FELLOWS'

EDITION: OCTOBER 2022

QI TOOLKIT

PRACTICAL GUIDE FOR QI PROJECTS

Society for Maternal•Fetal Medicine

PREPARED BY THE SMFM COMMITTEE FOR PATIENT SAFETY AND QUALITY

CONTENTS:

FEEDBACK? PLEASE EMAIL:****

MFM FELLOW QUALITY IMPROVEMENT

PROJECT STEPS

DEFINE THE PROBLEM

Identify areas where there are frequent missteps, wide variation or that cause you frequent frustration in your clinical practice.

DETERMINE THE GOAL

Based on the problem you decide to tackle, you will need to outline very specific goals for the project by developing an AIM statement.

DELINEATE MEASURES OF SUCCESS

Measures of success in the form of either process, structural or outcome metrics will help you measure any improvement that occurs.

DEVELOP AN INTERVENTION

You'll need a change idea that will be the engine for driving improvement in your project.

IMPLEMENT AND MEASURE

Using the PDSA cycle, you will implement your change idea a small scale at first. You'll then use your measures to evaluate for improvement.

ANALYZE THE RESULTS

Track your measures over the course of your project, noting the impact of each change, and if change is equitable between groups. A final analysis of your data will indicate if overall improvement has occurred.

REFLECT & REFINE

Ideally, you will gather feedback on your test of change to see if has the desired, equitable impact you seek. If it doesn't, you may need to refine or change your approach.

PLAN FOR LONG-TERM SUCCESS

If your change results in improvement, you'll need to strategize how to sustain these benefits over time.

P-D-S-A: THE QI PROJECT CYCLE

Plan

- Decide on the stated objective: what are we solving and what do we think will happen?

- How will we test our changes? Who, what, when, where, how long?

- Determine what data should be collected.

Do

- Make the test happen!

- Keep equity in your line of sight as your implement your plan.

- Be sure to collect not just data, but also observations along the way that might inform future approach.

Study

- Analyze the data.

- Compare to your hypothesis.

- Work as a team to identify weak points, unexpected challenges, successes.

Act

- Make changes in anticipation of another cycle.

-Is it worth bringing this change to other units/personnel/times?

- Does this idea need to be abandoned/reconsidered?

More on this: SMFM Primer: Overview of Quality Improvement

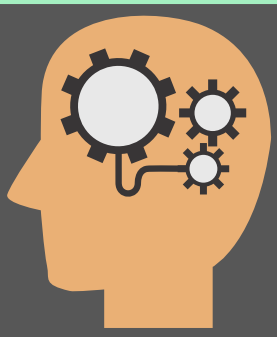
Identify the Problem

Quality Improvement (QI) is a framework which can be used to improve processes, such as delivery of patient care.

Maternal-fetal medicine specialists are well-positioned to study and implement QI in obstetrics.

Using QI techniques, we can characterize and improve processes to achieve stable and predictable results.

These techniques are applicable to a wide variety of problems. Now, let's identify and characterize a problem:



What problem(s) might you consider looking at?

Example: We recently had a postpartum hemorrhage at the time of cesarean that resulted in a 5L blood loss and multiple transfusions. In debriefing, we realized there were a few problems in our response that led to a delay in care. **Let's optimize our postpartum hemorrhage response in the OR.**

Your turn!

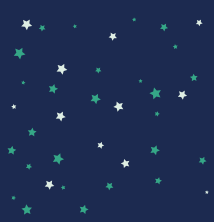
Tips for "finding a problem":

1. Seek areas where systems or processes may contribute to adverse events, with the goal to modify the system/process to prevent future error.
2. Look at areas where there is widespread agreement on the best care plan/outcome – ambiguity is your worst enemy!
3. Find a problem that you're passionate about fixing – that motivation is key to keep things moving over multiple improvement cycles!

What problems can be solved with a QI approach?

GAPS IN CARE

Processes that are suboptimal or nonexistent are ripe for new solutions that can engage various stakeholders.



HIGH VARIABILITY

If processes or outcomes differ significantly between similar cases, QI may help to identify and correct issues in practice patterns or equity.

HEALTH EQUITY

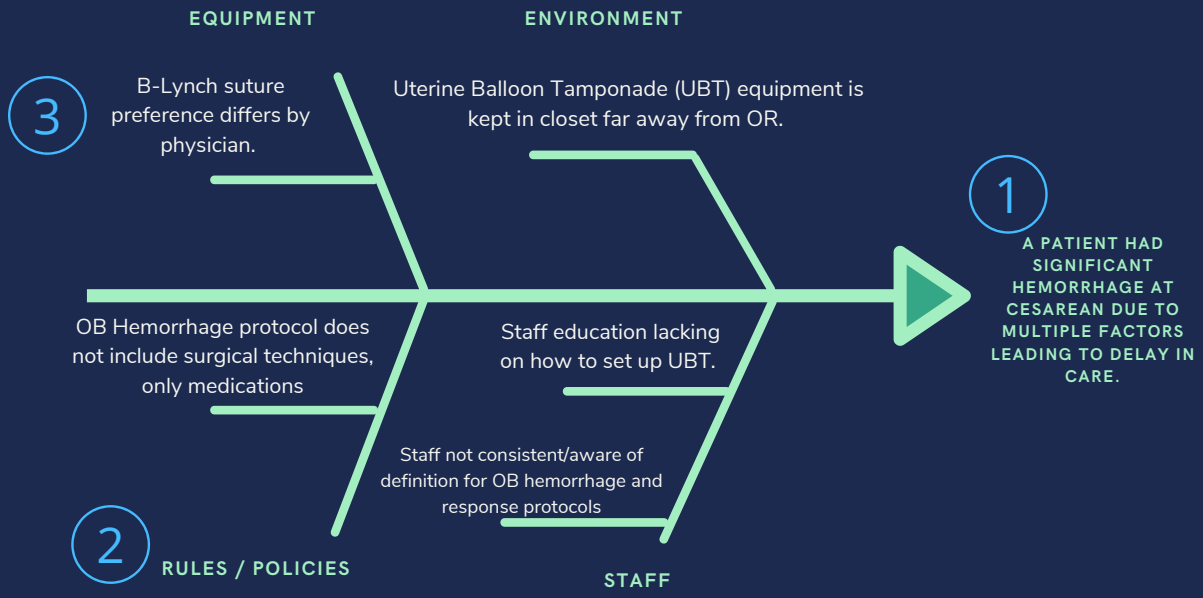
QI approaches can help to identify and rectify differential outcomes between populations.

FRUSTRATION

Poorly crafted, outdated, or incomplete processes that frustrate users or patients impacted by it.

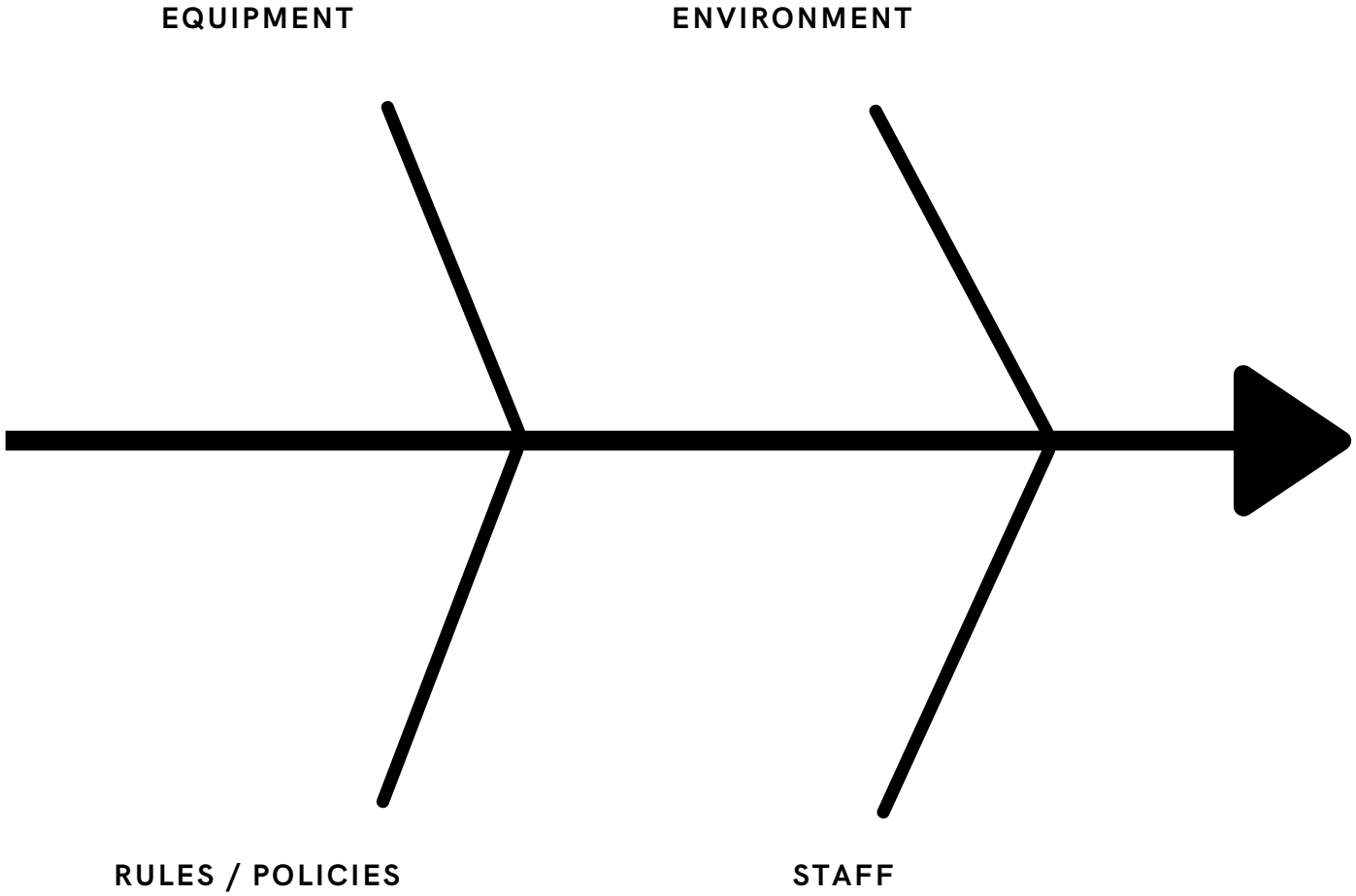
fishbone diagrams

are one way to examine the process or processes that lead to a problem.
They can thus elucidate what might be amenable to intervention.



1. PROBLEM STATEMENT: A specific statement of the problem to address.
2. MAJOR CATEGORIES OF CAUSES: The major "bones" off the spine; organizes multiple potential contributors into categories.
3. CONTRIBUTORS: The minor "bones" which are specific causes within each category. These can even be split off further as needed to identify further detail.

create a fishbone diagram for one of your proposed problems:



More on this: SMFM Primer: Medical Error & Adverse Events

Planning & Prioritizing: *the Pareto principle*

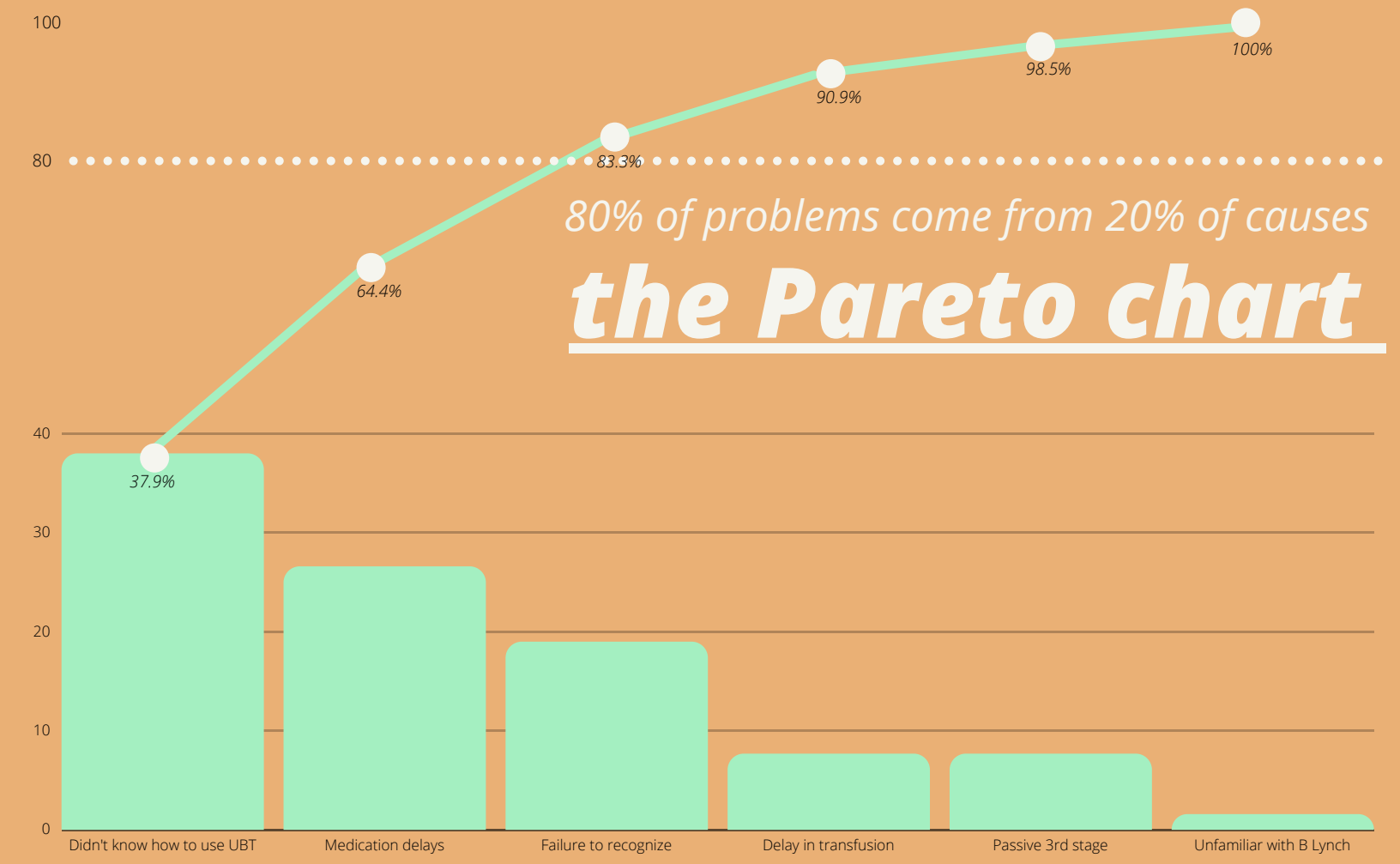
Perhaps you've heard that 80% of problems come from 20% of causes. This is the *Pareto principle*, and you can use a Pareto diagram to help your team prioritize which problems to tackle first.

Let's take a look back at our last 100 postpartum hemorrhages, and see what was reported as problematic the most often.

Category	#	%
Failure to recognize PPH	25	18.9
Delay in transfusion/blood	10	7.6
Didn't know how to use UBT	50	37.9
Unfamiliar with B-Lynch	2	1.5
Medication delays or non-use	35	26.5
Passive 3rd stage management	10	7.6

This data can be rearranged from most-to-least significant/common causes, and graphed. As you can see on this example, three causes account for 80% of the system failures, and are likely most critical targets for QI.

Even if you don't have this data, your team's opinions on "most critical" can be graphed this way to help set priorities!



80% of problems come from 20% of causes

the Pareto chart

More on this: SMFM Primer: Medical Error & Adverse Events

HEMORRHAGE RISK STRATIFICATION

Patient is admitted to L&D.

Routine - no additonal preparation requested

Elevated - active type and screen maintained

High Risk - consider cross-match; anesthesia consultation; active discussion of hemorrhage prevention at every OB team sign out.

HEMORRHAGE RESPONSE

Patient experiences >1000cc EBL

Bedside RN activates "OB Hemorrhage Response Team"

<u>OB/CNM:</u>
- Bedside blood loss assessment
- Team lead
- Uterine massage / UBT placement

<u>Bedside RN:</u>
- Vitals q10 mins
- Draw CBC, Coags
- Administer uterotonics / meds per OB/CNM

<u>Charge RN / RN2:</u>
- Bring US and uterotonic meds to room
- Update family
- Request consults per OB/CNM/Anes

<u>Anesthesia:</u>
- Ensure adequate pain relief and administer meds as needed
- 2nd IV if not obtained

This represents our unit's hemorrhage response today. What is missing? What could be clarified? Are there any extraneous pieces? You can also consider "compliance" with the current process - - are there things that could make the process less burdensome?

PROCESS DIAGRAMS

A BETTER PROCESS

** Some flexibility is key to allowing folks to respond with their training and know-how. Processes allowing for initiation for "concern" encourage process use. Allow all team members to request initiation of process to encourage/empower.*

** Some process diagrams can also serve as job aids. Include enough information to allow use in the moment. Consider adding things like phone numbers, medication doses, etc.*

EBL suspected to be ≥ 1000cc *or* bleeding concern.

Team member activates "OB Hemorrhage Response Team": Call 222, "OB Hemorrhage Response, 6SE, Room 1." Pager notification delivers to team members:

** Consider organization scheme to make process flow and provide guidelines to move to next stage.*

	OB/CNM:	Bedside RN:	Charge RN / RN2:	Anesthesia:
IMMEDIATE RESPONSE	- Bedside blood loss assessment - Examination and uterine massage - Team lead for medication/interventions	- Vitals q10 mins - Draw CBC, Coags, Type and Screen.	- Bring US and hemorrhage kit to room.	- Ensure adequate pain relief and administer meds as needed - Obtain 2nd IV (if not obtained).
EBL > 1500cc, ONGOING	- Continue examination and uterine massage - Consider move to OR and/or consultation: MFM, IR.	- Vitals q10 mins - Administer uterotonic medications per OB/CNM. - Administer tranexemic acid 1g IVP.	- Activate massive transfusion protocol and contact blood bank. - Request consults per OB/CNM/Anes	- Continue pain relief. - Consider additional access in preparation for mass transfusion. - Consider need for invasive monitoring (i.e., A-line)
EBL > 2500cc, ONGOING	- Move to OR, preparation for D&C, UBT, and/or laparotomy/hysterectomy. - Obtain consults if not performed previously.	- Prepare patient for OR. - Administer uterotonic medications per OB/CNM. - Administer tranexemic acid 1g IVP.	- Activate massive transfusion protocol and contact blood bank. - Request consults per OB/CNM/Anes	- Continue pain relief. - Consider additional access in preparation for mass transfusion.

PREFERRED MEDICATIONS *(all in PPH kit)*

Oxytocin: 30 u IV in 500 cc bag NS --> 600cc/h during atony/bleed

Methylergonovine (Methergine): 0.2 mg IM q2h, max 4 dose q24; *Contraindication: hypertension, HIV on protease inhibitors*

Carbaprost (Hemabate): 0.25mg IM q15 min, max 8 dose q24; *Contraindication: asthma*

ADDITIONAL MEDICATIONS *(all in PPH kit)*

Misoprostol: 400-800mcg PO/PR/SL x1. May cause high fevers.

Tranexemic Acid: 1g IV push if EBL > 1500cc; repeat dose x1 in 30 mins if bleeding ongoing. *NOT A UTEROTONIC.*

ADDITIONAL PPH KIT CONTENTS

- [] PPE: Gowns, gloves, eye protection.
- [] UBT kit (x2): balloon, saline bags, Tumi syringes.
- [] Med administration supplies.
- [] PPH Checklist and Debrief Form

IMPORTANT PHONE NUMBERS:

MFM: 1234
Interventional Rads: 5678
GYN ONC: 9101
Blood Bank: 1213
ICU: 1415

WHAT'S YOUR PROCESS?

Checklists *are another great tool to serve as a process guide as well as a cognitive aid. They can help to ensure teams follow the same steps for equitable care and prevent variations in processes that may result in errors.*

YOUR TURN:

Try designing a checklist for a clinical process at your hospital - if you're stuck thinking, try to make a checklist for *operative vaginal delivery*!

You can turn to the *SMFM Primer* chapter on checklists to get tips for designing your list. SMFM also has a checklist for operative deliveries, and other clinical scenarios, on the SMFM website! You can check your answer there -- www.smfm.org/checklists-and-safety-bundles

More on this: SMFM Primer: Checklists

FORMING A TEAM

A team is paramount to the success of any QI project. An interdisciplinary group with a variety of perspectives will make sure you examine all angles, have buy-in from all groups in your hospital, and promote a culture of QI for the future. An ideal core QI team consists of 5-8 members, all of whom should have a stake in improvement.

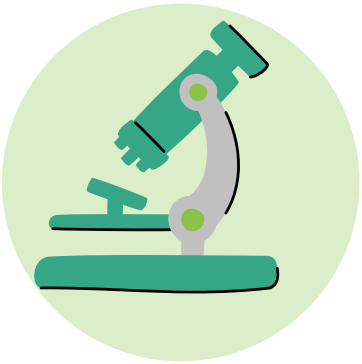
Here are five groups that should be considered for formation of any QI team:

CLINICAL LEADERS

These are the folks who have the authority to implement changes on a unit. They'll be the driving force in maintaining change locally. Examples might include your L&D director, charge nurses, or unit safety director.

TECHNICAL EXPERTS

This group knows the problem firsthand, and are inspired and empowered to develop the solutions! Pull your team from your fishbone diagram -- think about impacts on physicians, nursing, administrative staff, support personnel, and patients!

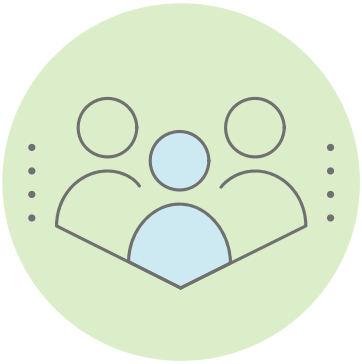


PROCESS ANALYSTS

This team will drive the day-to-day success of the project and oversee data collection. This might be you, but also have champions of the project helping to keep the momentum going.

PATIENTS/COMMUNITY

Addressing social determinants from a community-oriented or patient-centered perspective ensures the project team will keep focus on more just and equitable outcomes.



SPONSOR

The sponsor is the link to senior leadership in your hospital or health system. For fellows, this is likely your division chief or department chair. They can provide insight and ensure the project fits the goals of the larger system, and get additional support if needed to be successful.

3 critical team roles are ALWAYS required for a successful team

1. Project/Team Leader
   a. Establishes meeting times, places, agendas
   b. Strives for team consensus
   c. Keep team on track
2. Project Champion/Sponsor
   a. Removes barriers
   b. Advocates to senior leaders
   c. Aligns project with leadership objectives
3. Facilitator Coach
   a. Focuses on improvement process
   b. Guides the team through QI methodology
   c. Knowledgeable on problem solving tools

Who might belong on your team?

- [ ] DIVISION CHIEF
- [ ] FELLOWSHIP DIRECTOR
- [ ] UNIT CHIEF SAFETY OFFICER
- [ ] CHARGE NURSE(S)
- [ ] PHYSICIANS, RESIDENTS
- [ ] UNIT NURSES / STAFF
- [ ] PATIENT EXPERIENCE REP
- [ ] PATIENTS
- [ ] DATA ANALYST
- [ ] HOSPITAL SAFETY OFFICER
- [ ] _____
- [ ] _____

MORE INFO:
SMFM PRIMER: TEAM BUILDING;HEALTH EQUITY CONSIDERATION IN QI PROJECTS

Setting Up a SMART Aim

Once you've decided where to start, it pays to be SMART!

Let's put your first aim together:

SPECIFIC

State what you want to do! Be as narrow and specific as possible to make goals easier to see and achieve.

MEASUREABLE

You have to be able to know if you're achieving your goals! Define before you even start what your outcome should be, and how you're going to measure it.

ATTAINABLE

Try to be realistic with yourself. Is the goal you want to achieve feasible, within the timeframe you have to achieve it? Is 100% compliance with a process realistic? Or does this need to be smaller-scale to start before moving on to something larger?

RELEVANT

Make sure your project has value to the folks who will be impacted by it. Your team should be able to provide insight into what's really going to make a difference in the end.

TIME-BASED

Give yourself a deadline! You should be specific to allow for priority-setting, motivate task completion and have a date to measure your progress.

NOT SMART

Improve our unit's ability and confidence in hemorrhage management in order to reduce overall blood loss.

SMART

Increase initiation of OB Emergency Response to significant hemorrhage over 1000cc from 25% to 75% by the end of Q4.

It is easy to be vague rather than specific when developing your AIM statement. Lack of a clear AIM statement can easily derail a QI project.

Try it below! Use the simple format: Increase/Decrease/Improve a specific measure from baseline/current to target/goal by date.

CHECK YOUR AIM STATEMENT

- ☐ *What do I intend to accomplish?*
- ☐ *For whom will I make this improvement?*
- ☐ *By how much will I improve it?*
- ☐ *By when will I improve it?*

"Soon" is not a time
"Some" is not a number
"Hope" is not a plan

METRICS

Broadly speaking, there are two types of metrics to consider in a QI project:

PROCESS MEASURES

Metrics that reflect the actions of individuals within a process.

- Rate of 3rd stage managed actively.
- Percentage of patients with hemorrhage-risk stratification completed on admit.
- Time from recognition of hemorrhage to first uterotonic therapy administered.

These metrics can inform the process at hand, and identify points where targeted approach may be needed.

OUTCOME MEASURES

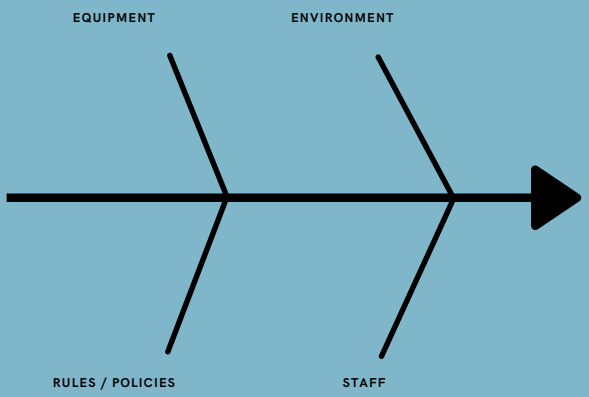
Metrics that reflect the impact of a service or intervention on patients.

- Rate of transfusion
- Rate of postpartum hemorrhage
- Rate of severe maternal morbidity
- Average EBL
- ICU admissions for hemorrhage

These metrics are often used as a gold standard, but are impacted by many things outside of our control (i.e., referral base, comorbidities, etc.).

***TIP:* REVIEW YOUR METRICS BY RACE / ETHNICITY / LANGUAGE / GENDER IDENTITY TO IDENTIFY DISPARITIES AND STRUCTURE YOUR PROJECT TO ELIMINATE INEQUITIES.**

THE FISHBONE DIAGRAM CAN HELP YOU CRAFT USEFUL PROCESS METRICS



Keep your metrics SMART!

- Do I have the tools to measure this?
- Can the data be viewed and acted upon quickly?
- Does this inform our goal to improve patient care?

MORE ON METRICS

Structural Measures

These describe a system's capacity or ability to provide care:

- Ability to communicate quickly in emergencies.
- Availability of electronic medical record system.
- Ratio of nurses / physicians to patients.
- Proportion of providers who are ACLS / board / special-technique certified.

Balancing Measures

These are metrics that could capture negative effects elsewhere in the system:

- Rates of postpartum endometritis due to aggressive fundal massage/bimanual exam.
- Rates of postpartum severe hypertension or asthma exacerbation (vis-a-vis methylergonovine/carboprost use).

While these measures may not be a major part of your project, they help to balance and contextualize your work.

They may also be key to understanding an existing process that is suboptimal or finding a change-driver in the organization.

LET'S MEASURE

Let's put it all together and delineate some metrics for your process.
Fill in the blanks with your project metrics!

Outcome Metrics

Process Metrics

Structural & Balance Metrics

QI FOR OB HEMORRHAGE

Reviewing our Background Work *Before* Intervention Begins!

STEP	EXAMPLE
Define the Problem	OB hemorrhage is poorly identified on our units. We struggle with timely response. We are not able to place UBTs in a timely fashion. All of this leads to undesirable outcomes.
Determine the Goal (SMART AIM)	In the next six months, we aim to increase significant (>1000cc) hemorrhage recognition and response with our hemorrhage protocol to 75%.
Delineate Measure(s) of Success	PROCESS METRICS: - Rate of successful hemorrhage risk stratification on admission. - Rate of OB Hemorrhage Response protocol activation to hemorrhage >1000cc. - Time from hemorrhage declaration to 2nd line uterotonic therapy. OUTCOME METRICS: - Rate of blood transfusion. - Rate of ICU admission. - Average EBL. - Time from hemorrhage declaration to hemorrhage resolution.
Develop Intervention(s)	*Up Next!*

"The secret of change is to focus all your energy, not fighting the old, but on building the new."

- Socrates

DEVELOPING AN INTERVENTION OR CHANGE IDEA

"Not every change is an improvement, but every improvement is a a change"

-Elizer Yudkowsky

Change Concept: *General approach to change that has been proven to lead to improvement. Ideas for changes come other improvement efforts or from change concepts and theories, such as those listed below.*
Change Idea: *Actionable, specific idea for changing a process. These can come from creatively applying change concepts or from best practices, research, available examples and other organizations.*

Eliminate Waste

What activities don't provide value to your patients?

Improve Work Flow

How can you change work flow so the processes are more planned and reproducible?

Optimize Inventory

How can you match your inventory needs to best facilitate patient care?

Change the Work Environment

What would make the environment better able to support improvement and optimize care?

Enhance Patient Relationship

Can you better understand or respond to the patient's needs?

Manage Time

How can you reduce wait time for services and cycle times for care delivery?

Focus on Variation

How can you reduce the frequency of poor results?

Error Proofing

How can you reduce the probability of making an error for a given opporutnity?

Focus on Service

What improvements can be made to the design of patient care & service?

EXAMPLE: IDEAS FOR IMPROVING PPH MANAGEMENT

Hospital X has noticed significant delays in the administration of first line uterotonic medications (hemabate and methergine) during postpartum hemorrhages (PPH).
In the current workflow, **the provider is required to place an order in the EMR before the nurse can retrieve the medication** out of the refrigerated pyxis. **Some providers also ask for less rapidly acting medications** before requesting first-line options.
Additionally, when IM medications are requested in the OR, **the nurse has to walk across L&D to retrieve them since the Pyxis machine closest to the operating room does not contain the IM uterotonic medications.**

What are some change ideas that might improve this hospital's PPH management?

USE CHANGE CONCEPTS TO THINK ABOUT SOLUTIONS:

- ***Eliminate waste:*** *Move the uterotonics to the Pyxis closest to the OR and facilitate easy access (to avoid extra walking!).*
- ***Reduce variation:*** *Create a protocol and order set that prioritizes first line uterotonic administration early in a PPH.*
- ***Manage time:*** *Bring IM uterotonics to the bedside before delivery so that if additional bleeding occurs, medications are immediately available for administration.*

Let's Make a Change!

You probably already have a sense of what you want to do. Here are some tips to help your intervention succeed:

Keep it focused.

It's easy to get excited once you're ready to implement a plan. Don't forget to keep your SMART aim in mind - proving a small change in one area, and later expanding it, is easier than forcing a large system-wide change.

Prioritize one change area at a time.

Like a good scientific experiment, having only one variable lets you ascertain cause-and-effect. Use your team's insights and background work to set priorities for the goals and interventions.

Don't forget to measure.

This is where process metrics can be especially handy. They can help you see positive systems changes earlier, even if the bigger outcome measures aren't changing yet.

Be Adaptable.

Change won't happen overnight, and your first intervention may not be perfect. Embrace the PDSA cycle.

CREATE YOUR CHANGE

Problem	Concept	Change Idea
Uterotonic meds need an EMR order before they can be brought to a PPH.	Manage Time	IM uterotonics in a mobile "hemorrhage response kit" so they are immediately available for response.
What problem are you tackling?	*On what change concept category are you focusing?*	*What is the change for this problem?*

Checks for Your Change:

- [ ] Is this change focused and assessing a single variable?

  Yes -- hemorrhage response med kits as our first change.

- [ ] Is this change measurable? How are you going to measure change?

  Yes -- measure time to first uterotonic admin at time of PPH.

- [ ] Does this change have support from my team and staff? Does it promote health equity?

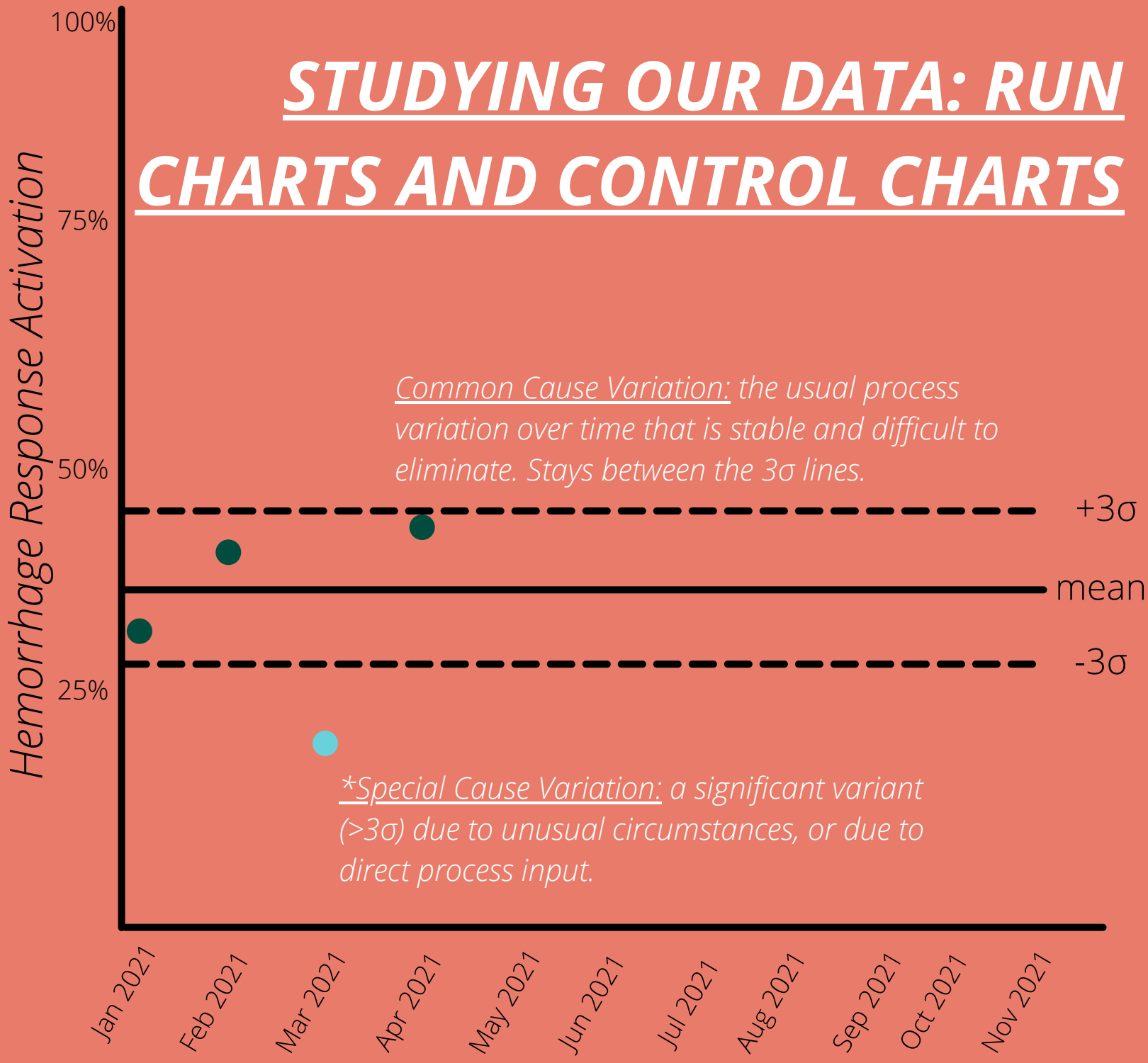
  Assess -- meet with team; staff education prior to implementation; refine with feedback.

- [ ] Are there any obstacles foreseen to implementation?

  Assess -- kit location; med refrigeration; usability; safety checks. Test and refine with feedback, simulation.

More on this: SMFM Primer: Using & Interpreting Metrics

STUDYING OUR DATA: RUN CHARTS AND CONTROL CHARTS



RUN CHARTS

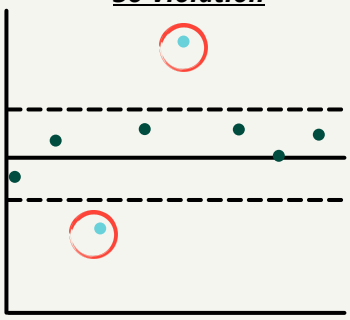
Plot your metric over time, comparing to historical mean.

CONTROL CHARTS

Also plot the metric over time, but include an upper and lower control limit (generally "3σ" or 3SD from the mean).

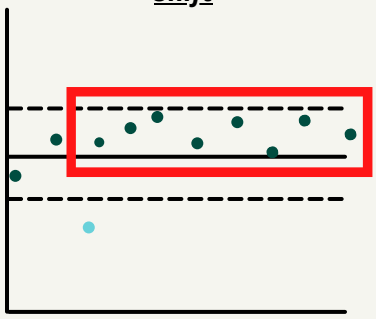
RULES OF THE CONTROL CHART

3σ Violation



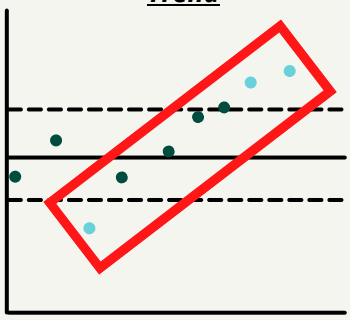
A single point outside control limits.

Shift



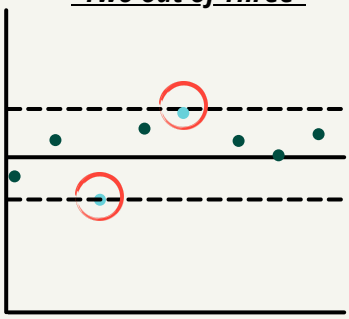
Six or more consecutive points above/below the mean.

Trend



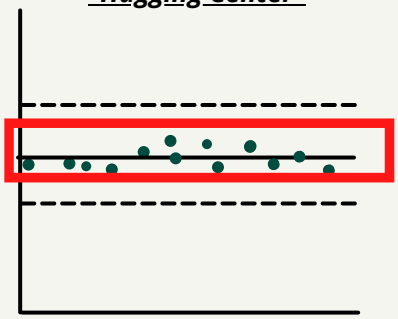
Six or more consecutive points increasing/decreasing.

"Two out of Three"



Two out of three consecutive points near a control limit ("outer 1/3").

"Hugging Center"



Fifteen consecutive points near the mean ("inner 1/3").

These Rules Identify Special-Cause Variation Patterns

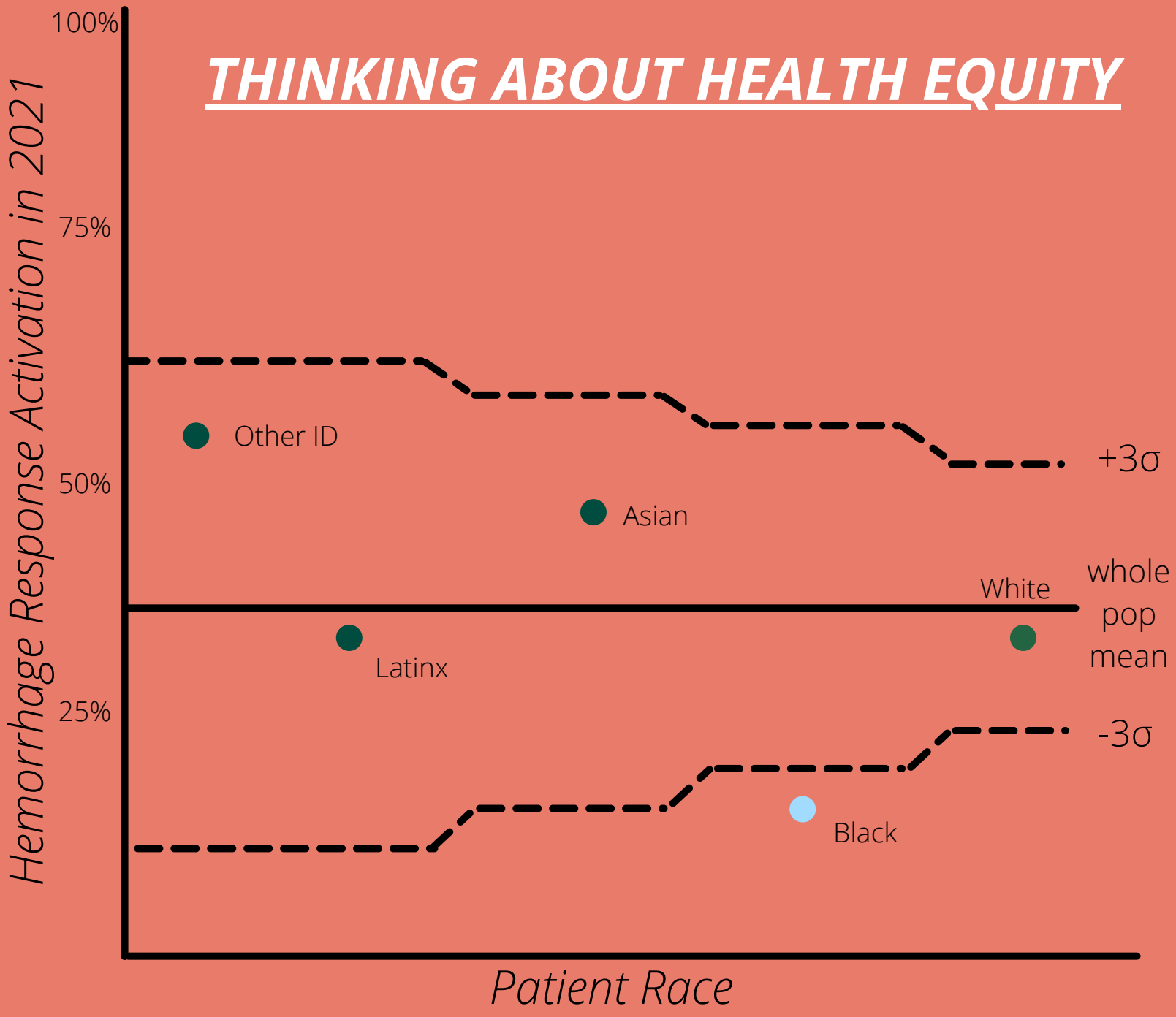
Think of these rules like you might statistical significance:

- A point outside of the 3σ control limits is akin to a point beyond 3 SD from average - the 99.7%ile.
- In a random process, there is 50% chance a point ends up either above or below the median.
  - For a *shift*, if that happens 6 times in a row (0.5^6), that equates to p = 0.015.
  - For a *trend*, the point of reference is the cycle before. So to end up trending 5x in a row (0.5^5) is akin to p=0.031.
- For more: search "*Nelson's rules*."

Additional Stars for Success:

- *Review potential causes of special cause variation with run-in time/data before starting an intervention.*
- *Annotate your charts with various stages of your intervention.*
- *Use these to motivate your team! Post them in breakrooms or in newsletters to show progress as it's being made.*

THINKING ABOUT HEALTH EQUITY



Pivot charts are able to compare QI outcomes in different groups across the same period of time. They are helpful in identifying special cause variation between groups.

Two pivot charts comparing two different points in time (*i.e., before-and-after*) are helpful to visualize impact of changes on specific groups. These groups can be patient-focused (i.e., race/ethnicity, specific comorbidities) or provider-focused (i.e., individual's metrics, choice of medication, etc).

Your project isn't yielding the expected results, or any results at all! What should you do?

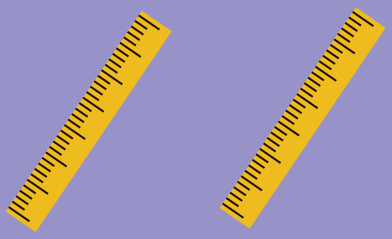
STRATEGIES FOR TROUBLESHOOTING

CHECK YOUR AIM

Is it SMART? Does your aim need to be refined after some pilot testing? Was this really what needed to be addressed right now? Remember - small, quick wins will add up to big wins in time!

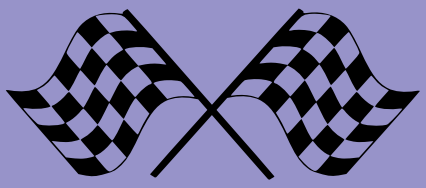
MEASURE TWICE

Check your data. Are you measuring your outcomes correctly? Are there discrepancies in how things are defined? Is it too complicated to measure and needs a simpler approach?



BASELINE DATA

Do you know where you started from? It's hard to see if you're making an improvement if you don't know where you started!

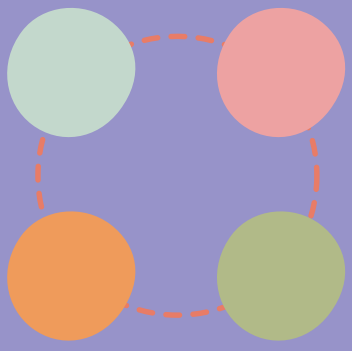


ROOT CAUSE ANALYSIS

Review your drawing board. Perhaps by looking at these new cases more closely, you identify new issues that belong on your fishbone diagram, or that should take higher priority. Do a thorough analysis of cases to understand if you're addressing the true issue at play.

IMPLEMENTATION

Were there any issues with roll-out? Perhaps the idea is good, but the process doesn't work for staff. Or perhaps additional training is needed to address a process or knowledge gap. Be on the ground when something is rolling out -- and take feedback into consideration!



Publishing QI

Do I need an IRB?

- Maybe...
- If testing a hypothesis of a best practice -- yes! This is research.
- If we are implementing an established best practice -- not necessarily!
- Check with your institution re: any QI-specific IRBs in existence and specific requirements for publication.s

Who publishes QI?

- Many specialty and general interest medical journals are interested in QI work.
- There are also QI-focused publications such as *American Journal of Medical Quality; BMJ Quality and Safety; Implementation Science;* and *Quality Management in Health Care*.

Why publish QI?

- **QI work is patient-centered.** You are improving practice and implementing strategies at a local level.
- **QI work is practical.** You can help others tackle similar problems at their own institutions.
- **QI work is innovative.** It's one thing to have the controlled environment of an RCT. It's another to get replicable results in the "real world" outside the trial!

How do I write up QI?

- Follow SQUIRE 2.0 guidelines (www.squire-statement.org).
- Your SMART Aim should be clear and functions as your "hypothesis" in an introduction section.
- Your methods section is VERY important - include context of your environment and details of implementation.
- Why did you choose your intervention? Be clear in describing why your solution is hypothesized to solve your problem.
- Keep good notes as your PDSA cycles roll on! *It's hard to remember when you made changes if you didn't keep contemporaneous notes!*

QI is now an ABOG-approved thesis category! More info www.abog.org/subspecialty-certification/thesis-guidelines

More practical publishing tips: *Wong B, Sullivan G. How to Write Up Your Quality Improvement Initiatives for Publication. J Grad Med Education. 2016;8(2): 128-133. DOI:10.4300/JGME-D-16-00086.1*

Sustaining QI

Just like your garden, QI efforts need sustained attention to continue. How can your project be set up for the long term?

Who waters while you're away?

If you're graduating and leaving your institution, you'll need to determine who takes charge, and how the team structure will look after you depart! Lean in to your mentors to help.

How will we know our plant is thriving?

Set up formal programs to prepare people to continue to focus on improving. Foster the culture of improvement by demonstrating the progress you've made already. Continue to measure and share data.

What if the plant food needs to change?

Think about who needs to be alerted and what needs to be investigated should some special cause variation be identified. How will that communication come about to ensure timely follow up and adaptation?

Can I automate watering?

What can you do now to hardwire changes -- that is, ensure your system is functioning and is the default mode of work, as opposed to a new process. Similarly, are there process improvements that can be made now to minimize effort exerted by those who are involved in the basics of the process?