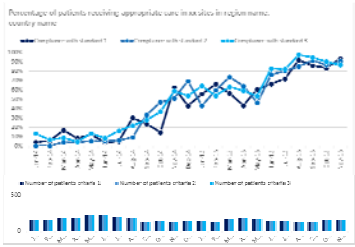
Model for collaborative improvement



Adapted from the Breakthrough Series Model (IHI 2003)

How collaborative improvement works

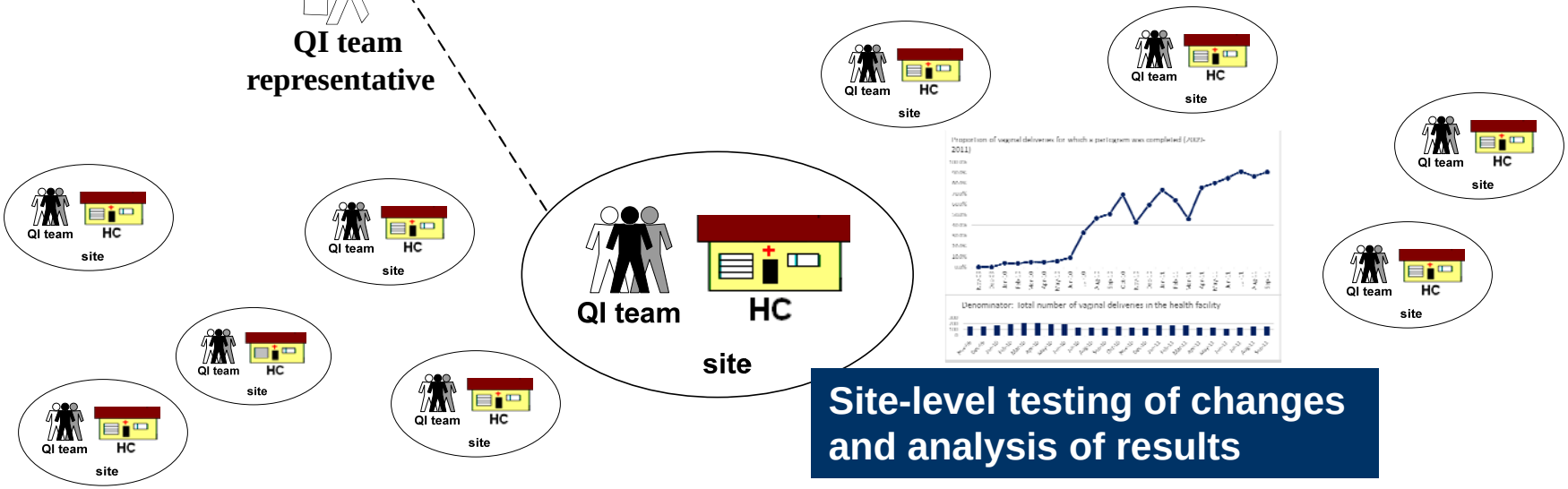




Collaborative-level sharing and synthesis of best practices

Multiple **sites** ***simultaneously*** **testing changes, common indicators, peer learning about how to improve that area of care**

QI team representative



Site-level testing of changes and analysis of results

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Case Study: Nutrition Assessment, Counseling, and Support

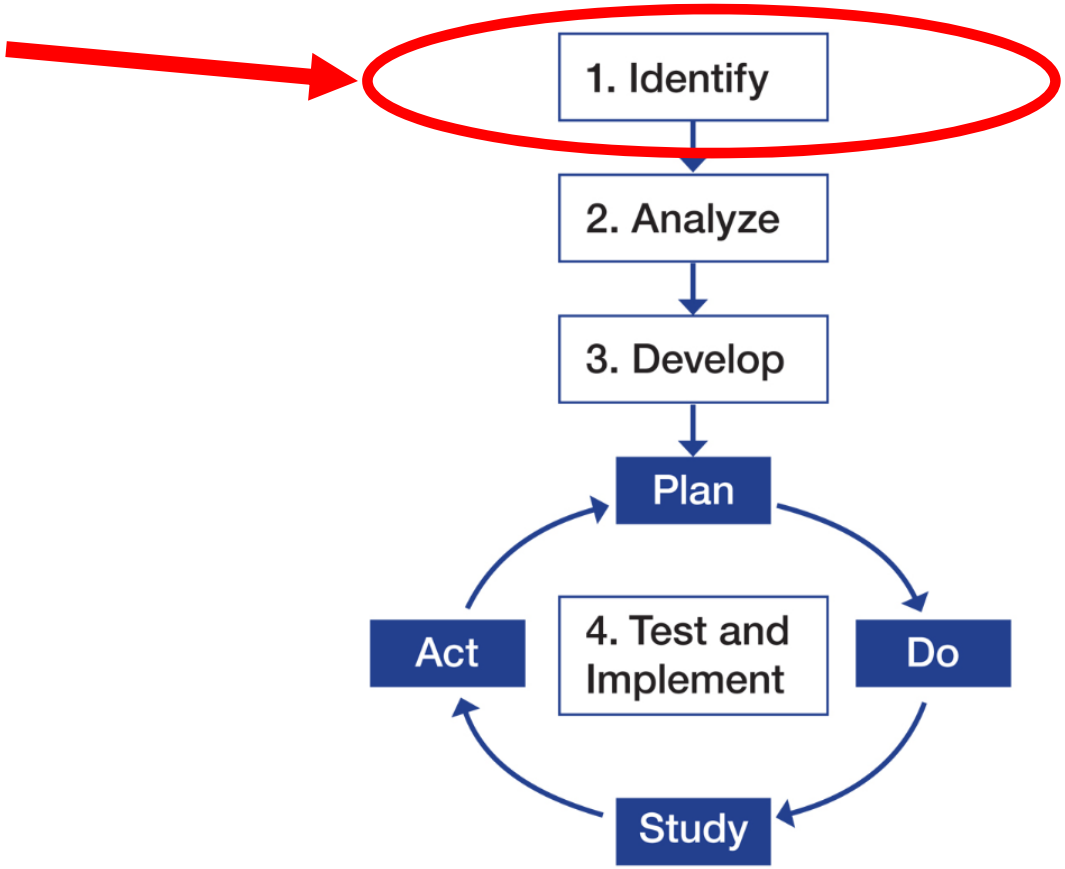
Learning objectives

Throughout the case study you will practice developing the following skills:

a) Define improvement aim(s)
b) Form improvement teams
c) Plot a time series chart
d) Analyze processes of care
e) Test and implement changes to improve everyday work
f) Monitor and evaluate results of tested change

Section 1: Defining Improvement Aim(s)

Model for improvement



Adapted from: Massoud et al. A Modern Paradigm for Improving Healthcare Quality

Model for improvement

STEP 1. Identify the problem

- **Clearly define the aim for improvement**
- Determine the process(es)/ system that yield this aim for improvement
- Decide who should be on the team that will solve the problem
- Achieve a consensus on the problem by the team

What can help us develop improvement aims?

- Existing MOH priorities
- Data (e.g., existing reports, baseline assessment studies) that show where need is greatest
- Priorities recognized by donors and funders
- Patients, staff, practitioners, communities, other stakeholders

Determining a good aim statement

A good aim statement has:

- A defined **boundary** that specifies the scope of the improvement goal
- Specific **numerical aims** for **outcomes** that are ambitious but achievable
- A **timeframe** (how much improvement by when?)
- **Guidance** on how the aim will be achieved

Discussion: Is this a good aim statement?

In our clinic we will reduce post-partum hemorrhage rates amongst women delivering at our clinic by 50% within 12 months through the application of the Active Management of the Third Stage of Labor (AMTSL).

Boundary:

Numerical goals for outcomes:

Timeframe:

Guidance:

Discussion: Is this a good aim statement?

- Our clinic will provide ART for 90% of the estimated 2500 ART eligible patients in our catchment area,
- Retain 95% of patients started and expected to continue on ART,
- Achieve good clinical outcomes for 95% of patients retained on ART,
- These targets will be achieved by the end of 18 months.

Boundary:

Numerical goals for outcomes:

Timeframe:

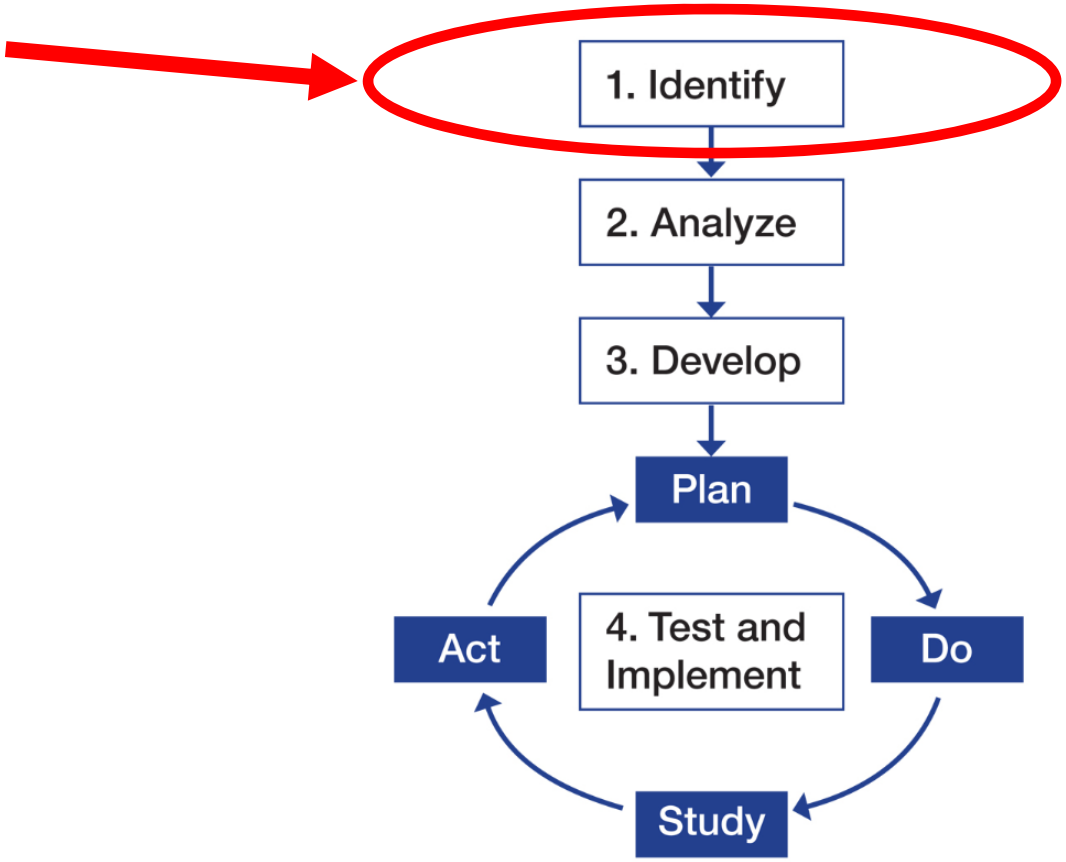
Guidance:

Exercise

Read the exercise and answer the questions.

Section 2: Forming the Improvement Team

Model for improvement



Adapted from: Massoud et al. A Modern Paradigm for Improving Healthcare Quality

Model for improvement

STEP 1. Identify the problem

- Clearly define the aim for improvement
- **Determine the process(es)/ system that yield this aim for improvement**
- **Decide who should be on the team that will solve the problem**
- Achieve a consensus on the problem by the team

Why is teamwork important for improvement?

- Healthcare processes consist of **inter-dependent steps** that are executed by **different people** fulfilling different professional functions.
- Quality faults often occur in the **hand-over between people** in different steps.
- Given the opportunity, **staff can often 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 team member, which **empowers organizations**.

Teamwork

Steps and participants in a patient visit to the clinic

Team roles and responsibilities

- **Improvement Team Member:** People who work on improvement teams share their knowledge and experience while working to accomplish team goals
- **Improvement Team Leaders:** Members of improvement teams who are assigned the responsibilities of people orchestrating improvement team activities, maintaining team records and serving as the communication link.

Exercise: Form your improvement team

Using your workbook:

1. Referring back to the aim statement, consider the process that you want to improve.
2. Think of those responsible for each step in that process. A representative of each function should be on your improvement team.
3. Think about who else would be important to include on your improvement team, such as: management, practitioners, patients or groups representing patients, or other people involved in the system of care.

At your tables, please read the case study on the following page and complete the exercise.

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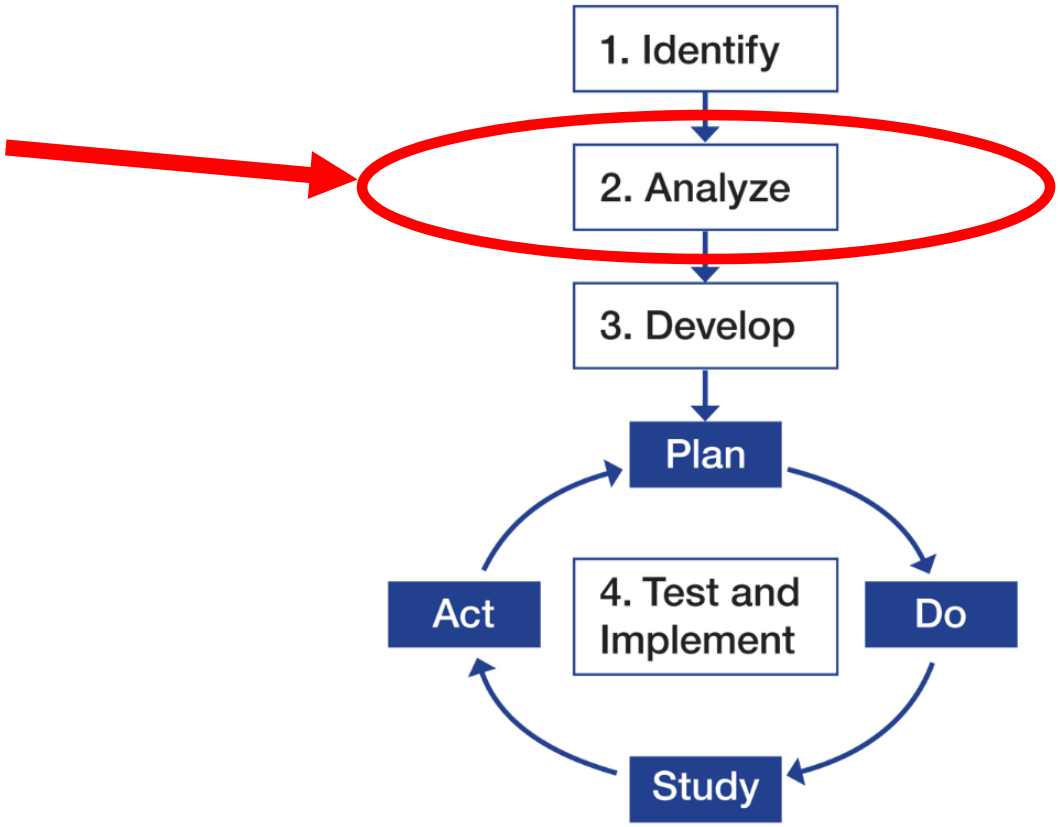
Section 3: Understanding the Current Process

Model for improvement



Adapted from: Massoud et al. A Modern Paradigm for Improving Healthcare Quality

Model for improvement

STEP 2. Analyze the problem

- **Understand the process(es)/ system that yield this aim for improvement**
- Determine the indicators which enable us to know that we have made the improvement we are seeking
- Analyze the available data and information
- Collect additional data (as needed)

Understanding work as processes and systems

- **Process**: a sequence of steps through which inputs from suppliers are converted into outputs for customers.

- **System**: the sum of all the processes and often elements that interact together to produce a common output or outcome.

Donabedian Model of a System

Inputs

Resources necessary to carry out a process

Process

A series or sequence through which inputs are transformed into outputs

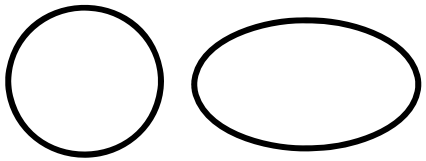
Outcomes

The outputs (services/products) and outcomes (health outcomes) result from the inputs & processes

How to create a process flowchart

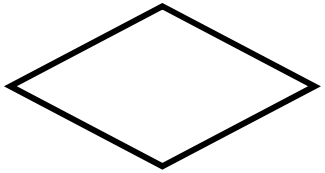
1. Decide on the ***beginning*** and ***end*** points of the process to be flowcharted.
2. Identify the **steps** of the process.
3. Link the steps with **arrows** showing direction.
4. **Review** ensure that it truly describes the process.

How to create a process flowchart: Symbols of a flow chart

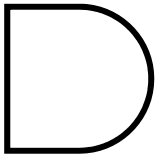


Begin or End

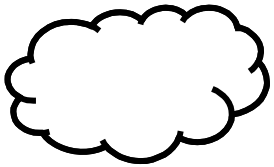
Step



Decision

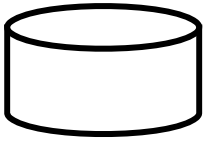


Delay



Cloud (unclear step)

Document



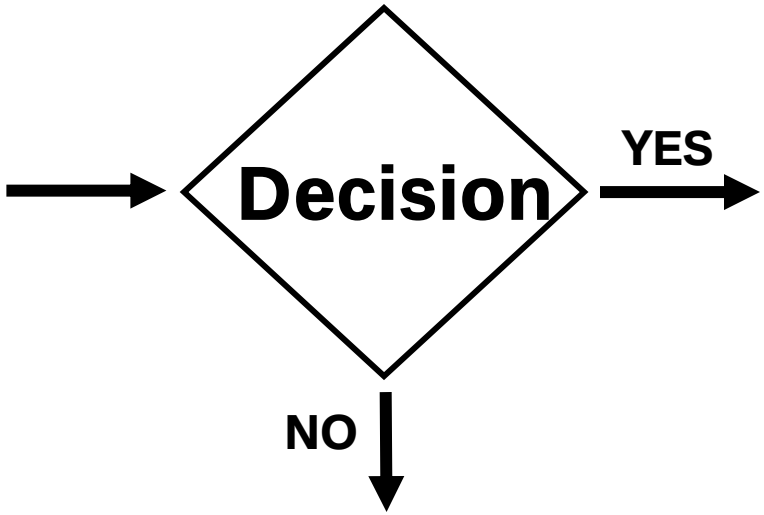
Storage

Flow lines

Connector

How to create a process flowchart: Flow lines

One flow line out of a step



Two flow lines out of a decision

Must ask a yes / no question

Types of flow

1. Clinical algorithms
2. Materials flow
3. Patient Journey
4. Information flow
5. Multiple flow

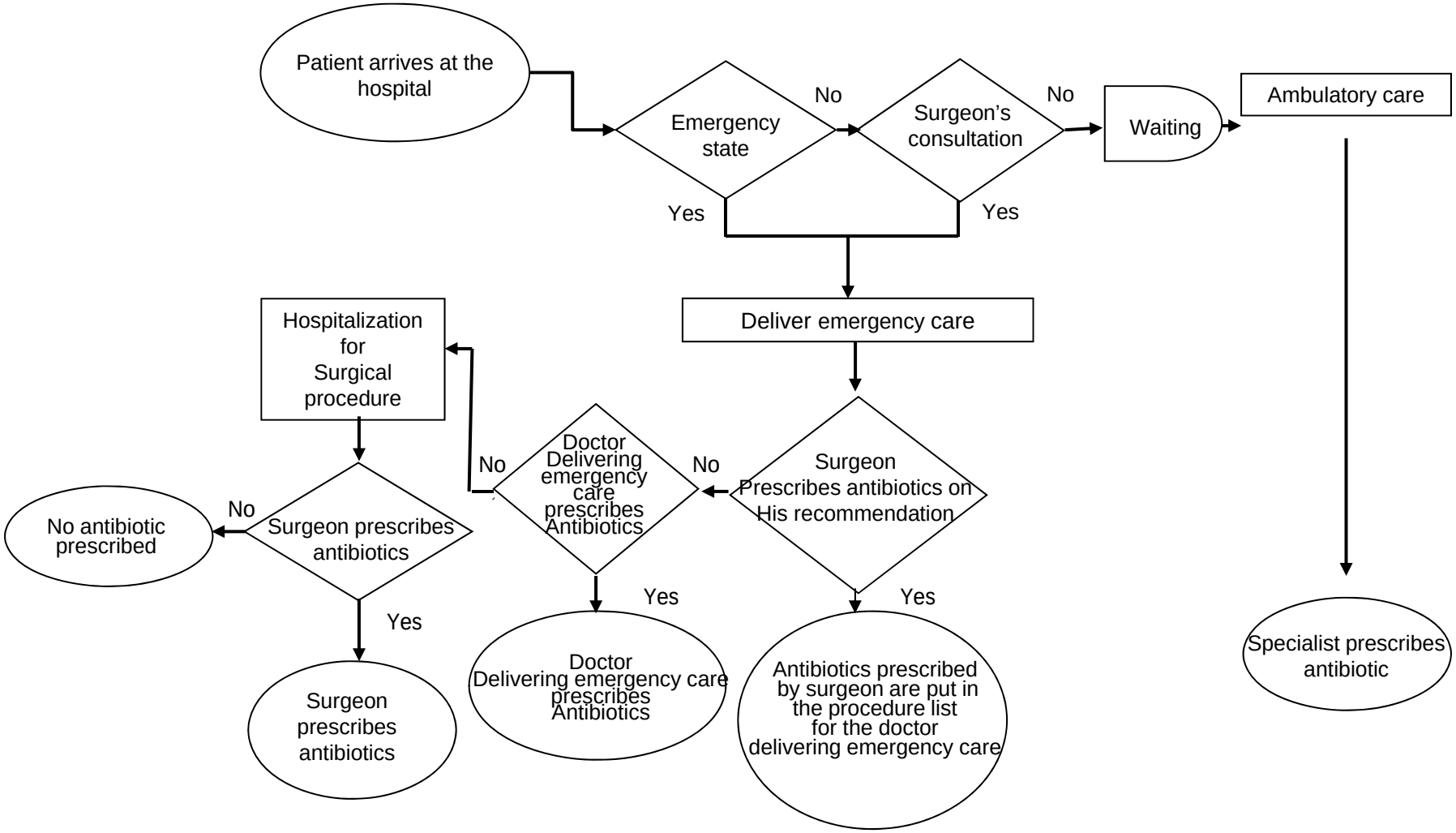
Example: Process for prescribing antibiotic in surgery before changes

The process for prescribing antibiotics in surgery starts when a patient arrives to receive care at the hospital. This can happen in the emergency room or the surgeon's outpatient consultation. If antibiotics are not prescribed in either of these places, then the patient will have arrived to the hospital for admission, in which case, antibiotics will have been prescribed in outpatient setting outside of the hospital and the prescription receives there is simply administered in the hospital.

If the patient arrives at the emergency room or in the surgeon's outpatient consultation and if it is an emergency then antibiotics are prescribed by the surgeon in the emergency room. If it is not an emergency, the patient is prescribed antibiotics by the surgeon, in the surgeon's outpatient consultation office inside the hospital.

If the patient is not hospitalized, then the surgeon may prescribe an antibiotic to be taken at home or the patient may be discharged from the hospital outpatient clinic without an antibiotic.

Example: Process for prescribing antibiotics in surgery <u>before</u> changes



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Analyzing a flow chart

- Is the sequence of steps appropriate?
- Is this step needed?
- Are there missing steps?
- Where are the delays/ errors?
- Are these steps unclear?

Exercise

Read the exercise and answer the questions.

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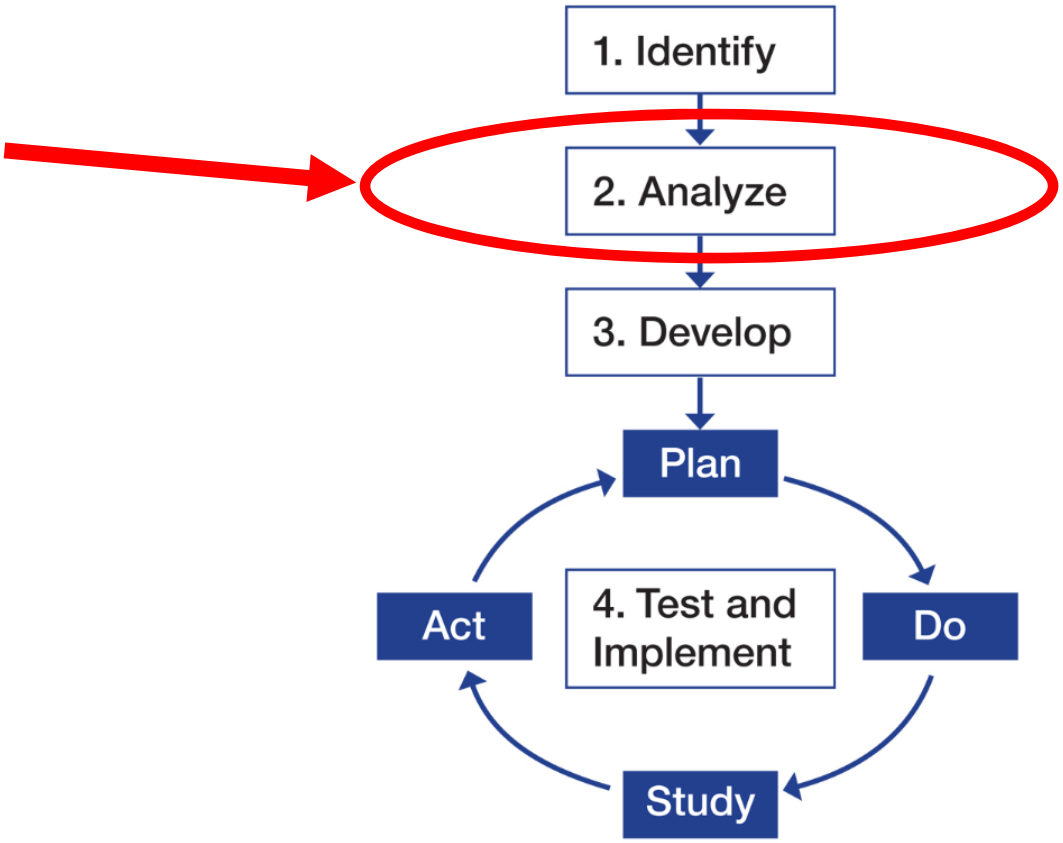
Section 4: Developing Indicators

Model for improvement



Adapted from: Massoud et al. A Modern Paradigm for Improving Healthcare Quality

Model for improvement

STEP 2. Analyze the problem

- Understand the process(es)/ system that yield this aim for improvement
- **Determine the indicators which enable us to know that we have made the improvement we are seeking**
- Analyze the available data and information
- Collect additional data (as needed)

Why measure?

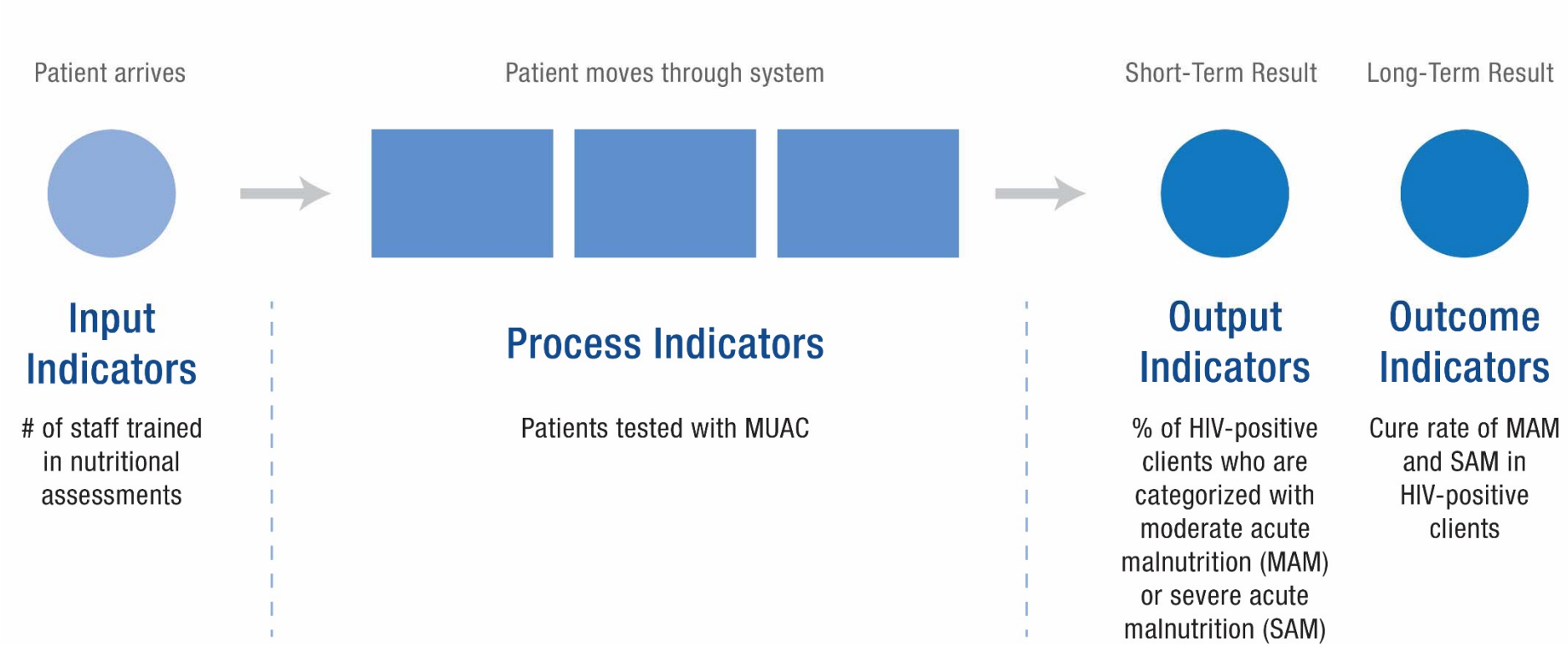
- If you don’t measure what you are doing, how will you know you have made an improvement?

  Ask: What is the minimum amount of measurement that you need in order to answer these questions?

How measurement should work

- Should be directly linked to improvement aims
- Should be used to guide improvement and test changes
- Should be integrated into the team's daily routine
- Will allow QI teams to learn
- Should concentrate on ***key*** measures—don't overwhelm teams with endless data collection and analysis!

Types of indicators



Qualities of a good indicator

- **Clear and unambiguous** (teams will not confuse what is meant by the indicator)
- **Quantifiable**
- Identifies the **source** of the data and the **person responsible** for collecting it
- Identifies a clear **numerator** and **denominator**
- Identifies the **frequency** with which the data should be collected

Elements of an indicator

- Indicator
- Numerator
- Denominator
- Source
- Person responsible
- Frequency

Example: Elements of an indicator

- **Indicator:** Proportion of neonates successfully resuscitated
- **Numerator:** # of neonates alive after 7 days of initial resuscitation
- **Denominator:** total # of neonates resuscitated
- **Source:** Patient record
- **Person Responsible:** neonatologist
- **Frequency:** Weekly

Exercise

Read the exercise and answer the questions.

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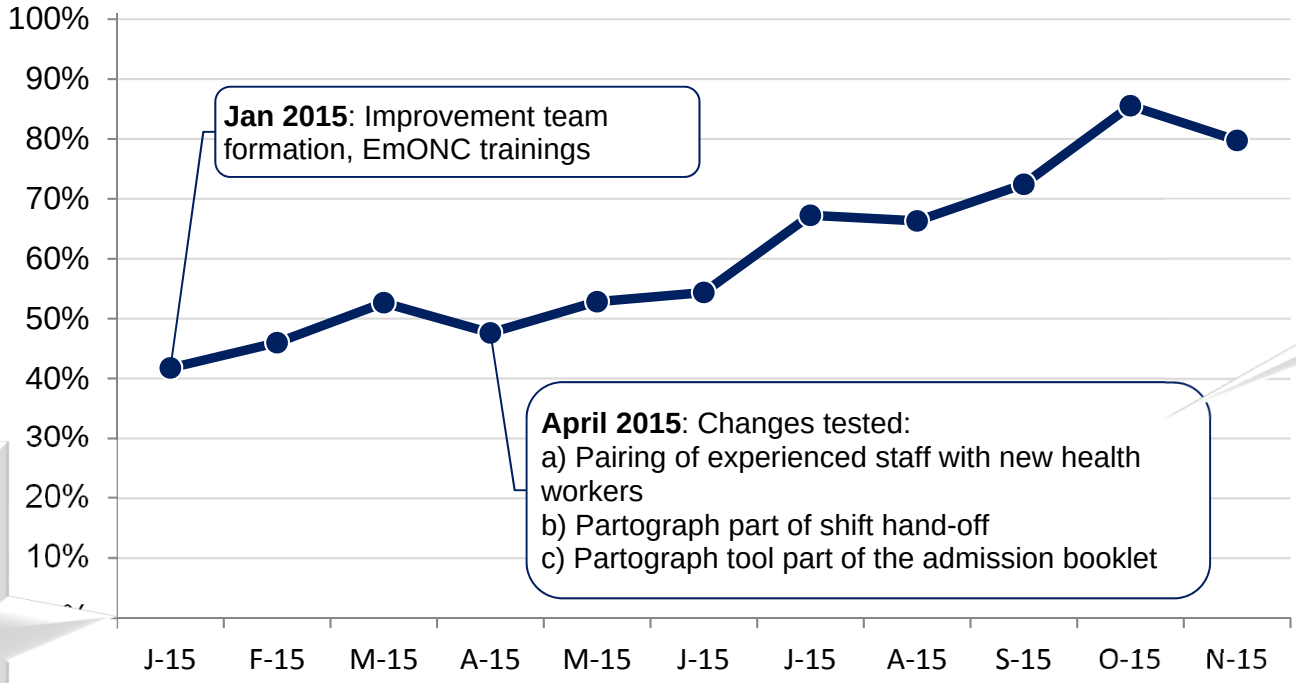
Section 5: Setting Up and Plotting a Time Series Chart

Elements of a time series chart

Clear and well-defined title that defines indicator, scale, and timeframe

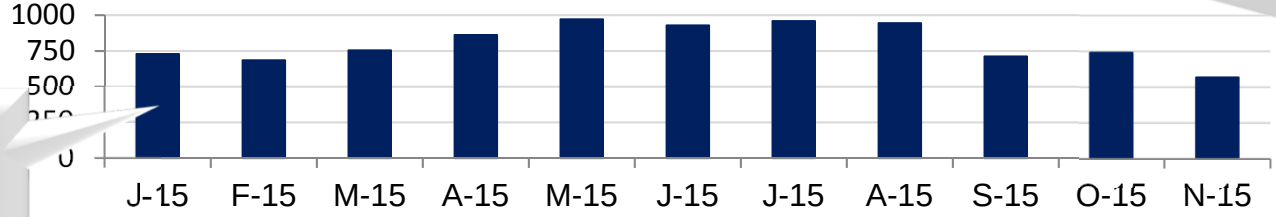
Percentage of women giving birth whose partograph is complete in 39 facilities in five counties in Kenya, January – November 2015



Tested changes are annotated

X and Y axes have clear scale and include labels

Denominator: Number of women in labor at the facility (Sampled charts)



Denominator defined, including whether data is sampled or whole population

Denominator values shown for each month

Data form for plotting your time series chart

Sample Data for Time Series Charts:

	Day	Mon	Tues	Wed	Thurs	Fri	Sat	Sun
Process	**Numerator:** # HIV + clients who received nutrition assessment							
	Denominator: Total # HIV + clients seen each month							
	Percent:							
Outcome	**Numerator:** # of malnourished clients							
	Denominator: Total # of clients seen in the clinic							
	Percent:							

Exercise

Read the exercise and answer the questions.

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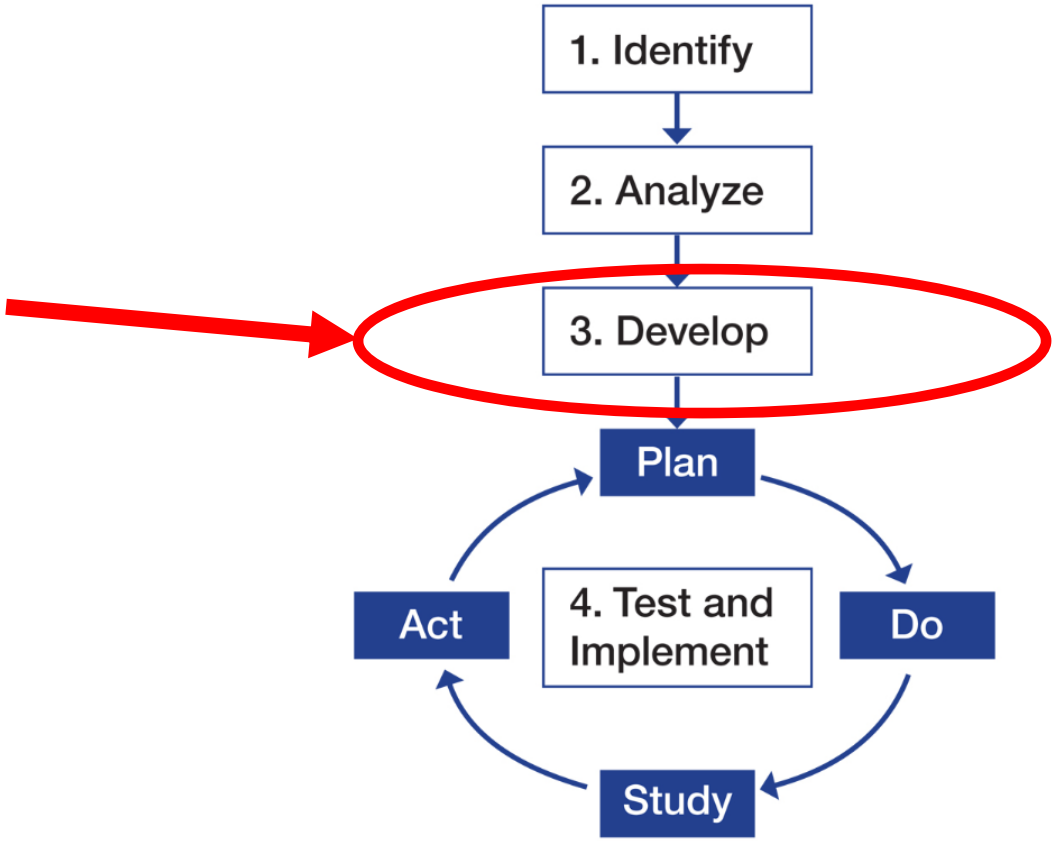
Section 6: Developing, Testing, and Implementing Change

Model for improvement



Adapted from: Massoud et al. A Modern Paradigm for Improving Healthcare Quality

Model for improvement

STEP 3. Develop

- **Consider possible changes (interventions) we believe may yield improvement**
- **Organize changes according to importance and practicality**
- Test changes (to the extent possible, one change at a time)

Where do we get ideas for developing changes?

- Literature
- Guidelines
- Normative documents
- Improvement team brainstorming
- Benchmarking
- Knowledge management

Developing changes

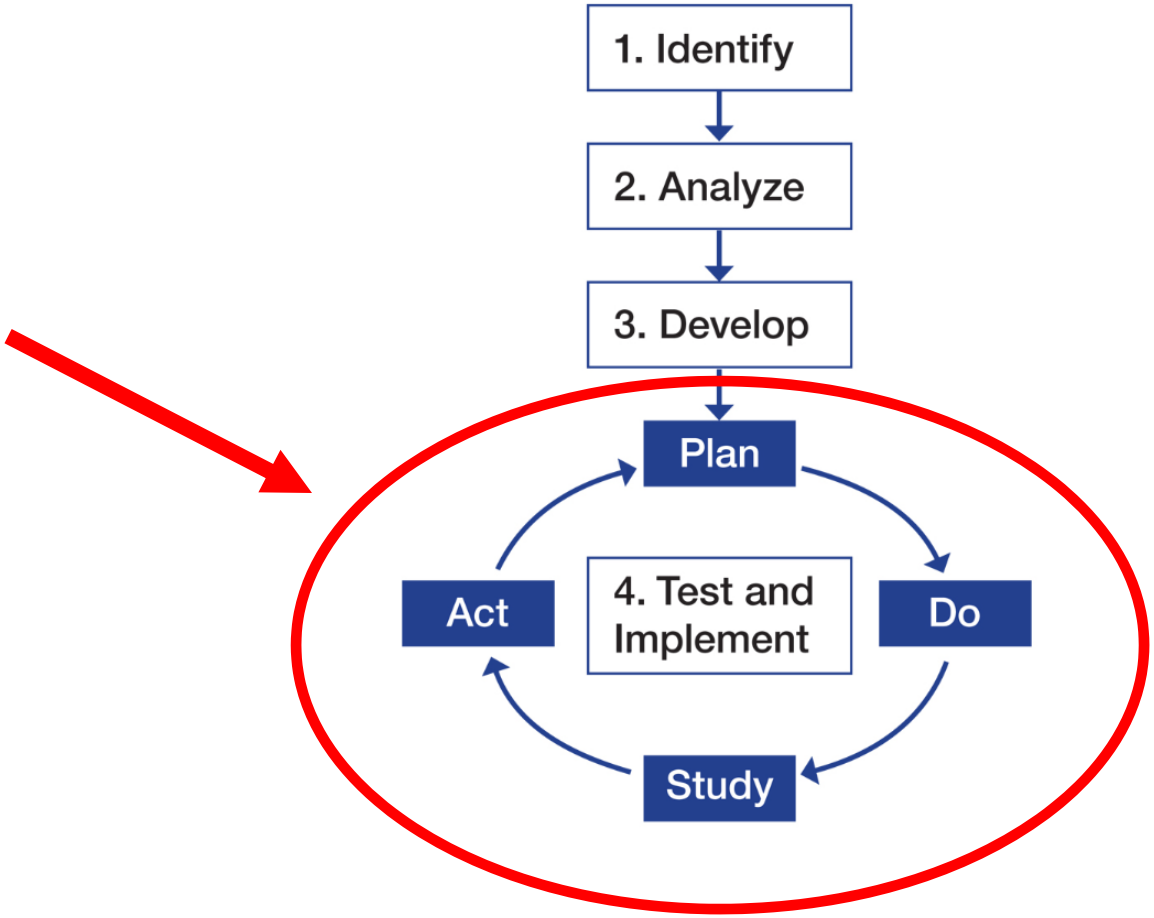
- Something that you have not done before
- Something you can do tomorrow
- Something that worked somewhere else
- Something that feels right

Developing changes

Avoid:

- Doing what you've done before: "Let's have a training"
- Low-impact changes: "Let's put up a poster"; "Let's have an education session"; "Let's send out reminders"
- Technical slow-downs: "We will build a computer program to do this…"

Model for improvement



Adapted from: Massoud et al. A Modern Paradigm for Improving Healthcare Quality

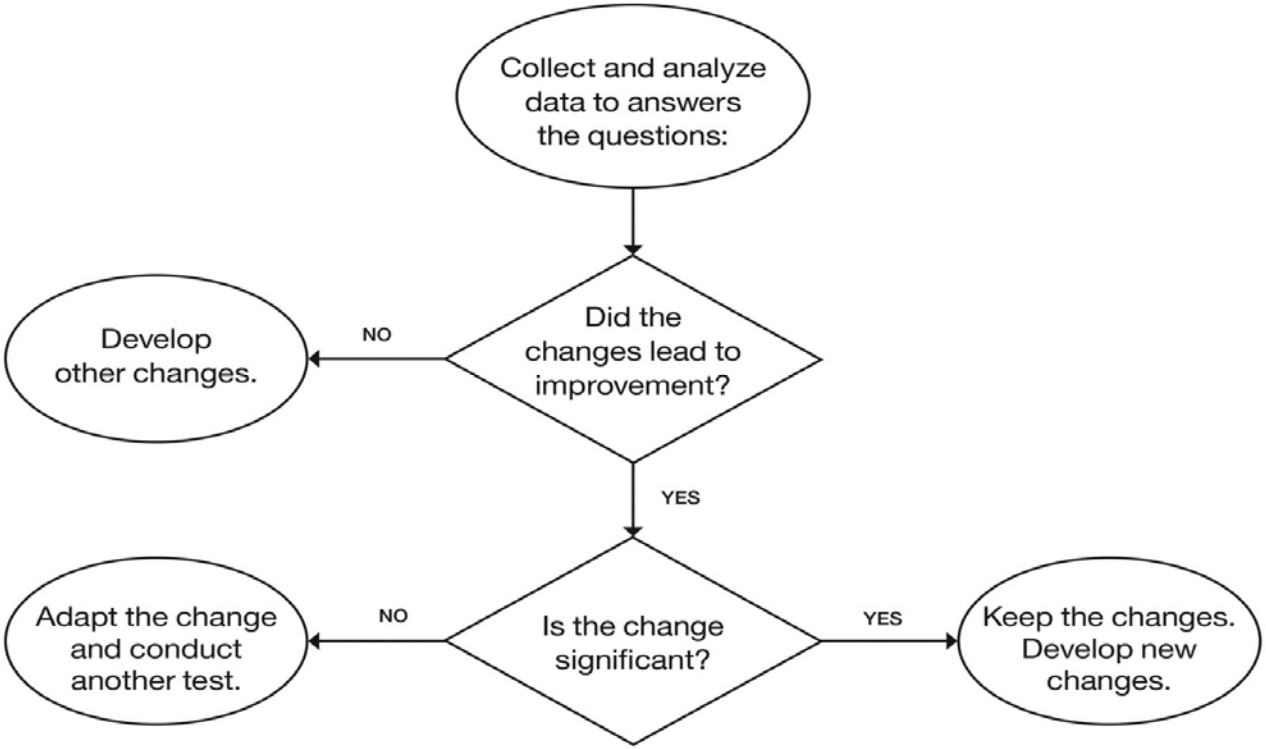
Elements of the cycle for learning and improvement: Plan-Do-Study-Act (PDSA) Cycle

Langley et. al

Testing and implementing changes

Step 4. Test and implement changes

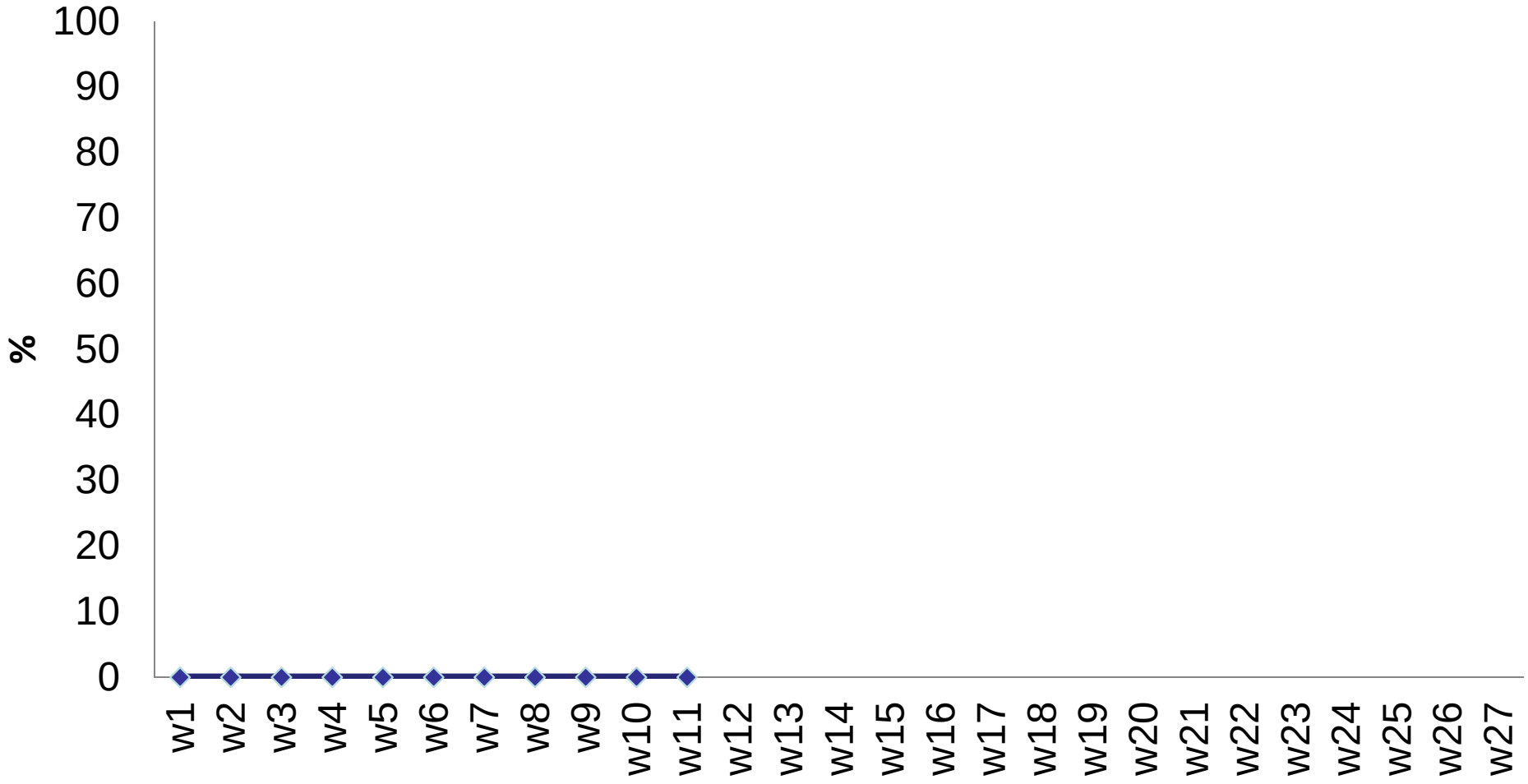
Analysis of tests of change



Testing a change

1. Test **BIG** changes on an initially small scale, then ramp up
2. Test individual changes separately when possible
3. Negative results are an opportunity to learn
4. Think about how conditions change over time (monthly, seasonal patterns, external variables)

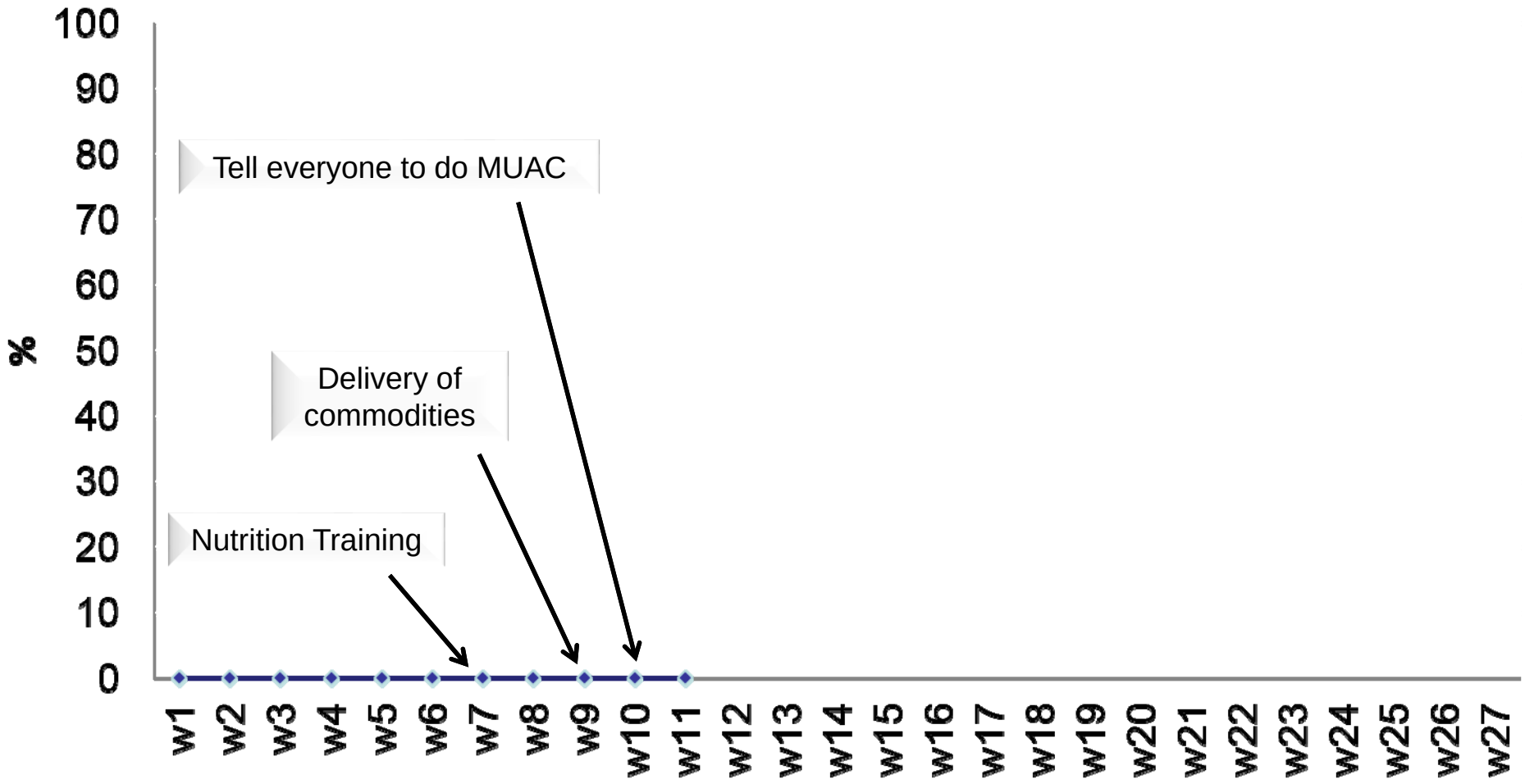
Percentage of clients whose nutritional status is assessed using mid-upper arm circumference (MUAC)



Question

Why do you think NACS was not implemented?

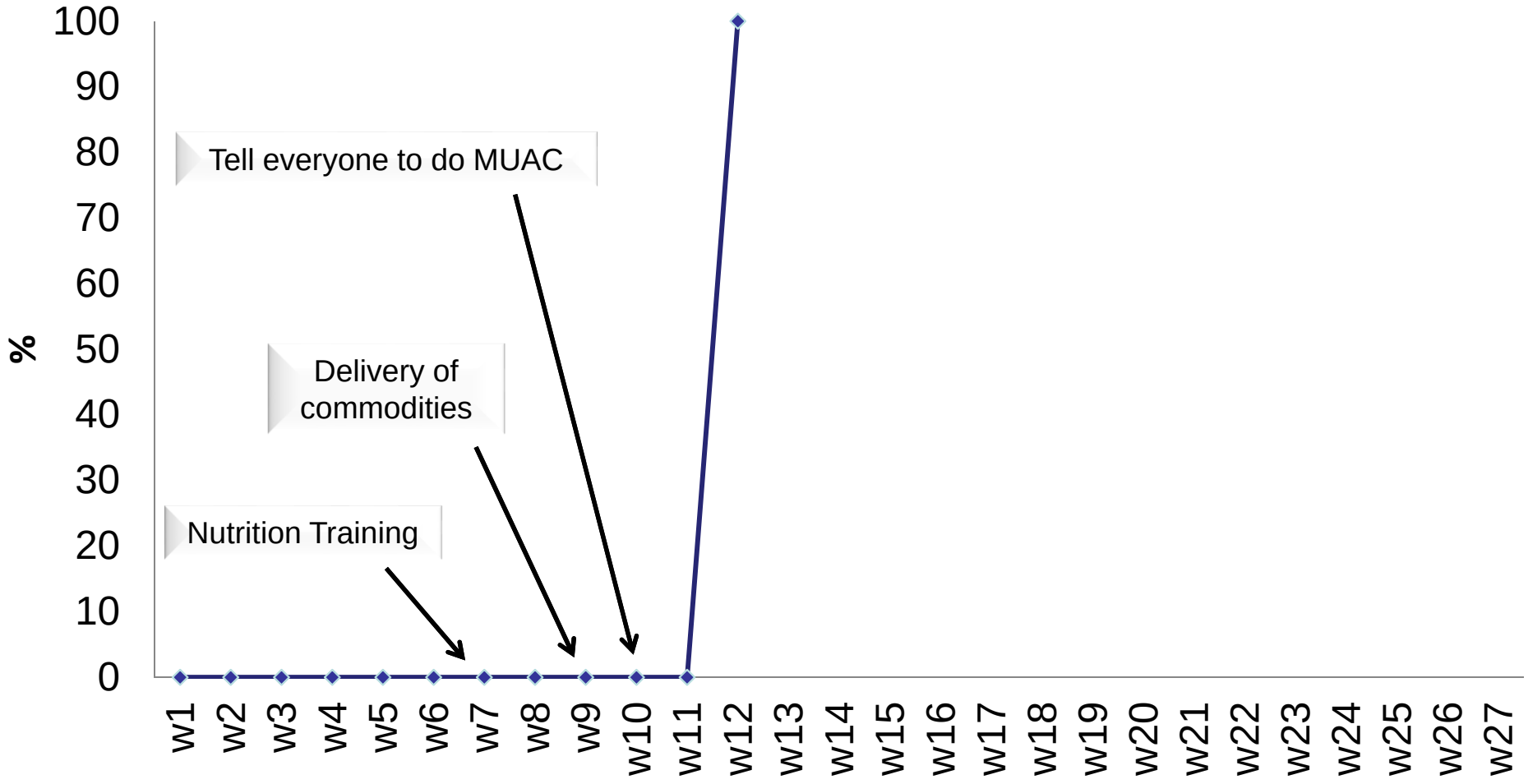
Percentage of clients whose nutritional status is assessed using mid-upper arm circumference (MUAC)



Question

Why do you think NACS was not implemented even though supplies were available and the staff were trained?

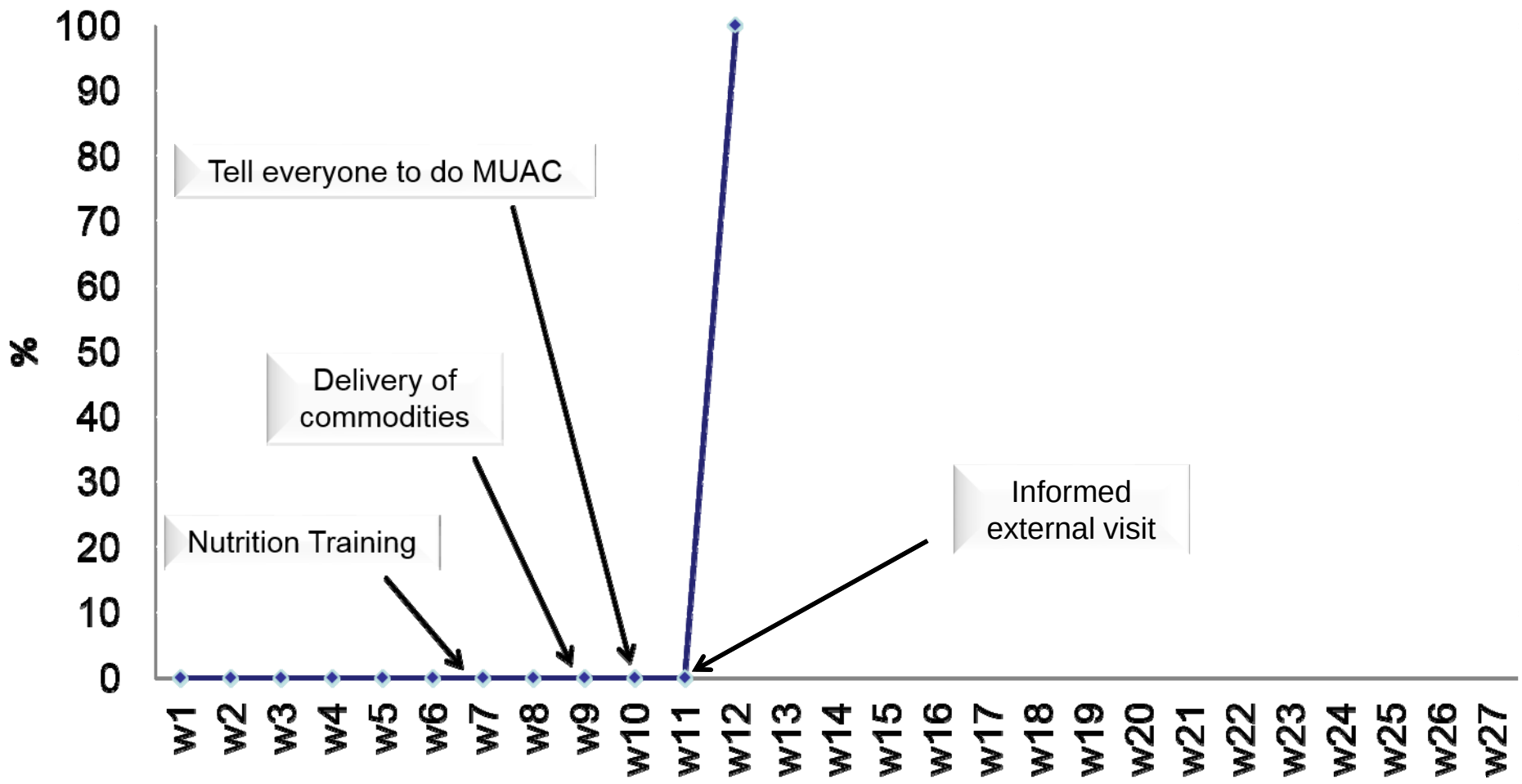
Percentage of clients whose nutritional status is assessed using mid-upper arm circumference (MUAC)



Question

What do you think happened here?

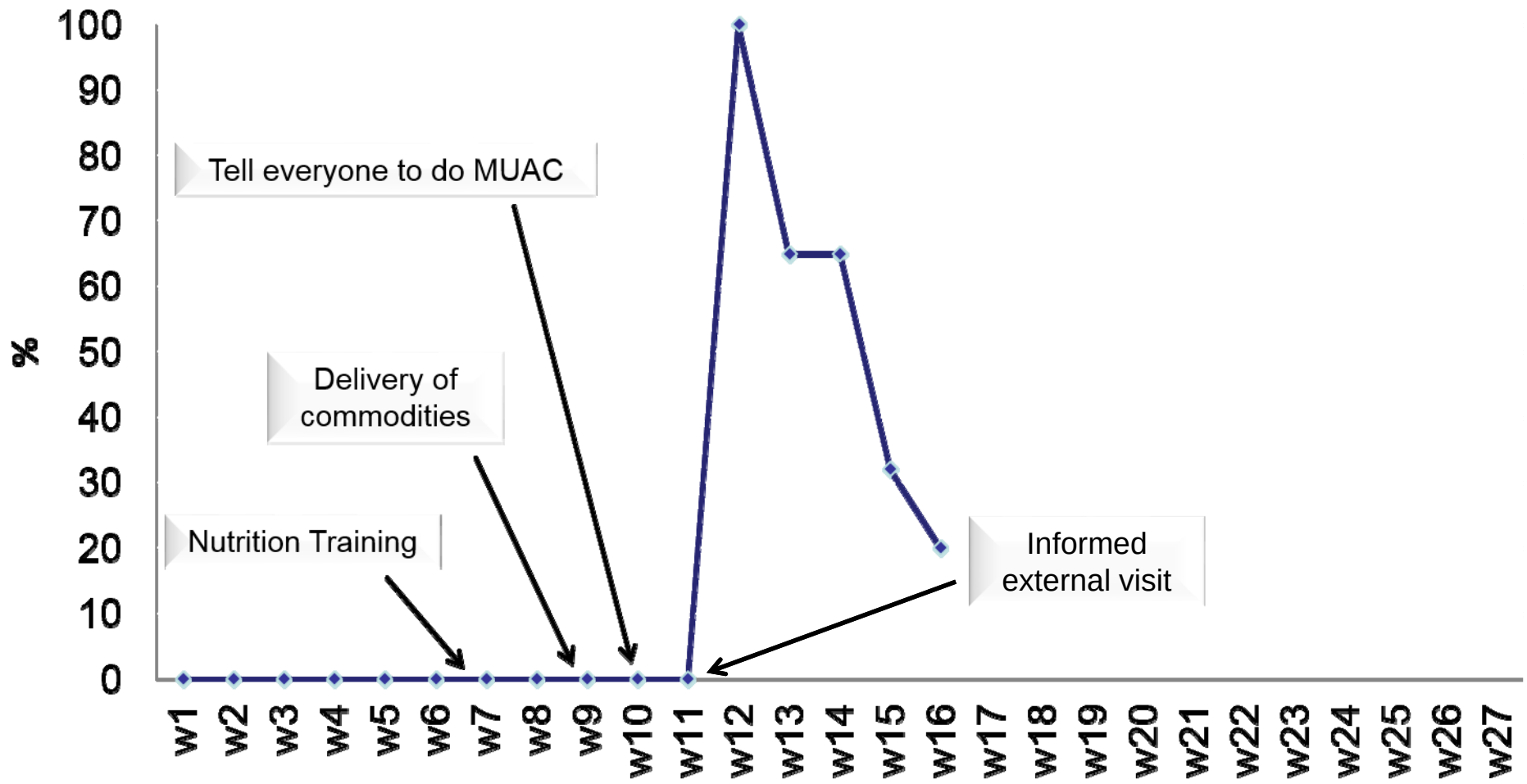
Percentage of clients whose nutritional status is assessed using mid-upper arm circumference (MUAC)



Question

What do you think happened next?

Percentage of clients whose nutritional status is assessed using mid-upper arm circumference (MUAC)



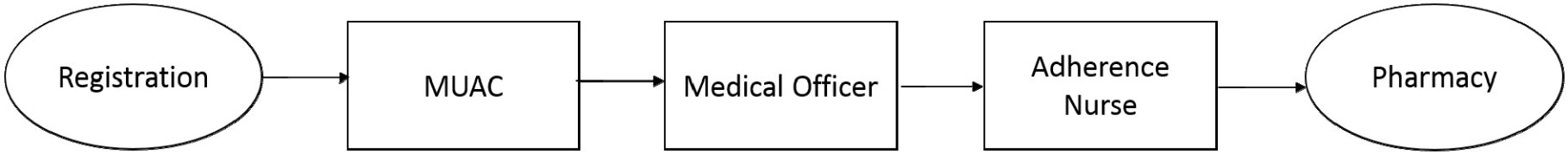
Question

Why do you think the proportion of patients assessed for MUAC dropped?

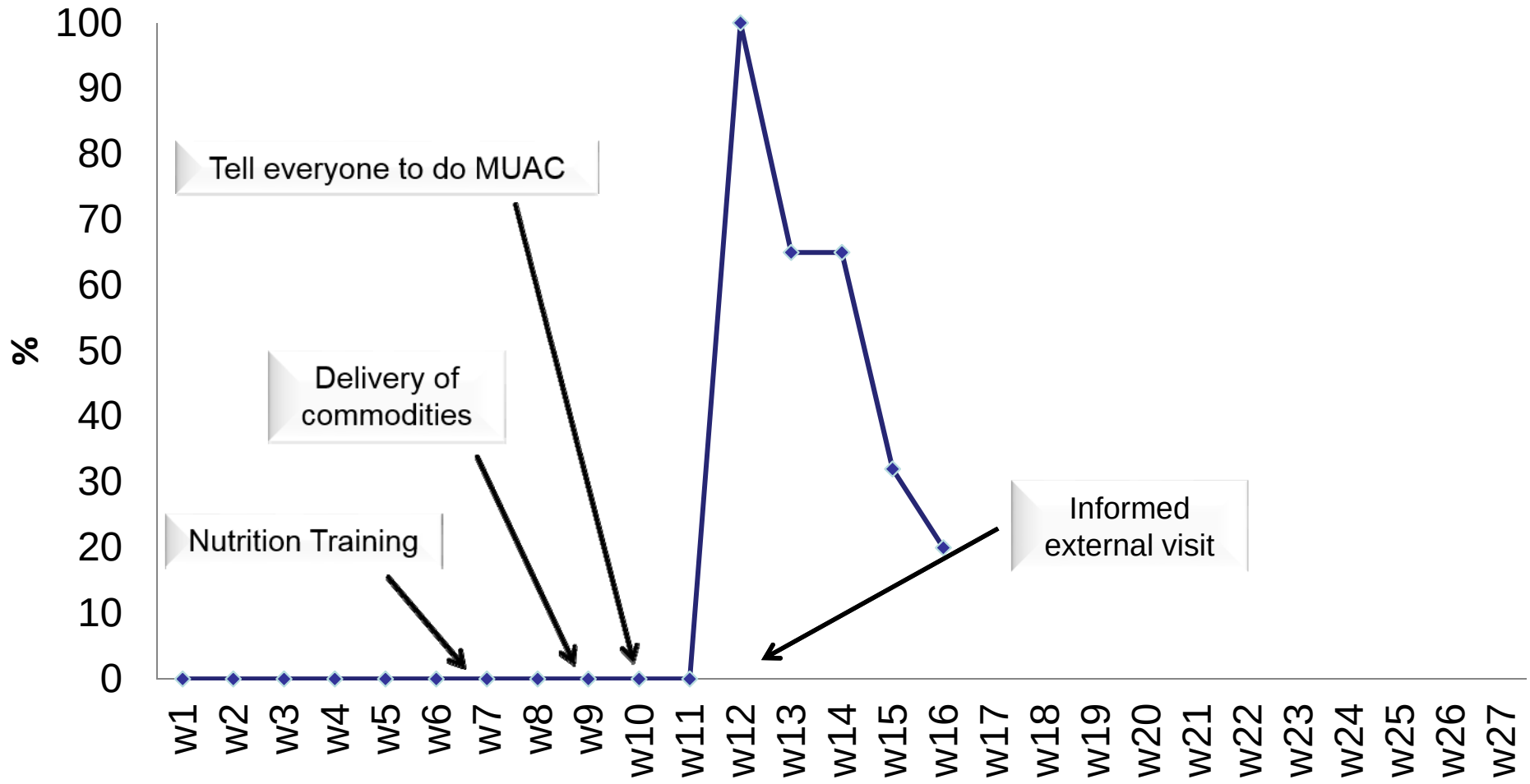
Test a change

At this point, the team decided to test a change:
The nurse to assess using MUAC after registration

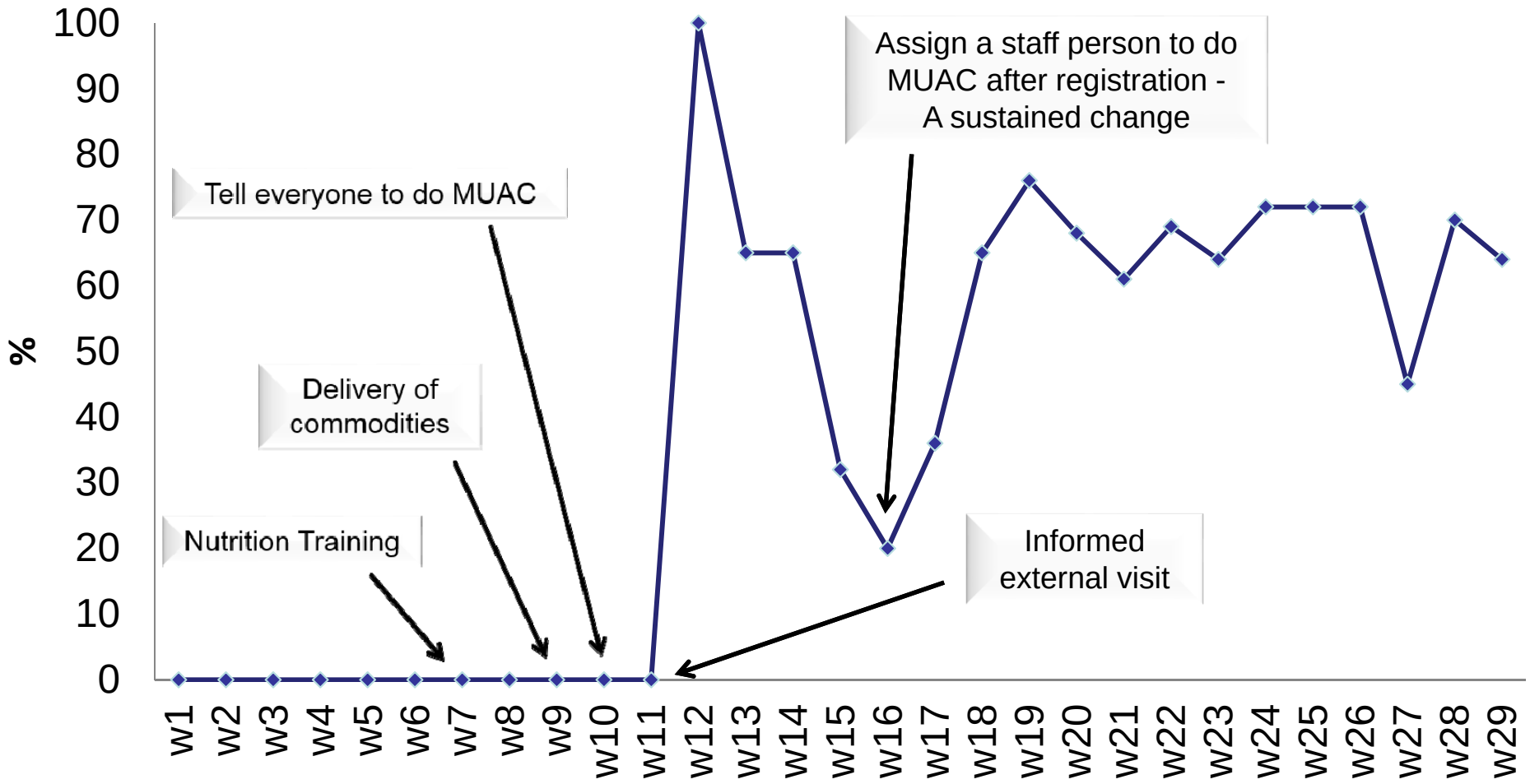
Flowchart showing nurse assigned to do MUAC after registration desk



Percentage of clients whose nutritional status is assessed using mid-upper arm circumference (MUAC)



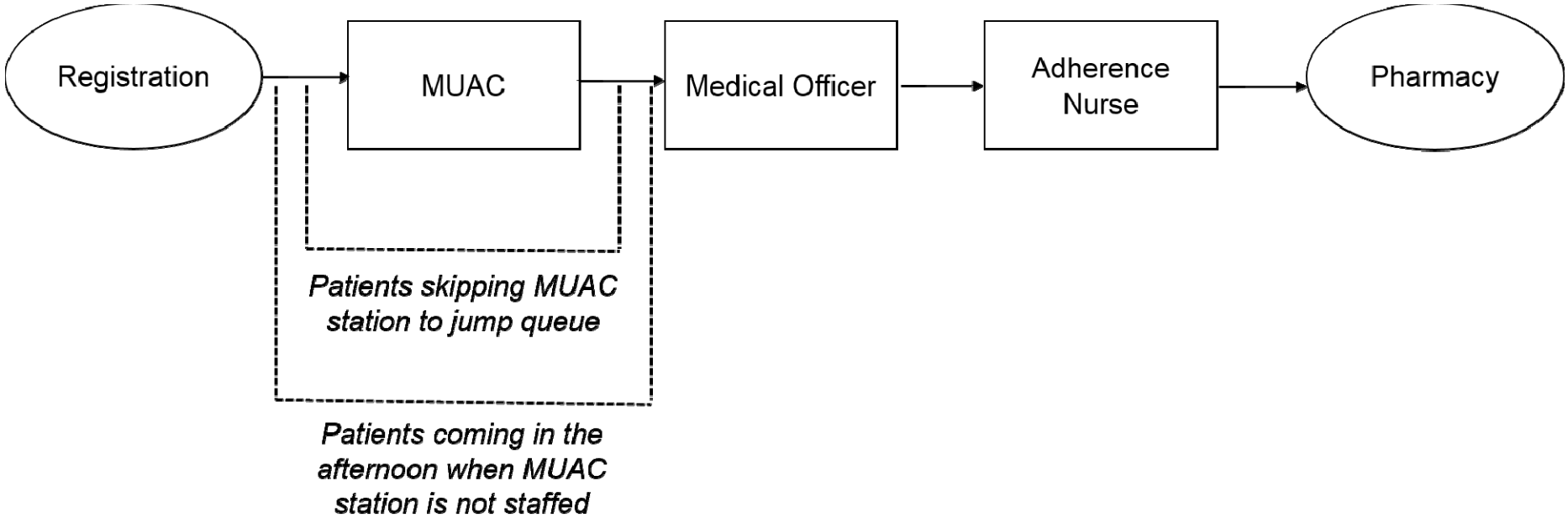
Percentage of clients whose nutritional status is assessed using mid-upper arm circumference (MUAC)



Question

What do you think happened here?

Flowchart showing reasons for current level of performance when one nurse assigned to do MUAC after registration desk

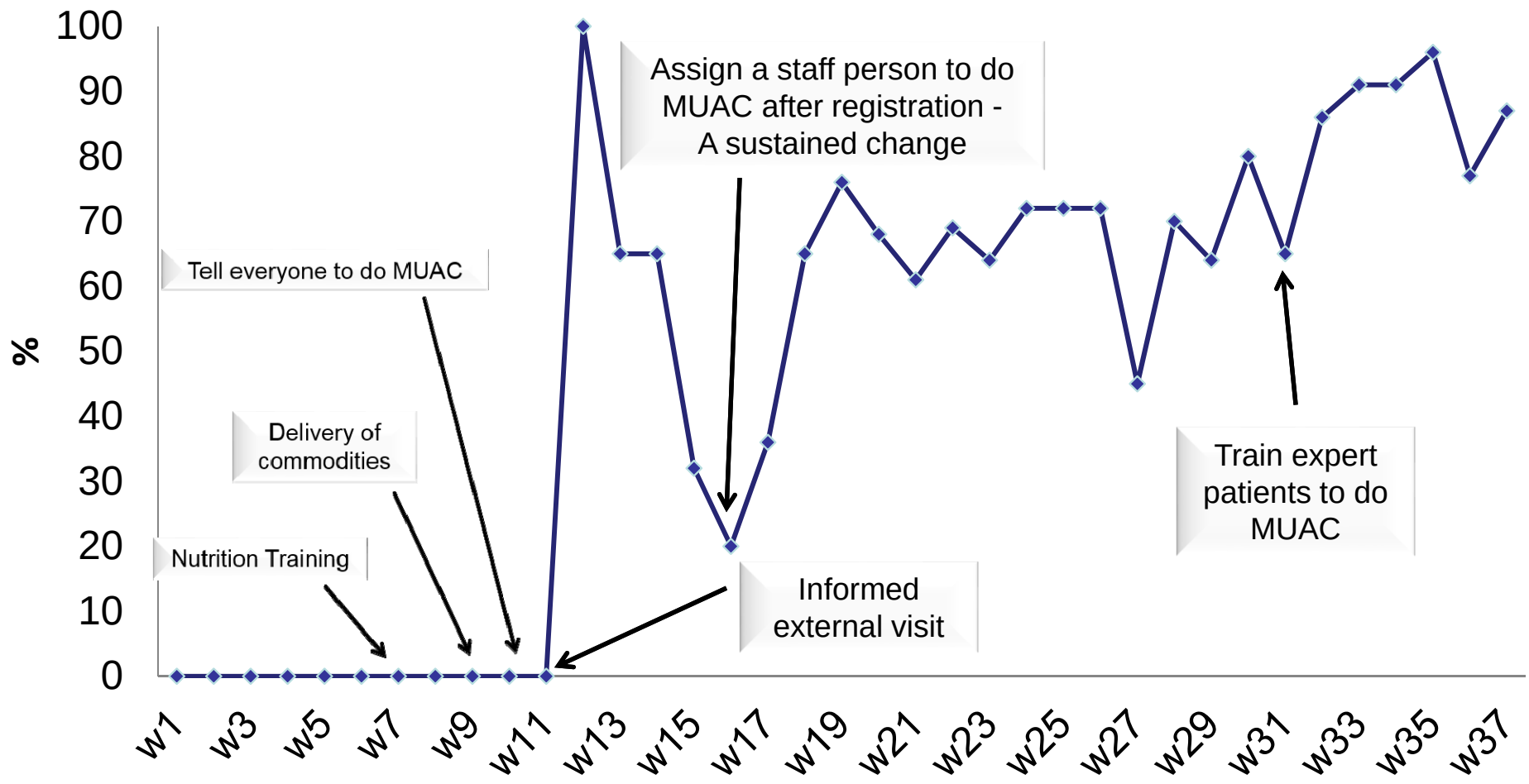


Testing another change

The team decided to test another change: involve expert patients in MUAC at the registration desk to help the nurse.

Testing a new change: Involve expert patients in MUAC at the registration desk

Percentage of clients whose nutritional status is assessed using mid-upper arm circumference (MUAC)



Question

What do you think happened here?

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