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Patient Safety  
MOVEMENT

SAFETY AND EQUITY IN OBSTETRICS

# Performance Improvement Toolkit

*April 2022*

**ACKNOWLEDGEMENTS**

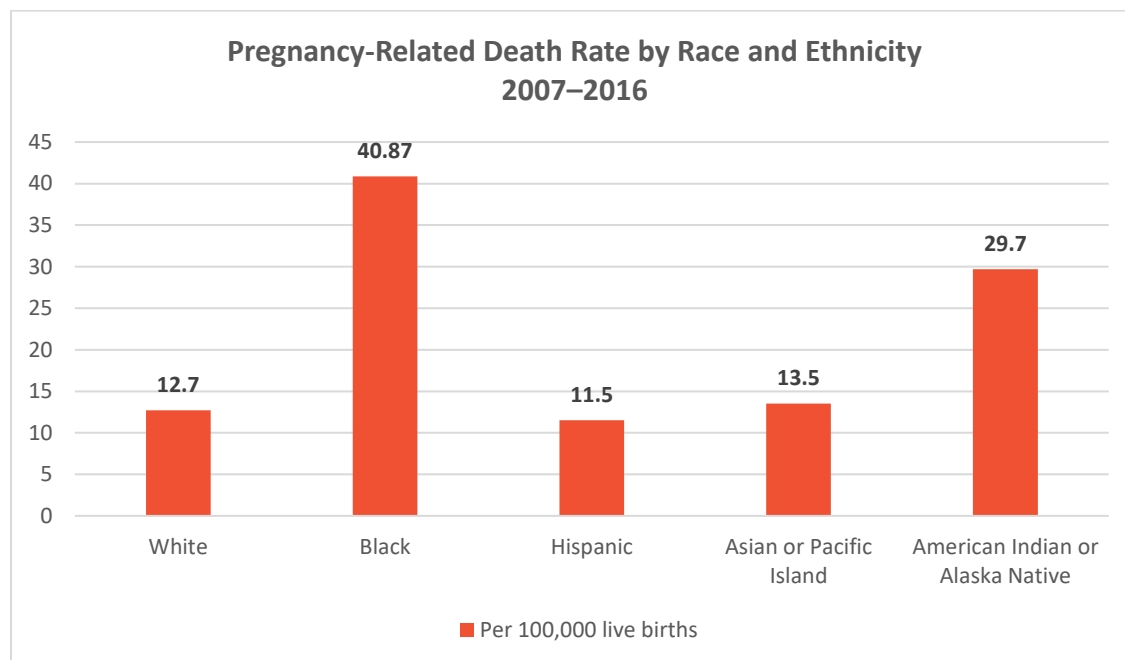
The Safety and Equity in Obstetrics Performance Improvement Toolkit was created by the Patient Safety Movement Foundation on behalf of Essential Hospitals Institute.

The toolkit will be used to aid 12 hospitals and health systems in enhancing programs addressing Black obstetric outcomes, specifically focused on hypertension or hemorrhage.

## Introduction

Hypertensive disorders in pregnancy are more common than chronic hypertension. The rate of postpartum hemorrhage (PPH) is nearly five times higher today than in 1993, and Black women are up to four times more likely to suffer pregnancy-related complications, including long-term disability or death, compared with their white counterparts (CDC, 2019; Kaiser Family Foundation, 2020). Despite numerous initiatives to improve these preventable conditions, sustaining hard-won outcomes has been challenging. The incidence of hypertension in pregnancy, PPH, and obstetric-related health inequity will remain high in the United States until health care creates a foundation that includes a person-centered culture of safety; a holistic, continuous improvement framework; and an effective model for sustainment. It is more important than ever that clinicians and administrators become skilled in the principles of improvement science.

FIGURE 1: Black women are at significantly higher risk of severe maternal morbidity and mortality compared with their white counterparts (Kaiser Family Foundation).



The purpose of this program is to:

- summarize the elements of a performance improvement plan;
- identify opportunities for maternal equity improvement across the continuum;
- discuss the importance of continuous performance improvement in health care;
- identify barriers to implementing and sustaining change;
- differentiate various problem-solving tools typically applied to performance improvement (PDSA, DMAIC, APIE, Lean, etc.);
- discuss barriers for effective implementation and how to mitigate them during the planning process;
- determine the right participants to include in an improvement team using a SIPOC exercise;
- create a current state process map of relevant maternal care processes;
- examine the root causes of a problem using a cause-and-effect diagram;
- analyze process gaps and prioritize areas of focus;

- discuss the components of outcomes evaluation and the debriefing process;
- summarize the role of data management in performance improvement and equity;
- explain typical measurement pitfalls and data integrity issues, particularly those that could perpetuate bias;
- list data collection, analysis, and reporting methods; and
- interpret data outcomes and discuss the implications.

## Meet the Trainers

The Patient Safety Movement Foundation (PSMF) is a global nonprofit focused on eliminating preventable death and harm in health care by 2030 through three core competencies:

- forging global relationships, partnerships, and collaboratives to actively promote change for patient safety;
- developing and disseminating patient safety education to governing bodies, health care professionals, patients, families, and the public; and
- creating public demand for safe and highly reliable health care.

The PSMF is actively involved in obstetric quality and equity improvement. The PSMF's Actionable Patient Safety Solutions provide health care organizations around the world with no-cost performance improvement blueprints related to nearly 50 of the biggest patient safety priorities, including PPH, severe hypertension in pregnancy and postpartum, and social determinants of health.

## Background

Preventable medical errors result in more than 3 million deaths each year and harm approximately one out of every 10 patients. These alarming statistics are not new, and improving patient safety has been a goal for most health care clinicians and administrators since a 1999 Institute of Medicine (IOM)—now the National Academy of Medicine—report first identified that nearly 100,000 people in the United States died each year due to preventable medical harm.

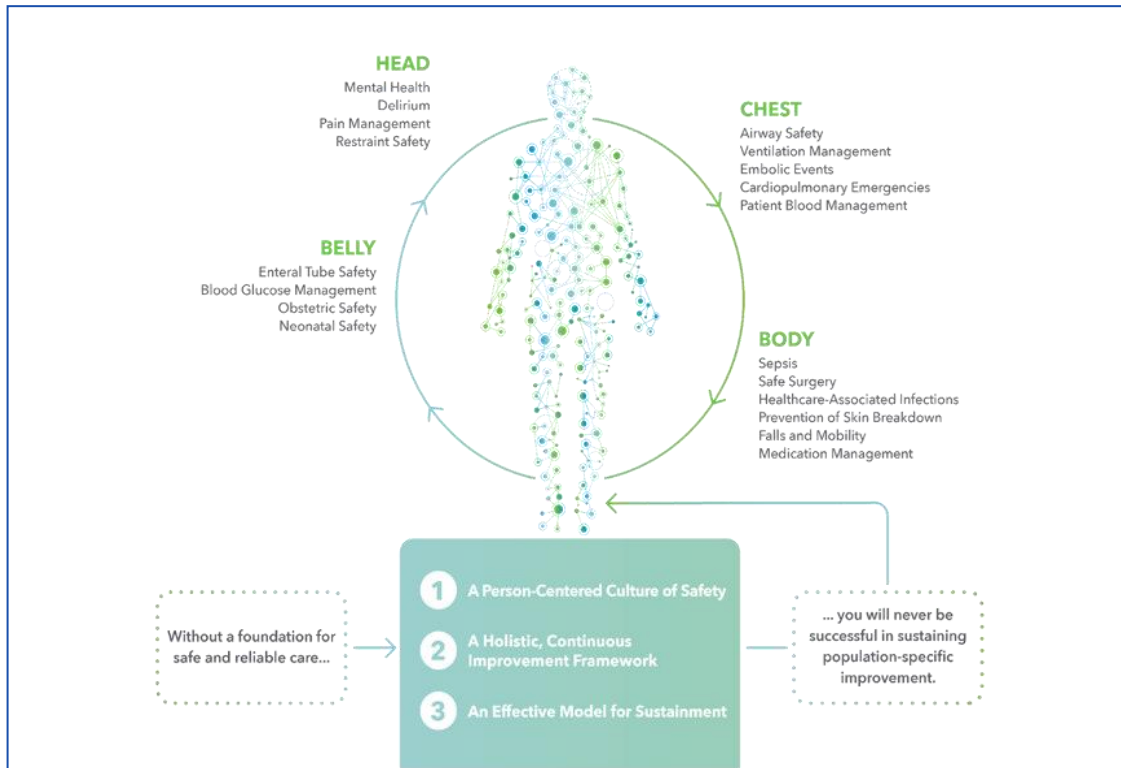
That report was followed by a 2001 IOM report that called for clinicians, administrators, policy makers, and insurers to strive to make health care safe, effective, timely, patient-centered, efficient, and equitable, shifting patient safety priorities across the industry. In 2004, a new patient safety report from IOM found the number of deaths each year was actually far higher when errors of commission, communication, and context are included. This report recommended the health care industry improve information and data systems and that every health care facility develop comprehensive safety programs. The Agency for Healthcare Research and Quality's quality and disparities reports emphasize the inextricable relationship between quality and equity and set forth a clear call to action to prioritize equity in all quality improvement initiatives.

Since then, there has been a global effort to reduce the risk of preventable harm in health care for all populations. These efforts resulted in the development of several new standards of care, which led to marked reductions in some incidents of harm, such as health care–acquired infections and surgical injuries. But while there have been many lessons learned about the importance of committing to continuous performance improvement, sustaining hard-won outcomes has been challenging, and the incidence of preventable medical errors remains a huge global concern. The related economic costs are difficult to measure, but it is estimated hospitals in Organisation for Economic Co-operation and Development countries could save up to 15 percent of expenses by optimizing patient safety efforts.

Health care systems generally are siloed, clinician-centered, and fragmented. The reliability and safety of these systems are far lower than those in other high-risk industries, such as aviation and nuclear power.

To mitigate these problems, clinicians and administrators must study improvement science and recognize the inherent bias and institutional racism embedded in many practices.

FIGURE 2: Three critical components of a foundation for safe and reliable care (PSMF, 2020)



*Note: For the past 20 years, hospitals have focused on population-specific improvement. If health care organizations are to become more highly reliable, they must strive to create a person-centered culture of safety, a holistic continuous improvement framework, and an effective model for sustainment.*

Performance improvement often is used interchangeably with quality improvement, quality assurance, lean improvement, and many other terms. Although all these terms can be confusing, the concepts of performance improvement are, at their core, basic problem-solving skills. Adding to the confusion, people often make improvement much more complicated than it needs to be. The purpose of this toolkit is to help you to break down the processes used to implement change—regardless of what you call it—into simple steps you can easily replicate.

These steps can be applied to any problem, large or small. This includes organizational strategic planning, community-based development, a new department workflow, a student project, a research study, or going on vacation. The process is the same, regardless of the purpose, and simply requires you to critically think through 10 key questions.

These 10 questions can be organized into a variety of conceptual frameworks (i.e., analytical tools) such as Plan, Do, Study, Act (PDSA); Plan, Do, Check, Act (PDCA); Define, Measure, Analyze, Improve, Control (DMAIC); the Nursing Process (Assess, Plan, Implement, Evaluate); and (Situation, Background, Assessment, Recommendation (SBAR).

Use whichever framework is the most familiar to the people on the improvement team. Using new words and concepts while trying to implement an improvement project can be confusing to team members and easily detract from the work at hand.

FIGURE 3: Questions to ask for any improvement project

TEN QUESTIONS TO ASK FOR ANY IMPROVEMENT PROJECT
1. What is the problem you are trying to solve and why?
2. Who are the right people to address this problem?
3. What's happening right now?
4. What should be happening?
5. What do we have to do to get there?
6. Where should we start?
7. How will we know if we have solved the problem or not?
8. Who will do what by when?
9. How did we do?
10. What are our next steps?

FIGURE 4: A comparison of improvement frameworks

SCIENTIFIC METHOD	PDSA	PDCA	DMAIC	NURSING PROCESS	SBAR
Ask a question	Plan	Plan	Define	Assess	Situation
Do background research			Measure	Diagnose	Background
Construct a hypothesis			Analyze	Plan	Assessment
Test with an experiment	Do	Do	Improve	Implement	
Analyze data and draw conclusions	Study	Check	Control	Evaluate	
Communicate results					Recommendation
	Act/Adjust/ Abandon	Act/Adjust/ Abandon			

*Note: All frameworks include processes predicated on the scientific method.*

The PSMF uses PDSA (Plan, Do, Study, Act), because it is the most common improvement framework used in health care organizations. We will use the PDSA framework throughout this curriculum.

FIGURE 5: Using the 10 questions in the PSMF PDSA framework

THE PSMF PERFORMANCE IMPROVEMENT FRAMEWORK	
PLAN	<ol style="list-style-type: none"> <li>1. Identify the problem and background</li> <li>2. Assemble the right team</li> <li>3. Assess the current state</li> <li>4. Determine the desired future state</li> <li>5. Analyze practice gaps</li> <li>6. Prioritize potential solutions</li> <li>7. Establish measurable goals</li> </ol>
DO	8. Implement an action plan
STUDY	9. Evaluate outcomes using data
ACT	10. Debrief with the team and executive champions

If you use a different improvement framework and are having trouble applying the concepts you learned in this curriculum, please contact [education@patientsafetymovement.org](mailto:education@patientsafetymovement.org) for assistance.

### Basics of Performance Improvement

Managing change of any kind is not easy; regardless of the setting, people tend to resist change. Even when a new process is successfully implemented, people can easily fall back into old routines. Performance improvement must be considered continuous—we are never really done improving.

Equitable obstetric care will require time, staff, and funding, as well as rapid action to address problems in the clinical setting. Stakeholders often revisit the same problems over and over, meaning solutions resemble a patchwork of improvement. For example, your organization might have a committee focused on newborn drops, a separate committee focused on adult falls, and a third focused on postpartum sedation. In many organizations, these committees are discussing very similar content and would benefit from shared discussions to align their efforts. Performance improvement in health care often is not implemented effectively or sustained over time because the planning step is skipped as stakeholders try to move directly to finding solutions.

Patient care should follow the latest evidence-based clinical protocols, but the processes that support evidence-based clinical care often are labeled “best practice” without true evidence that is adaptable. If we really want to achieve our goal outcomes, we need to think outside the box.

One of the most important considerations is effective communication, and the best tool for communicating progress is a project plan, an electronic or written document outlining the 10 questions in Figure 3.

Your organization already might have a project plan template for improvement work. If so, it’s important to use it to ensure everyone speaks the same “language.” Using a standard template for all projects allows the end-user to know exactly where to look for the information they need.

If your organization does not use a standardized template, encourage adoption of one. There are many, many examples of project plans freely available, including from the [Institute for Healthcare Improvement](#) or PSMF (see folder).

Every project should have one assigned facilitator (often referred to as a project lead or project manager) to walk the improvement team through the 10 steps. This should be a person with a good grasp of

improvement principles and the authority to drive accountability. This “captain” of the ship does not need to be a leader with an official title; it might be someone with a sense of the community barriers to care or a grasp of the lived experience of diverse patients. The facilitator should strive to include all stakeholders in the improvement process and effectively communicate to everyone on the team and across the organization.

The project leader will not “own” all tasks in a project. Rather, their role is to ensure accountability and that team members complete action items on time. Accountability does not mean discipline or micromanagement; one can hold others accountable by being clear about expectations; agreeing on timeframes and assignments; following up to ensure expectations are met; identifying barriers to success; and escalating concerns, as appropriate.

Executive or senior leadership champion is another critical role on the project team. Change will not be successful if it is not aligned with the organizational strategic plan and supported by key leaders and organization resources. It is demoralizing for a team to work hard at designing an improvement plan only to find, when it comes time to implement, that they cannot get the necessary resources to move forward. Because most organizations lack a holistic continuous improvement framework, there often is competition for resources and other barriers that only senior leadership can address. Executives are busy, so it should not be expected that they are active members of the core team; however, the facilitator should have an open line of communication with senior leaders and provide ongoing updates.

## PDSA Model

The PSMF uses the PDSA model. The foundation thoroughly plans for change or the implementation of a new program, does it only after there is a clear action plan agreed on by the team and executive champions, study whether efforts were successful, and decide whether to continue to act and spread the change, adjust the plan, or abandon efforts.

The first step in the PDSA process—planning—is the most important and most difficult for many health care leaders and clinicians. Those accustomed to moving very quickly through the problem-solving process often have a hard time slowing down to plan effectively before leaping into action. Avoid the impulse to jump straight to solutions before you have clear understanding of the project.

### **STEP 1: IDENTIFY THE PROBLEM AND BACKGROUND**

Sometimes the problem is very clear—for example, an accrediting agency cites your hospital for noncompliance with a particular standard and requires an immediate plan for improvement. Other times, what we think of as the problem is much larger. Moving forward with a large project can lead to loss of focus and delayed implementation times, so team members lose interest, leave the organization, or become critical of improvement efforts.

When the problem seems complex, take the time to understand how much of it is really the larger vision versus the immediate problem. For example, imagine you are a nurse leader who has been tasked with reducing obstetric nursing turnover. Although the problem is that nurses are leaving faster than you can replace them, resulting in short staffing and higher costs, this is too big to address in one project; it will require multiple iterations of the PDSA, with a separate project plan for each.



The same concept can be applied to strategic planning in an organization: using the PDSA model can more clearly define which projects to prioritize. You can use the same methods in these steps for a larger vision, as well as smaller project components (see Figure 6).

It is critical to be very clear about the problem you are trying to solve. Be succinct and to the point, ensuring that anyone who reads your problem statement understands the problem and why it's important to dedicate precious organizational resources to solve it. This statement should be no more than a few sentences.

Be prepared to revise your problem statement several times; seek input from others to determine if it is clear. Even after you have been working on the project for a while, continue to revisit the problem statement and critique it with an objective mindset: have you been very clear about the problem? Have you inadvertently identified a solution disguised as a problem? For example:

*The outpatient providers are not implementing appropriate measures to prevent hemorrhage and there is a lack of a follow-up mechanism to ensure pregnant women are compliant with measures to prevent hemorrhage throughout pregnancy.*

Why is this problem statement ineffective?

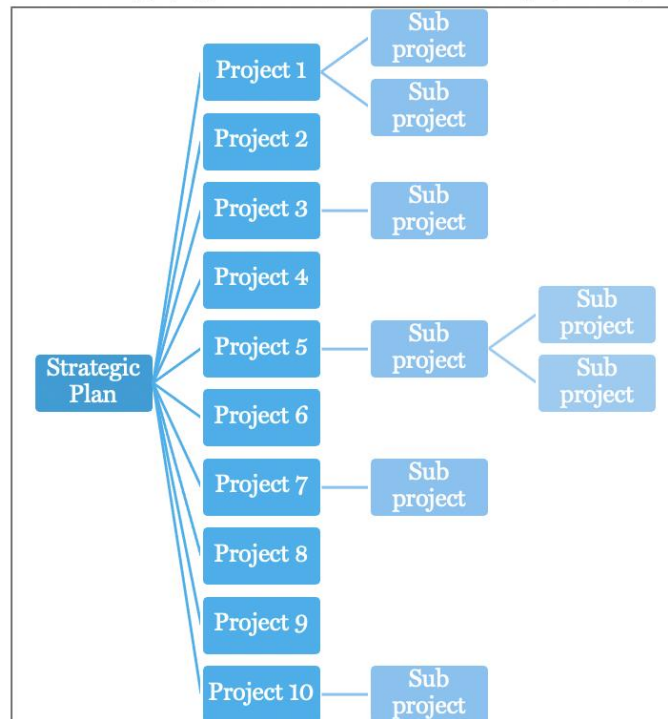
- It assigns blame to outpatient providers.
- It uses “solutionizing” language (e.g., noting a lack of “X” implies “the solution is X”).
- The statement does not quantify the problem in terms of financial, clinical, and workplace implications.

Here’s a revised problem statement:

*Our need for massive transfusions for PPH have increased 35 percent in the last six months, resulting in increased length of stay, poor maternal outcomes, and increased risk for transfusion error. This is a significant patient safety issue and has increased organizational costs by \$300,000 since the beginning of the fiscal year. If we do not intervene, patients will continue to be harmed and we are at risk of not meeting our financial goals.*

Here is an additional example of an effective problem statement:

FIGURE 6: Applying the PDSA framework to strategic planning



*Note: Apply the PDSA framework to strategic planning to ensure alignment in improvement efforts across the organization and utilize multiple PDSA iterations. This principle can also be applied to any “project” that is really a larger “vision.”*

*Black women nationally are 60 percent more likely to experience hypertension throughout pregnancy, but 84 percent of Black women in our community do not receive the appropriate risk assessments or preventive interventions. This is a significant driver of health disparities—Black women have nearly double the length of stay compared with white women and 1.5 times the length of stay compared with Hispanic women. If we do not intervene, we will perpetuate health inequities in our community, harming patients and reducing the likelihood of meeting financial goals.*

Once you have clarified your problem statement, briefly share background information that would enable people to understand the “why” behind this project. It is important to include previous efforts and clarify that, in the past, everyone did the best they could with the tools, resources, and knowledge they had at the time. Nobody likes to feel as if they have failed, so be sure to respectfully highlight attempted improvements, what went well, and why they didn't result in success.

**STEP 2: ASSEMBLE THE RIGHT TEAM**

Gathering the right team is critical to the success of your project. There often are many different disciplines involved, as well as the patient and the family, so it is not feasible to have *everyone* represented on the improvement team. That doesn't mean they shouldn't have input, though. Start by identifying all the roles involved, and then determine whether they should be part of the core team that meets about the project on a regular basis, or they can be brought in as needed (ad hoc) to provide feedback and direction.

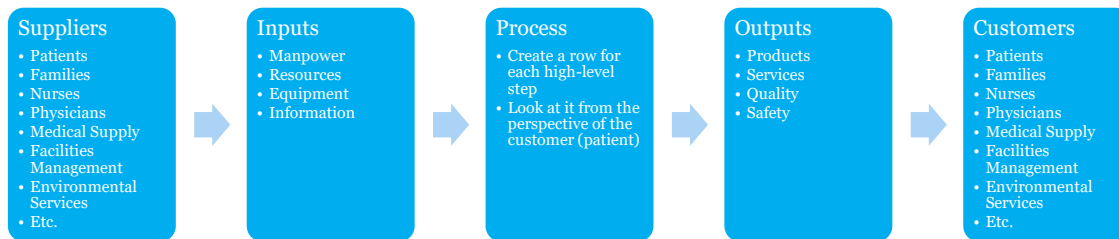
A supplier, inputs, process, outputs, and customers (SIPOC) exercise is a useful tool to help determine the stakeholders in any given process. In this exercise, map out the high-level steps in the process. You'll need a few people to help who understand the workflows and how they fit into the overall continuum of care.

FIGURE 7: SIPOC chart

SUPPLIERS	INPUTS	PROCESS	OUTPUTS	CUSTOMERS
		Assess patient risk for harm due to hypertension		
		Implement preventive measures		
		Evaluate response to preventive measures		
		Respond to clinical emergency, if needed		
		Provide care after delivery		
		Debrief		

Limit your process steps to eight or fewer high-level components that apply most of the time. The processes in health care should always be based on the patient's perspective, not the clinician's perspective, so consider outlining most steps to mirror the patient experience. In the obstetric safety context, those steps might include prenatal, perinatal, and antenatal care. If the process you examine is not a patient process (for example, human resources or data management), you will still want to frame the steps from the perspective of the “customer” (i.e., the employee or the system end-user).

FIGURE 8: SIPOC process



Once you have outlined the high-level steps, ask four questions for each step:

1. What are the inputs to the process step? This can include knowledge, equipment, information, and other elements;
2. Who supplies those inputs? Really think outside the box on this one—consider people external to the process, the patient, the family, and others;
3. What are the outputs of the process step? This is similar to the inputs—what is the result? (e.g., knowledge, patient outcomes, etc.); and
4. Who are the customers of the process step? Who receives the output? Again, think about all relevant downstream and upstream roles involved.

### STEP 3: ASSESS THE CURRENT STATE

Knowing where you are is necessary before you can determine where you want to go. You should spend time examining what is currently happening and gathering all available information.

#### **Data**

Data analysis is a good place to start. Most organizations have a lot of data, so begin by identifying what already exists that you can analyze. If there is no existing information, see what quick data points you can collect. You don't need an entire year or month of data to be informed—even just a few days' worth of information is better than nothing.

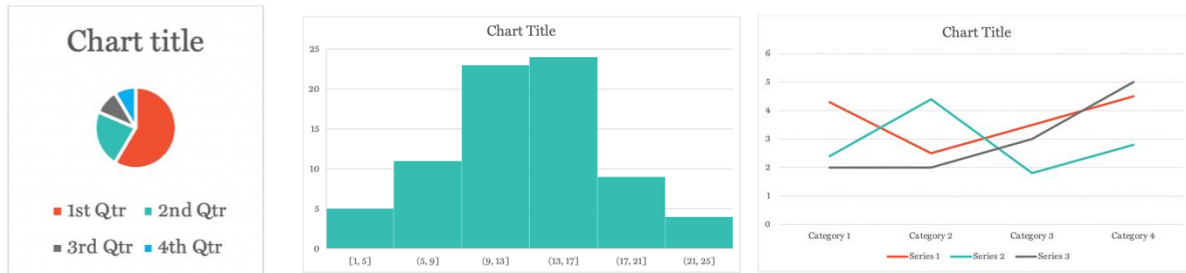
Your organization might already collect data, stratified by race and ethnicity, on:

- morbidity and mortality;
- number of transfusions;
- education of pregnant and postpartum women at discharge;
- timely treatment of hypertension within 30–60 minutes;
- visit-to-visit blood pressure variability; and
- blood loss.

There are three components to data management:

1. **Collection:** Be sure your data collection methods are accurate, complete, and consistent (referred to as data integrity). If this is not done well, people will discount your data, and potentially your entire project as a result;
2. **Analysis:** Don't just regurgitate data you collect—examine it critically. What story do the data tell? What other data might you examine that will inform you even more about what is happening?; and
3. **Reporting:** Add data analysis to your project plan, using the best visual methods for others to “see” the story you are trying to tell.

FIGURE 9: Examples of data charts



Note: Choose the method that best visualizes your data.

### Process Mapping

Starting with the high-level process steps you identified in the SIPOC exercise, map out the current workflows and the more detailed process steps. Include all members of the improvement team.

Observe current workflows in real time. This is known as “Going to the Gemba” in organizations that practice lean improvement. Observe what people are doing and understand how they know what to do. There often are many documents, manuals, and references that guide practice and you will need to know if the frontline uses them.

FIGURE 10: The many documents that guide practice

THE SIX P'S OF CLINICAL PRACTICE
1. Practice guidelines and summaries
2. Policies and procedures
3. Protocols and order sets
4. Patient education material
5. Patient care documentation
6. Professional development material

Note: Locate all the documents that the frontline is supposed to know about. Are they easily accessible? Do people use them? Do people even know they exist?

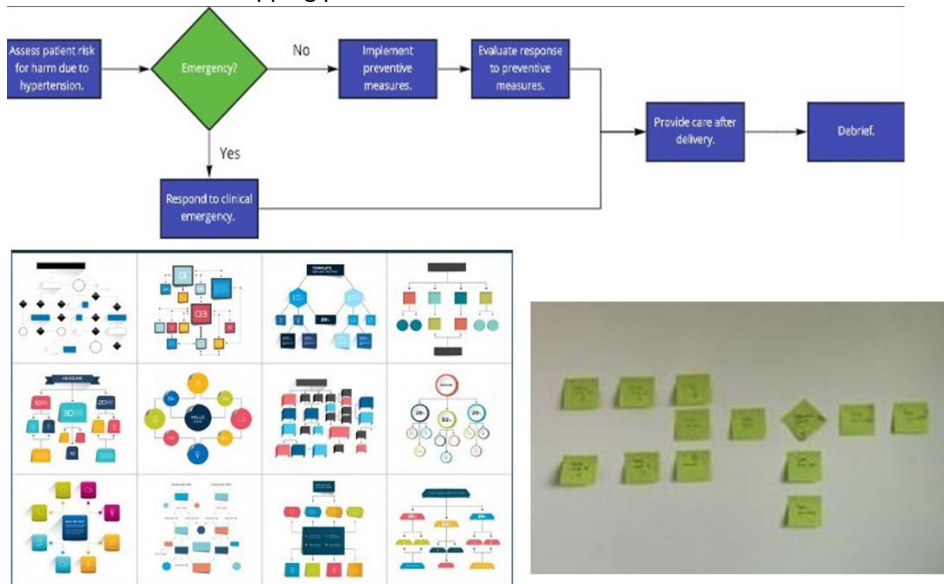
**Conduct interviews of the stakeholders you identified in your SIPOC.** Include both the core members of your team and the ad hoc members. Ask a lot of questions and be sure to consider what happens at different times of the day or week; for example, is the process different on night shifts or the weekend? Some example questions are below.

- Where do you find information about visit-to-visit blood pressure variability?
- What signs and symptoms trigger treatment interventions for hypertension?
- Are there differences in assessments and treatment methods based on ethnicity?
- What is done during prenatal visits to minimize the likelihood and severity of PPH?
- When is anemia assessed and how is it documented?
- What does the triage process look like for pregnant women with hypertension?

Remain sensitive to variations in responses based on discipline, setting (inpatient versus outpatient), provider background, and time of day or day of week.

**Gather as many members of the core team as possible in a workshop atmosphere and develop the map together.** The easiest way to do this is to use sticky notes you can move around as needed. As with the SIPOC exercise, be sure to view the process through the lens of the customer or patient (the patient is assessed, the patient receives a meal, the patient is intubated, the family is communicated to, etc.). Once you have completed the map, take a photo. You can also build the map into a software program, like Microsoft Visio or Miro, or use a simple flowchart. You’ll need the process map when you analyze gaps in step five; if you are using sticky notes, try to keep the map up until you get to that point. If that’s not possible, you can recreate it from your picture.

FIGURE 11: Process mapping processes



Notes: Software programs are an efficient way to create process maps, but often require significant training; it is worth taking the time to learn if you have access to a platform like this. Improvement doesn't have to be expensive or complicated; keep it simple by using sticky notes on a wall and take a picture when you are done. There are no rules about the process maps you create—the most important thing is that everyone on the improvement team understands the map and it includes all pertinent steps.

### **Summarize Your Current State**

On your project plan, share data charts and pictures of your process map as appropriate, but also draft a short narrative summarizing what is currently happening. Be succinct while ensuring that anyone who reads this document will understand what is happening.

#### **STEP 4: DETERMINE THE DESIRED FUTURE STATE**

Now that you know where you are, brainstorm with your team to be very clear about where you want to go. Again, think outside of the box! You can use a visualization exercise to encourage the team to be creative. Draw a picture, write a poem, make a video—whatever you think will get your team to create a shared vision for the future. You can add the pictures or poems you created to your project plan. Also take the time to draft a narrative that summarizes your desired future state.

For example:

*“Our hypertension diagnostic processes consistently detect hypertension in pregnancy as early as possible for all patients. Treatment is initiated and coordinated across the continuum. We are valued and respected by the community, and our patients tell their families and friends that their stay with us was the best health care experience they ever had. Because of this, we stay busy, providing us excellent revenue streams so we are able to hire and retain the best professionals and invest in the best technologies.”*

In addition to your “pie in the sky” vision, you’ll need to know what evidence-based best practices you are missing. Research and examine regulatory and clinical standards so that your team is well-informed about requirements. Some evidence-based best practice documents to start with include:

- [The Joint Commission: Standards for Maternal Safety;](#)
- [CMQCC: Birth Equity;](#)

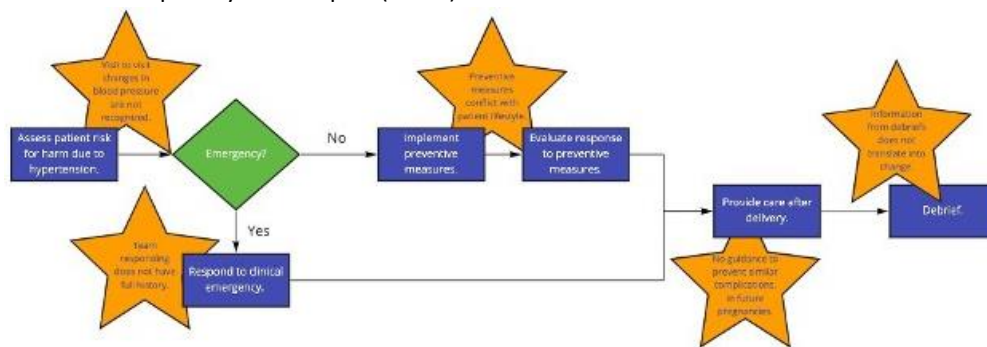
- [CDC: Working Together to Reduce Black Maternal Mortality](#);
- [California Maternal Quality Care Collaborative \(CMQCC\) Toolkits](#);
- [CDC: State Perinatal Quality Collaboratives](#);
- [Council on Patient Safety in Women’s Healthcare: Implementing Quality Improvement Projects Toolkit](#);
- [Improving Access to Maternal Healthcare in Rural Communities](#);
- [Reducing Obstetric Hemorrhage: Recommendations from the National Partnership for Maternal Safety](#);
- [ACOG: Postpartum Hemorrhage](#);
- [Current best practice in the management of hypertensive disorders in pregnancy](#);
- [Ohio Hospitals: Best Practices in Hypertension](#); and
- [Patient blood management in obstetrics: Prevention and treatment of postpartum hemorrhage: A NATA consensus statement](#).

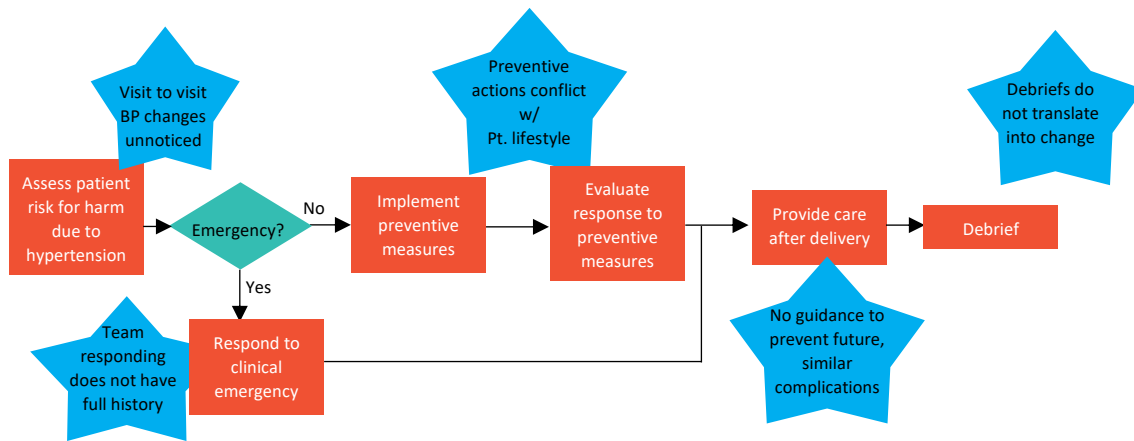
Take advantage of the PSMF’s Severe Hypertension in Pregnancy and Postpartum and PPH Actionable Patient Safety Solutions, which provide summaries of the latest evidence for nearly 50 of the top patient safety concerns and are available at no cost.

**STEP 5: ANALYZE PRACTICE GAPS**

Go back to your process map with your team and begin analyzing what prevents you from reaching your goal(s). Allocate time to this exercise and walk through the gaps for each process step. To speed things up, you can ask each team member to add their own comments to the map ahead of time and then review as a group.

FIGURE 12: Gap analysis examples (PSMF)





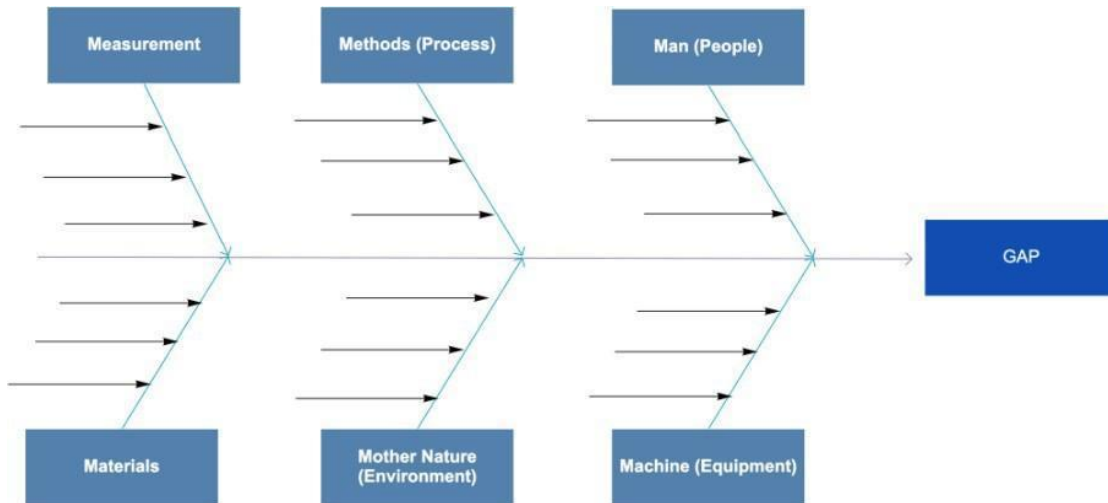
*Note: An example with a few gaps in the process of identifying and treating hypertension in pregnancy and postpartum; a team with a good grasp of the current state and applicable standards of care likely would come up with more.*

Sometimes, it's not enough to just identify the gap—you also need to understand the root causes the gap. You should drill down further using a root causes analysis tool. The “Five Whys” is an easy exercise that can be done in any setting without any tools. It simply involves asking the question “Why?” five times, for example:

*The gap is that physicians are not completing the initial assessment within the expected timeframe. Why? Because they have too many patients. Why? Because they don't have enough doctors. Why? Because doctors keep quitting. Why? Because there is tremendous physician dissatisfaction. Why? Because leadership changes have resulted in a new schedule requiring them to work seven days on and seven days off.*

A fishbone diagram (Figure 13) is another root cause analysis tool that can be used to drill down on the reasons gaps exist. In this exercise, the gap is the “head” of the fish, and the root causes of the gaps are the “bones.” Again, this can be done simply by using sticky notes on a whiteboard, or you can use a software program to create the visual. Regardless of the method used, be sure to involve all members of the team in determining root causes; if some can't participate in the actual exercise, follow-up with them on the outcome of the discussion and solicit their feedback. Generally, the “bones” of the fish are categorized by measurement, methods, man, machine, environment, and materials. However, you can use whatever categories are the most applicable to the situation.

FIGURE 13: Fishbone diagram (PSMF)



*Note: Categorize the “bones” as appropriate to the situation. The typical categories are shown here.*

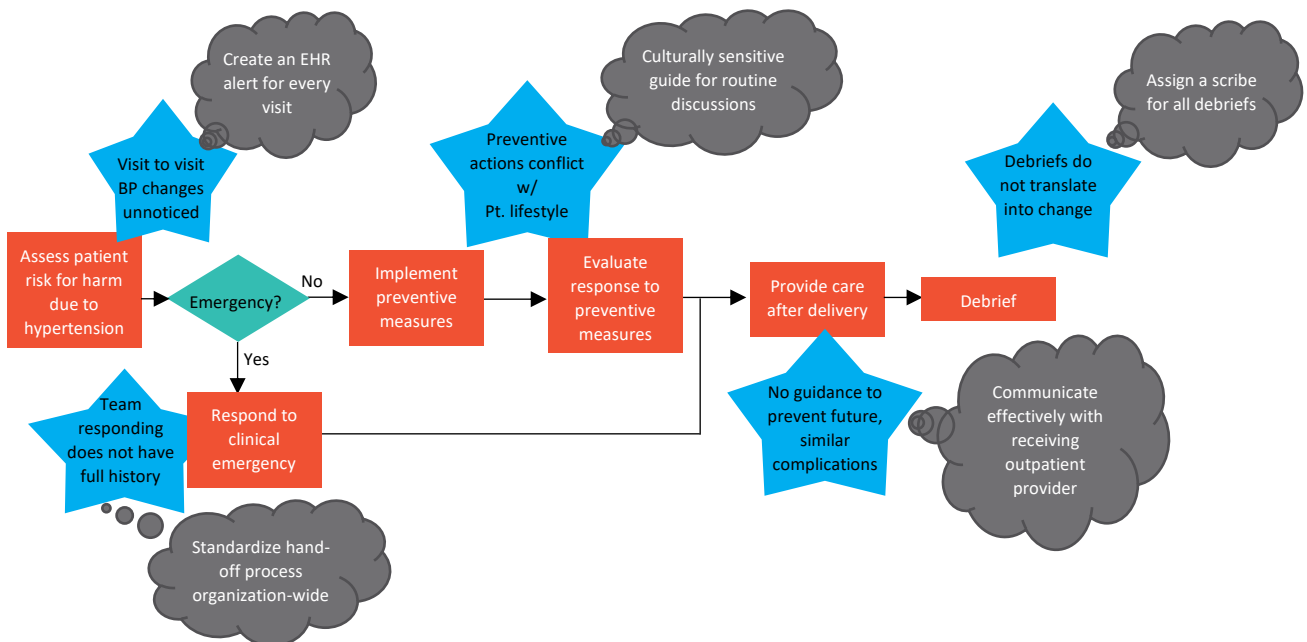
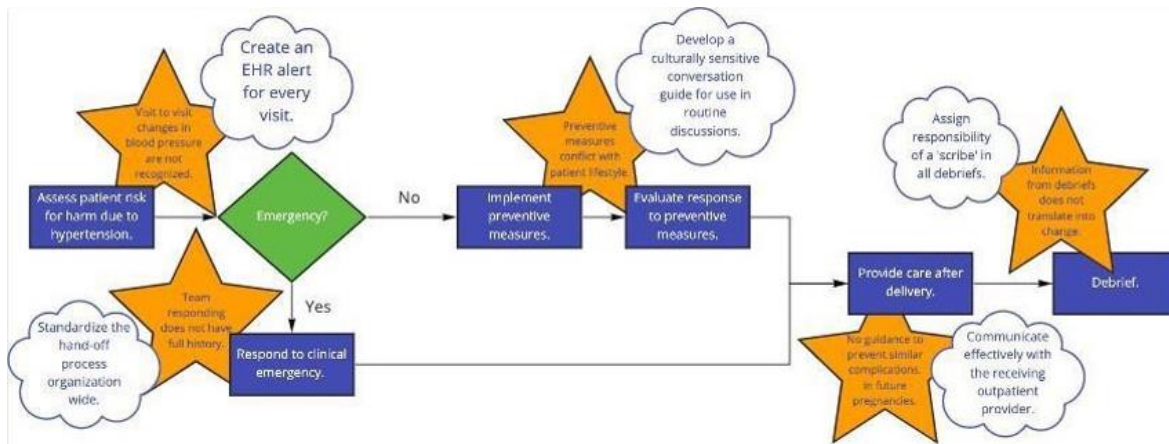
Once you identify all the gaps and root causes, summarize them on your project plan. You can add links to where the reader can find the details of your gap analysis. You also can insert a photo if that works best.

**STEP 6: PRIORITIZE POTENTIAL SOLUTIONS**

Once you identify gaps, begin brainstorming with the team about potential solutions. Be bold and think big: even if the solution is not possible, you never know where brainstorming might lead. You can always add solutions that are not currently possible to a “parking lot” of ideas that you draw from in the future.

FIGURE 14: Brainstorming potential solutions (PSMF)





*Note: As with the gap analysis, these are just a few examples of potential solutions. There are likely far more that an experienced team can identify.*

Once you identify potential solutions, complete a prioritization exercise to determine which are the most important. Prioritize solutions with high levels of urgency and high organizational impact.

When prioritizing potential solutions, consider the sustainability of the intervention. Is sustainment at risk if one person leaves the organization? Does the intervention hardwire the desired changes into day-to-day work? Use the hierarchy of controls to plan for sustainment as early as possible (Figure 15). Prioritization charts should consider the impact of the intervention compared with the level of effort required (Figure 16).

FIGURE 15: Hierarchy of controls

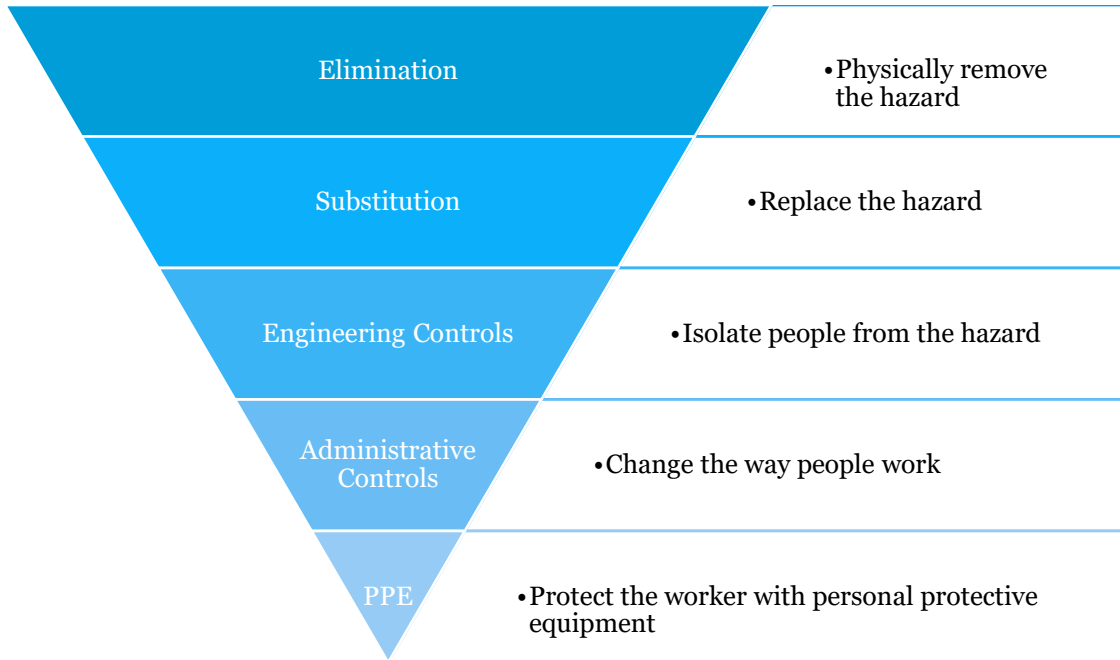
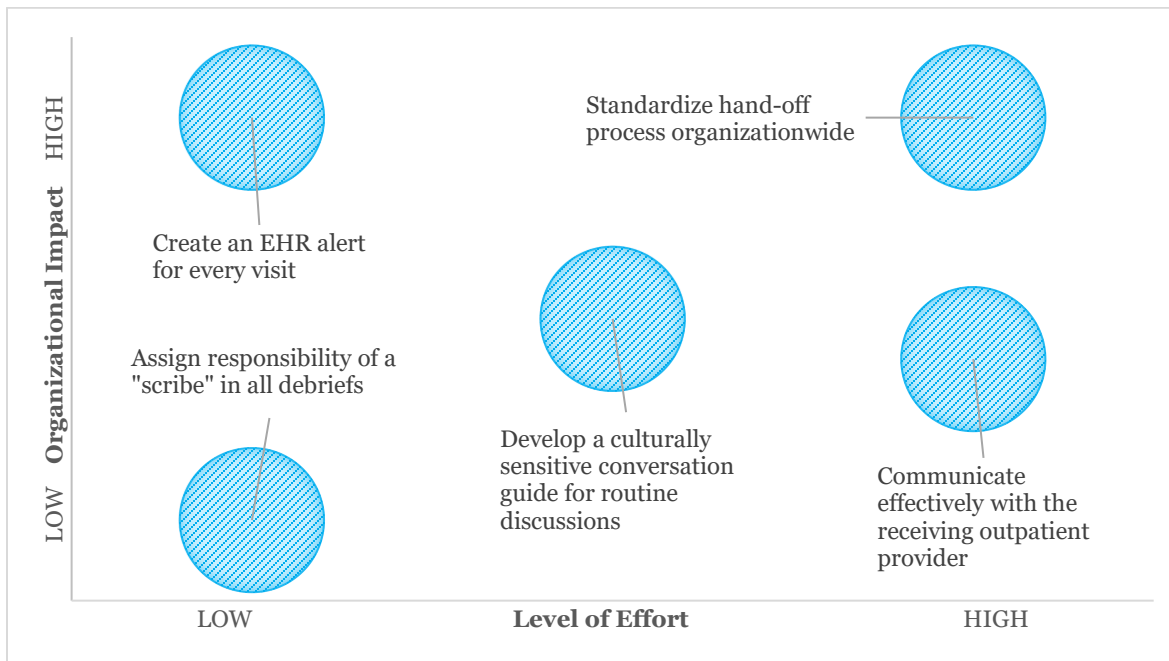


FIGURE 16: Prioritization chart



Note: Plot the solution according to the level of urgency and the impact to the organization. Those in the right upper quadrant will become your first action items. Other action items will follow in successive iterations of the PDSA.

**STEP 7: ESTABLISH MEASURABLE GOALS**

How will you measure the success of this project? Sometimes, success can be measured with a simple yes or no—either you did achieve your goal or you did not. Generally, however, you should strive to have more

robust goals so you can show trends over time. We call these SMART goals: they are specific, measurable, achievable, relevant, and time bound.

FIGURE 17: SMART goals

SPECIFIC	MEASURABLE	ATTAINABLE	REALISTIC	TIME-BASED
• What do you want to do?	• How will you know when you have reached it?	• Is it in your power to accomplish the goal?	• Can you realistically achieve it?	• When do you want to accomplish the goal?

Examples of SMART goals include:

- reduce the frequency of avoidable massive transfusions by 25 percent by April 1;
- increase the number of participants taking the survey to 100 by the next survey period; and
- increase compliance with the new debrief protocol to 80 percent by June 30.

Measurable goals should include both process and outcome metrics. Outcome metrics generally are high-level project goals (e.g., “Reduce the incidence of maternal mortality due to severe hypertension by 10 percent by the end of the year”). To achieve that outcome, you’ll need to track the process metrics that drive your success. In this same example, perhaps you implemented a new maternal hypertension risk assessment tool, completed for each pregnant patient at every obstetric visit as part of your project to reduce the incidence of maternal mortality due to severe hypertension. The process metric here would be the percent compliance with the use of the tool.

You might want to track culture metrics, as well. Successful change requires buy-in from everyone involved for new ways of thinking and adoption of new habits and workflows. Measuring the pulse of the team and their willingness to change can help detect barriers before they become a problem. If you are not paying attention to this critical component, informal influencers can slowly build resistance to change among the larger team and derail your efforts.

#### STEP 8: IMPLEMENT AN ACTION PLAN

Notice how much work went into getting to this point. Hopefully you now see why planning is the most important component of the PDSA. If you move too quickly to implement solutions without thoroughly planning, you are at risk of skipping steps, which might result wasted time, effort, and money. When this happens, not only is the problem still not solved, but the team can become bitter toward improvement and resist future project work.

Create an action plan using small tests of change based on the solutions you prioritized in the last exercise. If you implement a change in a large area and it doesn’t work, you will lose trust, making future interventions difficult. This process is iterative: you can implement several small tests, study their effects, and then adjust to grow the change to other areas.

Be sure to assign an individual and due date to each action item. Obtain validation from each person that they can complete their assigned tasks and get consensus on a reasonable timeframe in which it can be done. Many projects fail because they take too long to implement because people do not complete their action items on time. Project leaders and facilitators often do not have formal authority over the people on

their teams, so it is key to develop soft skills to influence behavior. Learn as much as you can about human factors; understanding human behavior is important for holding people accountable and mitigating barriers.

FIGURE 18: Action plan

WHO?	WILL DO WHAT?	BY WHEN?	STATUS?
Dr. Smith	Review the literature for a maternal hypertension risk assessment tool	April 1	Completed, waiting for peer review
Dr. Johnson and Dr. Taylor	Conduct a peer review of the maternal hypertension risk assessment tool and validate it is the best available	June 1	In progress
Dr. Stevens	Identify current screening tool(s) used across the hospital system	April 1	Need status report

*Note: The action plan is an ongoing exercise for the duration of the implementation. Add and complete action items and update the status to communicate progress to everyone on the team and externally. Color code due dates in green, yellow, or red to easily identify which tasks have been done, which are in progress, and which are behind. Discuss overdue tasks first each time you meet with the team – lean practitioners call this “running to the red”.*

#### STEP 9: EVALUATE OUTCOMES USING DATA

Along with updating the status on the action plan, evaluating outcome, process, and culture metrics is an ongoing process. The frequency of sharing data depends on the metrics. For example, in the project mentioned earlier to reduce maternal mortality due to hypertension, you would measure the incidence of maternal mortality on a monthly basis, but you might want to measure compliance daily with the new severe hypertension risk assessment tool. In this section of the project plan, include graphs, charts, and data tables as appropriate for your metrics and the story you want to tell. Generally, line or bar graphs work better than data tables because you can show trends over time. It also is appropriate to include a narrative to summarize important information not captured in the data.

*Example: The data show no improvement in compliance with clinical team members completing the severe hypertension in pregnancy risk assessment tool, but it was recently discovered the prompt to complete it in the electronic health record was never turned on. This has been rectified, so we expect to see this metric improve.*

#### STEP 10: DEBRIEF WITH THE TEAM AND EXECUTIVE CHAMPIONS

This step should happen routinely throughout the course of the project. A debrief is an open exchange of thoughts and ideas about the progress of the project. This should be a safe space, where individuals feel they can be transparent about how they really feel without fear of retribution. The project lead is responsible for creating this safe place.

During a typical debrief, ask the team:

- What’s going well?;
- What’s not going well?; and
- What should we do differently?

The debrief can be a simple, informal discussion or a group activity. Using sticky notes, ask everyone to write their thoughts to each of question and place them on a whiteboard or poster. You also could use

software programs to facilitate this exercise. The objective of the debrief is to determine what will happen next. Using feedback from the debrief, the facilitator will determine whether to:

- **Act**—Will you continue the course with the current action plan? Will you spread the work of this small change to a larger or other area?;
- **Adjust**—Do you need to make a change to the action plan to meet your goals?; or
- **Abandon**—Have you determined that your efforts will not solve the problem and you are going in a completely different direction?

If the decision is made to conclude the project, either because it was successful or because you have decided to abandon your efforts, document the outcome on the project plan and communicate the outcomes to the team and throughout the organization.

Beware of using negative terminology, such as “This project failed.” Fear of failure is one of the main reasons many people do not make attempts at change. All improvement efforts are worthy, and if a project was not as successful as you had hoped, examine the process for clues as to why so you can learn and teach others. Learning what doesn’t work can be just as important as learning what does.

## Conclusion

Creating lasting change in health care is challenging. According to a 2021 National Academy of Medicine report, patient safety appears to be at a standstill—if we continue down our current path, we will never eliminate preventable harm in health care. The World Health Organization (WHO) recognizes this is a global problem and released its first Global Patient Safety Action Plan in May 2021. In this report, WHO calls for every country to adopt a national patient safety action plan.

Calls for improved patient safety and equity are deafening and it no longer is optional for health care organizations to be highly reliable. It is critical health care professionals are well trained in continuous performance improvement principles. Through collaborative learning, you can apply the principles in this workbook to any improvement project. If you have questions, contact [education@patientsafetymovement.org](mailto:education@patientsafetymovement.org).

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