COUNCIL ON PATIENT SAFETY
IN WOMEN'S HEALTH CARE

safe health care for every woman

Implementing Quality Improvement Projects

Toolkit

Acknowledgements

The Council on Patient Safety in Women's Health Care would like to thank the volunteer members of the workgroup that assembled this toolkit.

Learn more at *www.safehealthcareforeverywoman.org*

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Introduction

Quality Improvement (QI) is a proven, effective way to improve care for patients, residents, and clients, and to improve practice for staff. In the healthcare system, there are always opportunities to optimize, streamline, develop, and test processes, and QI should be a continuous process and an integral part of everyone's work, regardless of role or position within an organization. [1]

The Council on Patient Safety in Women's Health Care has developed this toolkit to help health care teams successfully implement the tools developed by the Council - specifically the Patient Safety Bundles - in order to drive long-term change that results in improved outcomes.

Now, if you're reading this you likely understand, "that to achieve a different level of performance, it is essential to change the system in ways that enable it to achieve a different level of performance." [2] However, if you're reading this you also are probably unsure of how to evoke the kind of change necessary to drive this change in performance. We get it. It can be very overwhelming when thinking about implementing a quality improvement project. There are so many quality improvement tools available that the task of selecting which one to use can prove to be overwhelming and burdensome in itself.

This toolkit provides a summary of selected methodologies and tools that the Council believes are of greatest utility to helping your organization realize sustainable change. We have summarized each of the selected tools and offered real-world examples on how to successfully utilize the selected tools.

We hope this toolkit is of benefit to your organization.

Teams

The Team Approach

When determining your desired outcome/setting your goals, it is important to engage with a team of individuals who together, share the responsibility and are equally accountable for the project's success. It is critical that you get all team members on-board early in the process in order to build a strong foundation for driving the project forward. To be effective, the team should include members representing three different kinds of expertise within the organization: system leadership, technical expertise, and day-to-day leadership. There may be one or more individuals on the team with each kind of expertise, or one individual may have expertise in more than one area, but all three areas should be represented in order to drive improvement successfully. [3]

> Sample Team for Obstetric Hemorrhage Quality Improvement Project:
> - Technical Leader
> - Clinical Expertise
> - Day-to-Day Leadership
> - Project Sponsor

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[1] http://www.hqontario.ca/portals/0/documents/qi/qi-quality-improve-guide-2012-en.pdf
[2] http://www.smbs.buffalo.edu/GME/pdf/Advances_in_Quality_Improvement.pdf
[3] http://www.ihi.org/resources/Pages/HowtoImprove/ScienceofImprovementFormingtheTeam.aspx

The Importance of Leadership Support and Project Sponsorship [4]

Lack of leadership support is one of the most common reasons that a quality improvement (QI) project fails. In order for a QI effort to be successful, it requires support and buy-in from organizational leaders. Leadership plays an important role in improving quality by setting priorities, providing structure to support the improvement effort, modeling core values, promoting a learning atmosphere, acting on recommendations, advocating for supportive policies, and allocating resources for improvement. [5]

When undertaking a quality improvement project, it is critically important to have organizational leadership support early on -- they are positioned to drive an organization's actions by setting and committing to a supportive statement of sustainability goals. Your organization might even consider developing a statement that includes the organization's motivations for change (the reasons for the commitments), the results the organization hopes to achieve, and the activities it has committed to in order to reach its goals.

Resources:

- Health Resources and Services Administration
- National Institute for Children's Health Quality

Goal Setting

When implementing a quality improvement (QI) project it is critically important to first identify the overall goal or goals (desired outcome) for your project - *what do you plan to achieve as a result of the project?* Your goal should be bold, yet attainable. It should create a focus and sense of urgency within your organization, but should always be realistic, based on what the evidence suggests is possible. [6]

A well-defined goal should answer the following questions:

1. What will we improve?
2. Who will we improve it for?
3. By how much will we improve it?
4. By when will we improve it?

> "Some is not a number, soon is not a time."
>
> - Don Berwick

Developing SMART Goals

You're probably familiar with the concept of SMART goals, but are you really using them effectively? Employing the SMART goal setting technique helps bring structure to your goals and establishes a clear pathway to achieving your goal. Developing SMART goals may seem like unnecessary work but don't worry – developing SMART goals doesn't have to be complicated or take a lot of time and having them already developed with help when it comes time to select your measures (we'll cover those later).

The acronym SMART has several slightly different variations, but for purposes of this toolkit we will utilize the following acronym:

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[4] http://www.sustainabilityroadmap.org/strategies/leadership.shtml#.VsXyffkrJpg
[5] http://www.hrsa.gov/quality/toolbox/methodology/developingandimplementingaqiplan/part2.html
[6] https://innovation.cms.gov/files/x/hciatwoaimsdrvrs.pdf

Specific, Measurable, Attainable, Relevant, and Time-Bound [7]

S

Specific
In order to get where you want to be you must precisely define where you want to end up; incomplete goals will produce incomplete results. A goal that is specific has a better chance of being accomplished than a less specific, more general goal. It is critical to ensure that your goal is clear and well-defined.

Characteristics of a specific goal:
- Extremely clear and unambiguous.
- Lists measureable action-steps.
- Should seek to answer: What are we going to do with or for whom?

M

Measureable
When you effectively measure progress towards your goal you are more likely to stay on track to achieve it. A goal must have specific criteria in order to measure progress towards attainment.

Characteristics of a measurable goal:
- Clearly defines how you'll measure progress towards completion.
- Answers the questions: how will we know we are going in the right direction? When will we know that we have accomplished the goal?

A

Attainable
Setting lofty, unattainable goals is an easy thing to do when seeking to evoke big change! However, it is critical to remember that a goal should not be so lofty that it is unattainable. Goals should be challenging but not unrealistic. Goals that may have once seemed out of reach eventually become more attainable, not because your goals shrink, but because you grow and expand to match them.

Characteristics of an attainable goal:
- Should be a challenge for you and all involved.
- Will become attainable over time.

R

Relevant
A goal must matter to those involved in accomplishing it, otherwise it won't get the support it needs. A goal that is relevant will receive the buy-in and support that is necessary to move it to completion.

Characteristics of a relevant goal:
- Accomplishable given the resources available (time, money, expertise).
- In-line with current efforts and needs of the team and the organization.

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[7] http://www.kean.edu/sites/default/files/u7/SMART%20Objectives.pdf

T	Time-Bound

A goal must have a deadline for completion that you will aim to meet. It may also help to have multiple short-term deadlines on the way to your final deadline; having these will help your larger goal seem less daunting and will help to keep the team motivated.

Characteristics of a time-bound goal:
- Has clearly defined timeframe, including start date and target end date.
- Should create a sense of urgency for taking action.

Examples of SMART Goals

Goal	SMART Goal
Reduce rate of postpartum hemorrhage.	Decrease the rate of postpartum hemorrhage at North Community Hospital by 25% from January 1, 2017 to January 1, 2018.
Providers will understand the importance of effectively quantifying blood loss.	By the end of 2017, 70% of obstetricians and perinatal nurses at North Community Hospital will have successfully completed the educational program on quantifying blood loss.
Increase number of drills on obstetric hemorrhage events.	By January 2017, North Community Hospital will increase the number of obstetric hemorrhage drills from two per year to four per year (one per quarter).

SMART Goal Resources
- [Centers for Disease Control and Prevention Evaluation Brief: Writing SMART Objectives](#)
- [March of Dimes Hawaii Chapter "SMART" Objectives](#)
- [Minnesota Department of Health SMART and Meaningful Objectives](#)
- [Nebraska Department of Health & Human Services Online SMART Objective Editor](#)

Driver Diagrams

Using Driver Diagrams to Achieve Desired Outcome

Once your goals have been clearly set, your team has been formed, and organizational leadership has been brought onboard, a driver diagram is used to identify the factors that influence the achievement of the goal. It serves as a tool for building and testing your theories for improvement and movement towards the goal (desired outcome). Think of it like this: the driver diagram informs testing and testing refines your theory. It does this by first narrowing down and defining the activities that are contributing factors to your desired outcome. Secondly, it helps your team understand what types of interventions or changes to the contributing factors are most effective in reaching the desired outcome. In short, it serves as a prediction: what changes or interventions lead to progress toward the desired outcome? [8]

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[8] https://innovation.cms.gov/files/x/hciatwoaimsdrvrs.pdf

A driver diagram typically has 3 sections or columns of information:

1. **Desired Outcome:** This is the goal of the quality improvement project. It must be realistic, clearly defined, and measureable.

2. *Primary Drivers:* These are a set of factors or improvement areas that are to be addressed to achieve your desired outcome. They should be your "theory" – the factors that you feel have a direct impact on the desired outcome. [9]
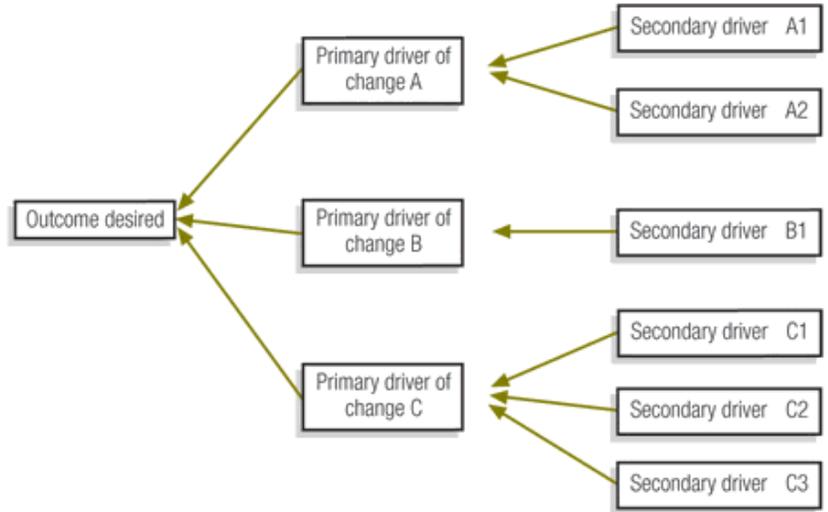

Diagram from the World Health Organization

3. **Secondary Drivers:** These are specific areas where changes or interventions occur. Each secondary driver will contribute to at least one primary driver. They should be process changes that are thought to impact the desired outcome and should be evidence-based. [10]

Keeping it simple: At first glance a driver diagram may look overly complicated and daunting. However, when broken down into actionable areas it is a highly predictive tool that will prove helpful in identifying the interventions that are contributing to your desired outcome and help you "weed out" those that aren't.

When developing your driver diagram, it is important to keep in mind:

- It should serve as the theory about how your system works as it relates to your overall goal/desired outcome.
- Don't automatically ignore drivers that seem outside of your control.
- There is no set number of primary or secondary drivers that should be included.
- There is no one right answer; your organization will have variables that may be vastly different from those of other organizations and that's okay!
- The diagram is a living document that can and should change as your project evolves, new information is obtained, and your theories of improvement are refined – don't stress over having it "perfect" from the outset – that's not the purpose.

Sample Driver Diagrams
To help you better understand how to effectively utilize a driver diagram in your organization we have developed two sample diagrams for Obstetric Hemorrhage (Appendix A) and Hypertension in Pregnancy (Appendix B). The examples provided were developed for a fictional organization and should be used to

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[9] https://www.hqsc.govt.nz/assets/.../Driver-diagram-explanation.docx
[10] http://www.qihub.scot.nhs.uk/knowledge-centre/quality-improvement-tools/driver-diagram.aspx

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inform you; they are <u>not</u> meant to be comprehensive for every organization and should be modified to meet your specific needs.

Additional driver diagram resources:

- California Hospital Association – Reduction of Perinatal Harm
- Institute for Healthcare Improvement
- Institute for Healthcare Improvement – Video
- Ohio Perinatal Quality Collaborative – Antenatal Corticosteroids (ANCS) Project
- Partnership for Patients – Reduction of Elective Deliveries Prior to 39 Weeks
- What's Your Theory? Quality Progress

Driver Diagram Template

The Council has also developed a blank driver diagram that you can modify for use in your own organization (Appendix C).

PDSA Cycles

The purpose of a driver diagram is to test whether or not the theories presented generate the quality improvement desired. Once you have a completed driver diagram you are ready to begin project implementation. In order to effectively measure success, you must pair your driver diagram with an iterative tool for learning, such as a PDSA Cycle. [11]
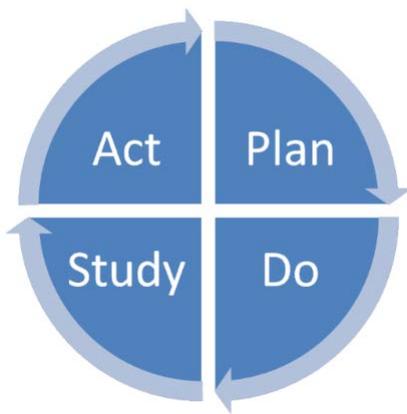
PDSA stands for Plan, Do, Study, Act and is a model that you can use to manage improvements and test your identified theories to determine whether or not they generate an improvement towards your desired outcome. When using the PDSA cycle, your project becomes a series of small sequential trials or experiments, in which you are rapidly testing and then refining your ideas for how to achieve the desired outcome. A PDSA approach to project execution requires a set of process measures that provide you with timely and accurate information on the impact of your plan. [12] If the implemented or revised processes don't achieve the desired outcome (or perhaps make things worse), this can be evidence that aspects of your identified theory may be incorrect. [13] Indeed, the A in the PDSA cycle should be
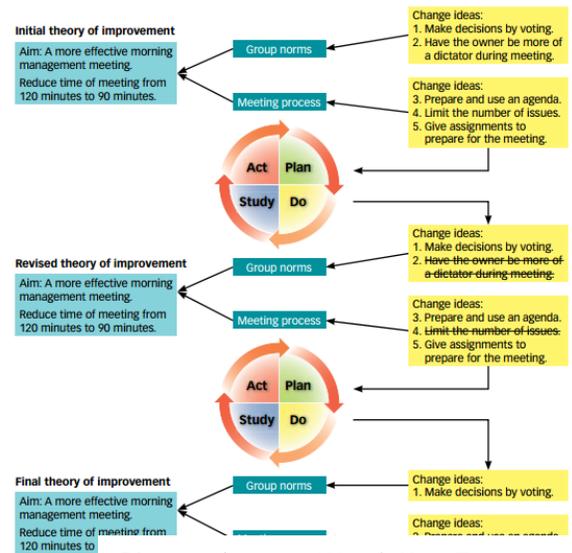
Diagram from the What's Your Theory?

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[11] http://www.apiweb.org/QP_whats-your-theory_201507.pdf

[12] https://innovation.cms.gov/files/x/hciatwoaimsdrvrs.pdf

[13] https://innovation.cms.gov/files/x/hciatwoaimsdrvrs.pdf

interpreted as either Adopt, Adapt, or Abandon. Through this process of prediction, testing, learning, and revision, a system can continuously evolve toward the aim of any improvement project. [14]

Why test change prior to implementation? [15]

- It involves less time, money, and risk.
- The process is a powerful tool for learning; from both ideas that work and those that don't.
- It is less disruptive for patients and staff.
- When people have been involved in testing and developing the ideas, there is often less resistance to change.

If your theory proves to be an incorrect scenario, your team can take steps to:

- Review and modify the original theories of improvement in your driver diagram, based on what you learned.
- Modify the existing tests or devise new tests to better understand your theories of improvement.
- Evaluate the results of new or revised tests against the desired outcomes.

PDSA Resources

- Institute for Healthcare Improvement PDSA Worksheet
- Institute for Healthcare Improvement – Video
- National Health Service (NHS) Quality and Service Improvement Tools

Measures

Developing a Measurement Strategy

A driver diagram can help craft the measurement strategy of an improvement initiative. It does this through the use of embedded outcome measures. Typically, outcome measures are included in the goal statement of most driver diagrams. Having measure(s) help to answer the question: *How will we know a change is an improvement?* [16] Not all change is positive and changes can have unintended repercussions so it's critical that you tie in measures in order to understand which direction you are moving and can adjust course if needed.

Measures and Metrics

To measure the success of your interventions, you will need to define measures that you can use to assess the impact of the various components of your quality improvement plan over time. Having these metrics will help you measure the relativeness of each driver: *do your identified drivers actually have an impact on your goal?* Perhaps something you thought was a driver really isn't. They will also evaluate the effectiveness of each intervention: *do the interventions or changes you made have a positive impact on your goal? Or, are the interventions actually generating a negative impact and moving you further from*

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[14] http://www.apiweb.org/QP_whats-your-theory_201507.pdf
[15]http://www.institute.nhs.uk/quality_and_service_improvement_tools/quality_and_service_improvement_tools/plan_do_study_act.html
[16] http://www.apiweb.org/QP_whats-your-theory_201507.pdf

your goal? It's critical that you measure your interventions on an ongoing basis to ensure that you are realizing the changes you want to see.

What does a measure look at? [17]

A measure has several components:

- Numerator: The number of patients who meet the definition of the measure
- Denominator: The number of patients who are considered eligible
- Exclusions: Certain patients who should be subtracted from the denominator of an individual measure

Types of Quality Measures

There are multiple approaches to measuring different aspects of quality care. Following a model proposed by Avedis Donabedian, the measures examine the structure of the setting in which care is provided, the actual process of care provided, and the subsequent outcomes of the care provided. The categorization of quality measures and concepts into structure, process, and outcome has formed the conceptual foundation for quality measurement for the last 35 years.

*"Before (quality) assessment can begin we must decide how quality is to be defined and that depends on whether one assesses only the performance of practitioners or also the contributions of patients and of the health care system. (To adequately assess quality of health care) we also need detailed information about the causal linkages among the structural attributes of the settings in which care occurs, the processes of care, and the outcomes of care." – *Donabedian, 1988

1. Structure: *The characteristics of the setting where the care is provided.*

   Structure measures are designed to provide a sense of a provider's capacity, systems, and processes to provide high-quality care. They look at the policies that are in place that have any effect on the quality of the care provided.

   Might look at the characteristics of:

   - Providers, hospitals, outpatient practices.
   - Personnel and other staff (staffing ratios).
   - Protocols related to the delivery of the care.

   Example: Availability of hemorrhage cart

   Does your hospital have OB hemorrhage supplies readily available, typically in a cart or mobile box?

2. Process: *What the organization does.*

   Process measures are designed to provide a look at the interactions between the health care provider and the patients in order to understand whether an activity proven to benefit the patient was performed.

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[17] http://www.hrsa.gov/quality/toolbox/methodology/performancemanagement/index.html

Might look at the characteristics of:

- The encounter between the patient and provider.
- The encounter between the members of the care team (physicians and nurses, for example).

Example: Quantification of blood loss

In this quarter, what proportion of mothers had measurement of blood loss from birth through the recovery period using quantitative and cumulative techniques?

3. Outcome: *The change in the patient's health status as a result of the care received.*

Outcome measures are designed to understand whether or not the care the patient received resulted in a change in the patient's health status. For outcomes to be used as quality of care measures, they must reflect, or be responsive to, variations in the care being assessed

Might look at characteristics of:

- Patient's functional status (can they return to work?)
- Patient's quality of life.

Example: Severe Maternal Morbidity

- Denominator: All mothers during their birth admission, excluding ectopics and miscarriages.
- Numerator: All cases with any SMM code.

4. Balancing: *Ensures that if changes are made to one part of the health care system, it doesn't cause problems for another part of the system.*

Balancing measures look at the health care system from different directions. They are meant to identify and mitigate unanticipated outcomes.
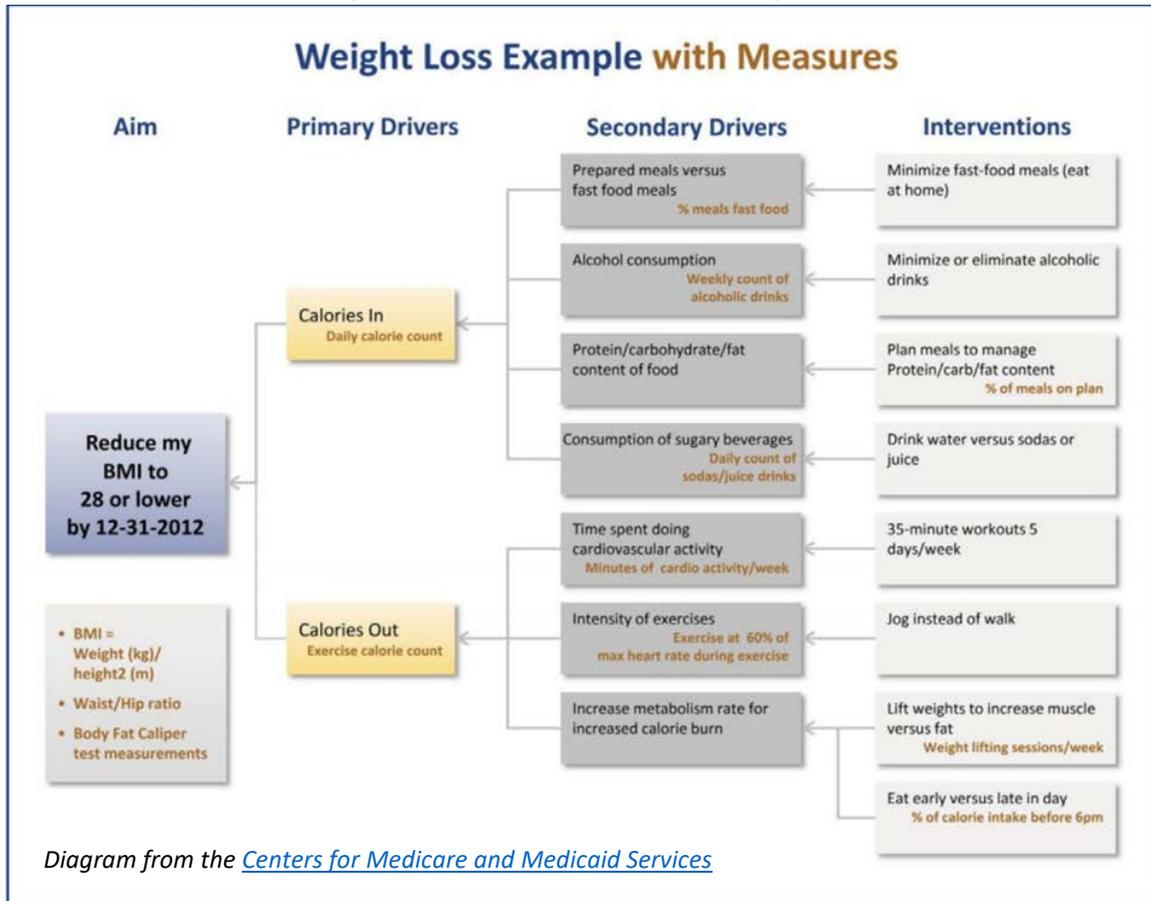
Resources
- Excel file of measures utilized by AIM

Measures' Relationship to Driver Diagrams

Effective measurement is critical. If you don't measure, how will you know that an improvement has occurred? While driver diagrams are used to build and test theories for improvement, measures are used to generate data that can be applied to determine whether or not improvement has occurred as a result of your theories and implemented interventions. Measures can be included at multiple levels, some measurements monitor results at the aim, primary drivers, and secondary drivers, while some are more appropriate for monitoring specific interventions. In general, outcome measures will be embedded in the aim statement for most driver diagrams but other measures can be linked directly to primary and secondary drivers and can include a variety of measure types.

Below is an example driver diagram with measures inserted in orange text:

Weight Loss Example with Measures

Aim	Primary Drivers	Secondary Drivers	Interventions
		Prepared meals versus fast food meals — % meals fast food	Minimize fast-food meals (eat at home)
	Calories In — Daily calorie count	Alcohol consumption — Weekly count of alcoholic drinks	Minimize or eliminate alcoholic drinks
Reduce my BMI to 28 or lower by 12-31-2012		Protein/carbohydrate/fat content of food	Plan meals to manage Protein/carb/fat content — % of meals on plan
		Consumption of sugary beverages — Daily count of sodas/juice drinks	Drink water versus sodas or juice
		Time spent doing cardiovascular activity — Minutes of cardio activity/week	35-minute workouts 5 days/week
BMI = Weight (kg)/ height2 (m) • Waist/Hip ratio • Body Fat Caliper test measurements	Calories Out — Exercise calorie count	Intensity of exercises — Exercise at 60% of max heart rate during exercise	Jog instead of walk
		Increase metabolism rate for increased calorie burn	Lift weights to increase muscle versus fat — Weight lifting sessions/week
			Eat early versus late in day — % of calorie intake before 6pm

Diagram from the Centers for Medicare and Medicaid Services

Tracking Measures

Tracking measure data to uncover trends is critical to creating a learning environment and fostering quality improvement. The Institute for Health Care Improvement (IHI) has developed a free tool to aid organizations in tracking this data: the Improvement Tracker.
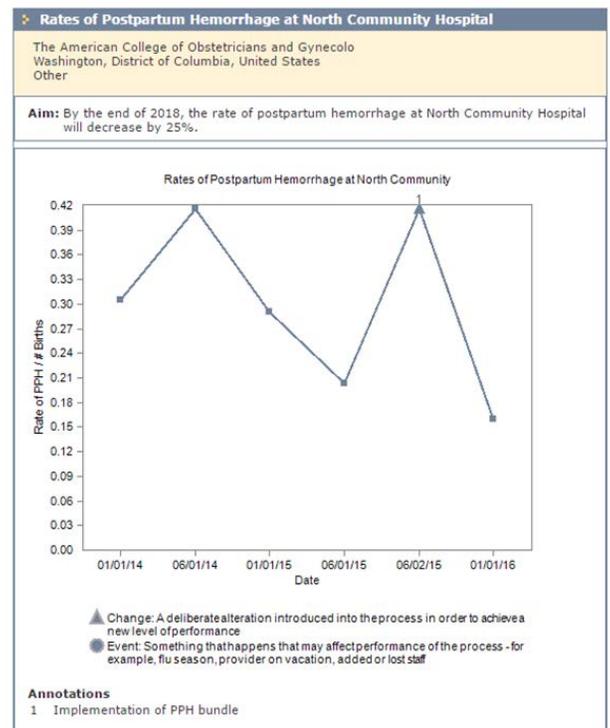
Through the Improvement Tracker you can either select from a list of existing measures or enter your own, set your aim, and input your data. Once you do this, the tracker generates a run chart to visualize trends. It also allows for the generation of custom reports, depending on the needs of your organization.

In the sample run chart (shown right), we entered data from the fictional North Community Hospital on rates of postpartum hemorrhage and indicated the event of implementation of the Obstetric Hemorrhage Patient Safety Bundle on June 2, 2016 in order to show its effect on rates of postpartum hemorrhage.

Models for Change

The Six Sources of Influence Model

Organizational culture is a commonly used phrase when discussing quality improvement. However, it's often difficult to pinpoint how to effectively change it. The Six Sources of Influence Model is a model from *Influencer: The Power to Change Anything* and is designed to help an organization identify the six areas related to an individual's ability to make a change and their personal motivation to put their abilities to work. It addresses the idea that in order to change an individual's habits they must be provided with both the intrinsic, personal motivation to make the change and the ability to carry the change through with the proper educational tools. Oftentimes, when attempting to change culture, many organizations are unsuccessful because they focus either on the deployment of educational programs or attempt to invoke change though motivation alone without educational support but fail to address both.

Rates of Postpartum Hemorrhage at North Community Hospital

The American College of Obstetricians and Gynecolo
Washington, District of Columbia, United States
Other

Aim: By the end of 2018, the rate of postpartum hemorrhage at North Community Hospital will decrease by 25%.

Rates of Postpartum Hemorrhage at North Community

▲ Change: A deliberate alteration introduced into the process in order to achieve a new level of performance
● Event: Something that happens that may affect performance of the process - for example, flu season, provider on vacation, added or lost staff

Annotations
1   Implementation of PPH bundle

Influencer Model

	Motivation	Ability
Personal	1. Are you personally motivated to do it?	2. Do you have the skills necessary to do it?
Social	3. Do other people encourage you to do it?	4. Do other people provide information or resources to help you do it?
Structural	5. Does your environment encourage the right behaviors to help you do it?	6. Does the environment support the right behaviors to help you do it?

Modified from: http://sourcesofinsight.com/six-sources-of-influence/

Below are brief summaries of each of the six influence factors: [18]

1. **Personal Motivation**
   It's not enough to tell someone to change, or to tell them why you want them to change – they need to want it for themselves and commit to the idea of change. Help the members of your organization's team connect the sustainable behavior you want to their own personal values.

2. **Personal Ability**
   You must educate the member of your organization's team and give them time to practice what they've learned.

3. **Social Motivation**

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[18] http://www.paladinoandco.com/6-essential-sources-influence-become-sustainable-leader/#.VqQX-2T2Ay4

Peer pressure might be the most powerful of the six sources of influence. We all have a deeply felt desire to be accepted, respected, and connected to other human beings. You must start at the top and engage leadership as champions of your QI program. From there, you can tart to engage the rest of the team. The good news is that you don't need to change everyone's mind – seek out opinion leaders who wield influence and gain their commitment. If your opinion leaders personally value recycling and model this behavior, chances are good that others will follow.

4. Social Ability

Have you ever experienced the wisdom of crowds? Then you know it works. A large group's aggregated answers to questions involving quantity estimation, general world knowledge, and spatial reasoning has generally been found to be as good as, and often better than, the answer given by any of the individuals within the group.

This method shouldn't be used for everything, but can be effective in choosing among process alternatives, creating new processes, and vetting existing processes. Engaging groups that will be impacted by your change strategy will help gain buy-in and foster collaboration. They are likely to develop more solutions than a single individual struggling on her own.

5. Structural Motivation

Non-human factors also influence the way individuals and organizations behave. You may be surprised to learn that several of the traditional rewards systems, such as bonuses, won't necessarily create the behavior change you are seeking. That's because rewards systems often focus on results and not behavior. Consider designing rewards that mean something intrinsically to us as humans and emphasize the three main sources of personal motivation – autonomy, mastery, and purpose.

6. Structural Ability

Our physical environment has subtle but significant impact on the way we work. Changing "things" to achieve the process we want is one of the easiest sources to implement. Things are much easier to change than people! Use your organization's environment to your advantage – make the behavior you want easy, and make the behavior you don't want difficult.

Six Sources of Influence Applied to Hypertension in Pregnancy

1. Clarify Measurable Results

What results do you want to achieve? Be sure these results are SMART (Specific, Measurable, Attainable, Relevant, and Time-bound).

Patients with hypertensive emergencies are at risk for poor fetal and maternal outcomes ranging from abruption, stroke, eclampsia, and fetal and maternal death. As a result of this intervention there will be a reduction in these poor outcomes.

2. Find Vital Behaviors

Identify the Crucial Moments	Select the Vital Behaviors

Delay in treating patients with severe hypertension.	Initiation of appropriate antihypertensive treatment within 30 minutes of identifying a pregnant patient with a hypertensive emergency.

3. Diagnose

Identify the barriers that are currently keeping people from engaging in the vital behaviors.

	Motivation	Ability
Personal	*What might people find painful, frightening, boring, or uncomfortable about the vital behaviors?* Nursing staff may be uncomfortable calling a doctor to the bedside of a patient with a hypertensive emergency.	*What skill gaps get in the way of doing the vital behaviors (physical skills, knowledge, understanding, and social skills)?* Lack of clear understanding of when a physician should be called to be at the bedside.
Social	*What social influence challenges are you up against? How are you or others discouraging the vital behaviors? How are you or others enabling the wrong behaviors?*	
	There may be a culture that nurses can manage this problem by having the patient rest in a darkened room on her left side and repeating the blood pressure. In order to protect the physicians from having to come to the bedside.	Lack of a policy that dictates when and how antihypertensive medications should be administered to patients with hypertensive emergencies.
Structural	*Are there costs or penalties for doing the vital behaviors? Are there things that reward people for doing the wrong behavior?* Nurses who do the right thing but are not supported by leadership may be viewed as alarmists and get less desirable assignments or a physician may request not to have that nurse care for their patients.	*What environmental factors could enable the wrong behaviors (consider space, cues, data, and tools)?* Night shift does not have access to needed medications causing a delay in response.

4. Use Six Sources of Influence

Identify strategies in each source for how you'll influence people to engage in vital behaviors.

Motivation	Ability

Personal	*Consider: Field trips? Just try it? Tell a meaningful story? Allow for choice?* Use a QI case to demonstrate the failure to act in a timely fashion to deal with a hypertensive emergency	*How can you employ deliberate practice?* Develop a teaching module for handling hypertensive emergencies.
Social	*How can you lead the way? Who are the opinion leaders in the organization? What do you want them to do?*	
	Engage opinion leaders to implement a program to facilitate timely administration of antihypertensive agents for patients with hypertensive emergencies. They begin with their patients and learn what works well and what does not.	Engage opinion leaders to develop a policy of when and how antihypertensive medications should be administered to patients with hypertensive emergencies. Show data on effectiveness when implemented or applicability to their local population (how many women at hospital x would meet the criteria for this treatment?)
Structural	*Use rewards third and in moderation, link rewards to vital behaviors.* Celebrate nurses who initiate protocol to appropriately handle hypertensive emergencies during unit meetings by using case studies that show the right care at the right time was delivered to that women and her neonate and the resulting outcomes. Link with the evidence to reinforce the behavior and the knowledge.	*What environmental factors could enable the wrong behaviors (consider space, cues, data, and tools)?* Emergency medication is not available - engage nurses to collaborate with pharmacy to develop the box and then test right medications, right location, how to let everyone know about it. Measure whether or not medications were used.

Kotter's Eight Steps for Leading Change[19]

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[19] http://www.kotterinternational.com/the-8-step-process-for-leading-change/
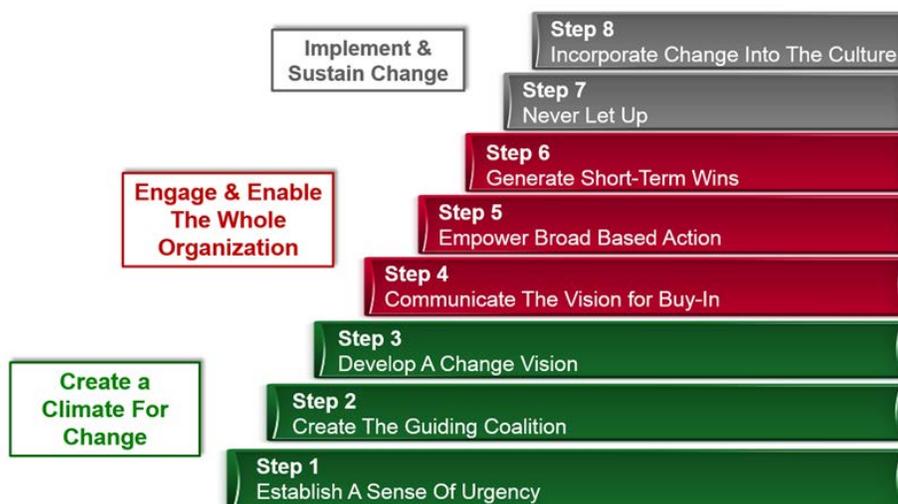
Kotter's Eight Steps Applied to Obstetric Hemorrhage Collaboratives

1. Establish a sense of urgency: We used the California Maternal Mortality Review results to emphasize the opportunities to prevent maternal deaths and severe morbidity from obstetric hemorrhage. Hemorrhage occurs frequently enough on all OB units for staff to recognize the need. Patient stories from near-miss cases were also very powerful.

2. Create the guiding coalition: State-wide, we first developed a multi-disciplinary collaborative that included obstetricians, nurses, administrators, anesthesiologists, blood bank leaders, and patient representatives who reviewed the mortality data, key literature, and best practices from among our hospitals.

3. Develop a change vision: An outline of the key interventions became the Patient Safety Bundle which was our change vision. The state collaborative then fleshed out the bundle with a set of best practices, examples and critical literature reviews that became a quality improvement toolkit. For each participating hospital, we strove to recreate a similar collaboration of the same stakeholders. It is important to include staff who are not senior management. Their first task was to adapt and implement the safety bundle to meet local conditions.

4. Communicate the vision for buy-in: Multiple communication tools were used to spread the word including regional education events, hospital grand rounds, local posters on the units, and widely shared literature.

5. Empower broad-based action: Analysis of local barriers and strategies to overcome them is a particularly useful approach. We recommend focusing on changing system obstacles. Another key step is incorporating team development principles into the unit in the context of hemorrhage. Empowering staff to participate in the assessment and to speak up are key steps.

6. Generate short term wins: These are important for building momentum and keeping enthusiasm high. For example, completing some of the easy steps in the bundle, such as creating a hemorrhage cart should be done first. Working with the blood bank to streamline blood availability by examining each step in the process can also bring quick results.

7. Never let up: Repetitive feedback of outcome and process data has been useful to keep the QI program living in clinician's minds. Debriefs provide ongoing feedback about successes and opportunities to improve. Detailed case reviews of sentinel events can also provide useful ideas for system improvements.

8. Incorporate change into the culture: It is useful to blend hemorrhage tasks into the workflow for every admission, every birth, and every handoff. Continuing development of QI leadership skills among physicians and nurses supports the blending of the QI ideas into "how we do things here".

Building Sustainability and Encouraging Spread

After a quality improvement project has been deployed and change has been realized, it is vital that organizations take steps to not only sustain the improvements that have been made but also to help spread the improvements to all relevant parts of the organization. In an industry that is plagued by negative press coverage and pessimism, it is crucial that organizations do not lose momentum and sow deeper frustration.[20] Failing to sustain the improvements will discourage those involved and set a precedent that change cannot be realized.

As stated in the Institute for Health Care Improvement's How-to Guide: Sustainability and Spread, sustainability and spread are defined as:

- **Sustainability:** Locking in the progress that hospitals have made already and continually building upon it.
- **Spread:** Actively disseminating best practice and knowledge about every intervention and implementing each intervention in every available care setting.

Sustainability

Building a project that supports sustainable change is critical.

The IHI guide delves into six properties that must exist in organizations in order to successfully sustain improvement:

1. Supportive Management Structure

2. Structures to "Foolproof" Change

3. Robust, Transparent Feedback Systems

4. Shared Sense of the Systems to Be Improved

5. Culture of Improvement and a Deeply Engaged Staff

6. Formal Capacity-Building Programs

Spread

The lack of effective spread of innovations results in the existence of 'pockets of excellence' or 'improvement islands.'[21] Once you have successfully implemented a program and realized improvements, you should develop a plan for reaching all the appropriate units or departments within your organization. Having effective mechanisms to spread innovations help to multiply their benefits and accelerate improvement widely.

The IHI guide delves into three properties that must exist with organizations in order to successfully spread improvement:

1. Laying the Foundation for Spread

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[20] http://www.ihi.org/resources/Pages/Tools/HowtoGuideSustainabilitySpread.aspx
[21] http://www.healthcareimprovementscotland.org/about_us/what_we_do/knowledge_management/knowledge_management_resources/spread_and_sustainability.aspx

2. Developing an Initial Plan for Spread

3. Refining the Plan
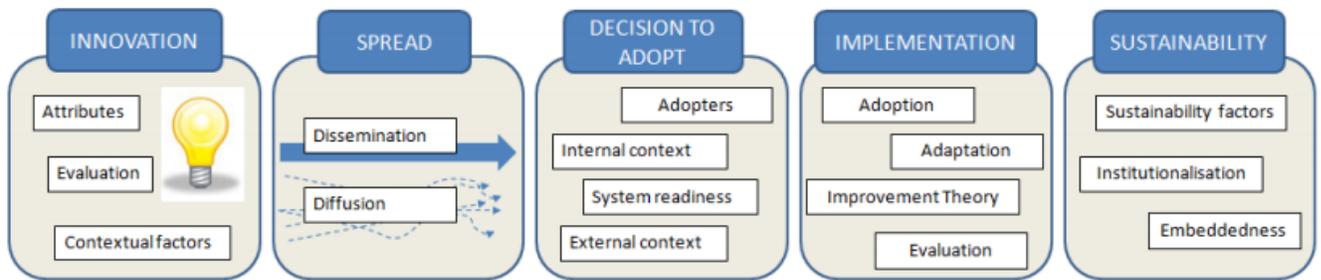
Proposed Spread & Sustainability Framework from
[Healthcare Improvement Scotland – Guide to Spread and Sustainability](#)

Resources

- [Healthcare Improvement Scotland – Guide to Spread and Sustainability](#)
- [Institute for Healthcare Improvement – How-to Guide: Sustainability and Spread](#)

Conclusion

We hope that you found the resources in this toolkit helpful. Each of the tools presented contain elements that your organization can utilize where appropriate. However, it is important to keep in mind that there is no one correct way to implement a QI program. What works best for your organization may not work well for another and what works for your organization may not work in another. While standardization is always encouraged, you can and should modify the tools as necessary to best meet the needs and goals of your organization.

We wish you success in your implementation efforts!

Additional Resources

The Institute for Health Care Improvement (IHI) has many open-source resources that can assist you in the development of your driver diagrams, PDSA cycles, and selection of measures.

- [How do you use a driver diagram?](#)
  This short video provides an overview of how to develop and utilize a driver diagram.

- [IHI Whiteboard Videos](#)
  Robert Lloyd, Executive Director of Performance Improvement at IHI, uses his trusty whiteboard to dissect the science of improvement. In short videos, he breaks down everything from Deming's System of Profound Knowledge, to the PDSA cycle, to run charts. Click, sit back, and enjoy the learning.

  Below are a few Whiteboard Videos that we have identified to be of the most help to you:

  - [Driver Diagrams](#)
  - [Model For Improvement 1](#)

- o [Model For Improvement 2](#)
- o [PDSA Cycle Part 1](#)
- o [PDSA Cycle Part 2](#)

- ▪ [Council on Patient Safety in Women's Health Care Resources](#)

  Additional resources and tools can be found on the Council's website. We have linked to a few that may be of most help:

  - o [AIM eModules](#)
  - o [National Improvement Challenge](#)
  - o [Safety Action Series](#)

Appendices

Appendix A: Driver Diagram Applied to Obstetric Hemorrhage Patient Safety Bundle

OUTCOME	PRIMARY DRIVERS	SECONDARY DRIVERS	ACTION STEPS
Decrease severe maternal morbidity from OB Hemorrhage by ___% from (year) to (year).	Readiness for OB hemorrhage (For Every Unit)	1 Hemorrhage cart available and accessible intrapartum AND postpartum 2 Medications immediately available 3 Obstetric emergency response team in place 4 Establish massive and emergency release transfusion protocols 5 Unit education/Unit drills, including post-event debriefs	1 Establish a multidisciplinary team 2 Establish an obstetric rapid response team for all obstetric emergencies. 3 Research and standardize hemorrhage cart 4 Simulate medication procurement. Identify improvement opportunities and include all stakeholders including Pharmacy 5 Implement communication process for rapid response obstetric response team 6 Engage a multi-disciplinary team to develop massive and emergency release transfusion protocol 7 Adopt education for OB hemorrhage 8 Identify staff to lead multidisciplinary drills and simulations,, including post-event debriefs.
	Recognition and prevention of OB hemorrhage (For Every Patient)	1 Assess hemorrhage risk 2 Quantify blood loss 3 Actively manage 3rd stage of labor	1 Identify hemorrhage risk assessment tool. Pilot. PDSA after pilot 2 Identify tools for the reliable quantification of blood loss for vaginal and cesarean delivery. One such tool may be to secure and use graduated under-buttocks drapes. 3 Engage OB providers and nurses on Quantitative Blood Loss measurement and develop a shared educational program with standard tools. Pilot. PDSA after pilot. Ensure all staff and providers are held accountable to the standard. 4 Secure champions for active management of 3rd stage of labor implementation 5 Develop active management of 3rd stage of labor policy 6 Pilot AMTSL. PDSA after pilot

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	Standardized Response to OB Hemorrhage (For Every Hemorrhage)	1 Adopt standard, stage-based, hemorrhage management plan with checklists 2 Adopt support program for patients, families, and staff for all significant hemorrhages	1 Develop standardized stage-based hemorrhage management plan with checklists 2 Pilot stage-based hemorrhage management plan in simulations. PDSA after pilot 3 Secure MD & Nurse champions for plan implementation 4 Incorporate plan into EMR (make it easy to do the right thing) 5 Form group representing all stakeholders to develop support program(s) for patients, families and staff. 6 Research resources available for support. 7 Pilot support programs. PDSA after pilot. Ensure all populations are represented.
	Reporting and systems learning from OB Hemorrhage (For Every Unit) (Facility Culture)	1 Huddle for high risk patients to prepare throughout care. 2 Debrief to identify successes and opportunities. Create a feedback system of learning. 3 Multidisciplinary review of stage 2/3 hemorrhages 4 Identify and utilize data collection plan to capture OB hemorrhage events	1 Identify nursing and medical champions for huddle design and implementation 2 Test before implementing huddle. Pilot. PDSA after pilot 3 Engage medical, nursing leadership to lead and implement debriefs 4 Test before implementing huddle. Pilot. PDSA after pilot 5 Engage medical, nursing, administrative leadership to establish multidisciplinary review 6 Implement multidisciplinary review for stage 2&3 7 Investigate data measures and other resources/tools. Identify data champion. 8 Utilize data collection plan. PDSA

Structure Measures:
1) Does your hospital have OB hemorrhage supplies readily available, typically in a cart or mobile box?
2) Does your hospital have a unit-standardized, stage-based obstetric hemorrhage emergency management plan with checklists?

Process Measures:
1) How many hemorrhage drills were performed this quarter?
2) What proportion of mothers had a hemorrhage risk assessment done at least once before birth during this quarter?
3) What proportion of mothers had formal measurement of cumulative blood loss from birth thru recovery period during this quarter?
4) Has hospital developed OB specific resources and protocols to support patients, family and staff through major OB complications?

Outcome Measures:

	1) Days between last hemorrhage

OUTCOME	PRIMARY DRIVERS	SECONDARY DRIVERS	ACTION STEPS
Decrease severe maternal morbidity from Severe preeclampsia/ eclampsia by ___% from	Readiness for Severe Hypertension (For Every Unit)	1 Standards for early warning signs, diagnoses, monitoring & treatment 2 Education on protocols, drills with post-drill debriefs 3 Process for timely triage and evaluation. Measure and report 4 Rapid access to medications 5 System plan for escalation, consultation and transport as needed	1 Secure champions, including pharmacy representation, for development of standardized protocol. Identify early warning signs, diagnostic criteria, monitoring and treatment of severe preeclampsia/eclampsia. 2 Provide education on severe hypertension and protocol. Identify staff to lead multidisciplinary drills. Perform drills using simulation. Debrief. PDSA 3 Identify champions for timely triage in OB, ED and outpatient areas. Develop timely triage process. Pilot process for timely triage which includes measurement. PDSA. 4 Simulate medication procurement, with Pharmacy representative. Identify improvement opportunities. Pilot. PDSA. 5 Identify champions for escalation, consultation and transport. Develop and measure process. Pilot process. PDSA.

(year) to (year).	Recognition of Severe Hypertension (For Every Patient)	1 Standard protocol for assessment of BP and other systemic indicators for all pregnant and postpartum women 2 Standard response to maternal early warning signs, investigating symptoms and labs * Measure process- recognition and notification- over time. *Always R/O systemic dysfunction other than proteinuria ◦ Hepatic -- greater than 2-fold elevation in transaminases, epigastric pain ◦ Blood – platelets < 100,00/mm3 ◦ Renal – Creatinine > 1.1 mg/dl or doubled ◦ Respiratory – Pulmonary edema ◦ CNS – Headaches, visual changes, seizure 3 Facility-wide standards (prenatal and postnatal-including ED) for educating prenatal and postpartum women on signs/symptoms of hypertension/preeclampsia	1 Develop protocol for assessment of BP and other systemic indicators for all women. Educate nursing and medical staff on BP assessment process. Pilot processes for BP and systemic assessment. PDSA. 2 Develop standardized notification for early warning signs, symptoms, labs and required response. Pilot. PDSA. Integrate into EMR. 3 Investigate resources for patient education by including a woman (patient) on the design team. Test education tools and identify population segments (one tool will not fit all). Identify pilot site (prenatal and hospital) as postpartum is a critical period for HTN. Pilot patient education. PDSA. Spread to others.
	Response to Severe Hypertension (For Every Case of Severe Preeclampsia/Eclampsia)	1 Facility-wide protocols with checklists and escalation policies. Test using simulation. 2 Support plan for patients, families, staff for ICU admissions and complications	1 Develop facility-wide standardized protocol for management and treatment of: severe hypertension, eclampsia, seizure prophylaxis, magnesium over dosage, postpartum presentation of severe hypertension/preeclampsia 2 Develop support program(s) for patients, families and staff. Include patient or family member in development team. 3 Research resources available for support. 4 Develop support program(s) for patient families and staff. 5 Pilot support programs. PDSA after pilot.

	Reporting and Systems Learning from Severe Preeclampsia/Eclampsia (For Every Unit) (Facility Culture)	1 Huddle for high risk patients to prepare 2 Debrief to identify successes and opportunities 3 Multidisciplinary review of severe hypertension/eclampsia admitted to ICU 4 Monitor outcomes/process metrics	1 Identify nursing and medical champions for huddle implementation 2 Implement huddle. Pilot under a variety of conditions, including shifts, L&D, ED, etc. PDSA after pilot 3 Engage medical, nursing leadership to implement debriefs 4 Implement debrief. Pilot under a variety of conditions, begin with day shift. PDSA after pilot 5 Engage medical, nursing, administrative leadership to establish multidisciplinary review. Senior leadership to develop and lead multidisciplinary review across the organization, in collaboration with unit level leadership 6 Implement multidisciplinary review for severe hypertension/eclampsia cases admitted to ICU 7 Investigate data measures and other resources/tools. Identify data champion 8 Utilize data collection plan. PDSA

Structure Measures:

1) Does your hospital have a unit-standard approach to measuring BP, treatment of Severe HTN/Preeclampsia, administration and treatment of overdose of Magnesium Sulfate?

Process Measures:

1) How many hypertension drills were performed this quarter?
2) What proportion of OB physicians, midwives, nurses have completed education on Preeclampsia, including the Preeclampsia bundle and the unit-standard protocol?
3) How many women had persistent new-onset severe HTN and how many were treated within 1 hour?
4) Has your hospital developed OB specific resources and protocols to support patients, family and staff through major OB complications?

Outcome Measures:

1) Days between women with severe HTN treatment > 1 hour

Appendix C: Driver Diagram Template

The template below can be utilized by your organization to develop internal driver diagrams. Each box contains a table which can be expanded or contracted by right clicking and inserting or removing rows as necessary

OUTCOME	PRIMARY DRIVERS	SECONDARY DRIVERS	ACTION STEPS
		1 2	1 2 3 4 5
		1 2	1 2 3 4 5

			1	
			2	
		1	3	
		2	4	
			5	

			1	
			2	
		1	3	
		2	4	
			5	

Measures