



UNIT-BASED PATIENT SAFETY AND QUALITY IMPROVEMENT TOOLKIT

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Introduction

EQIC's priority is to reduce hospital-acquired conditions, infections and readmissions. This is accomplished by implementing evidence-based best practices and a multifaceted approach to quality improvement.

Key to the success of these efforts is leveraging the knowledge of frontline staff to inform change at the unit level. Engaging frontline staff in QI efforts enables hospital leaders to develop sustainable change and ensure harm prevention strategies are performed for every patient, every time.

This toolkit reviews suggested strategies to engage frontline staff in QI efforts and develop a culture of safety through a unit-based approach.

UNIT-BASED SAFETY APPROACH

The UBS approach, a process for interactive learning and bringing care improvement to the bedside, is characterized by:

- awareness and involvement of staff in improvement processes;
- identification and implementation of standardized care processes to ensure reliable adherence to best practices (e.g., bedside and leadership rounds or patient safety checklists);
- education and development that ensures staff have up-to-date knowledge of evidence-based interventions and the science of safety principles; and
- an organizational structure that supports the transition to a unit-level safety culture where staff seek to improve patient care and the work environment, readily and transparently share feedback and are engaged in improvement activities to achieve unit-based excellence.

Applying the UBS approach supports hospitals' efforts to:

- convene unit-based teams to collaboratively solve problems, improve performance and enhance the quality of measurable results;
- support unit-level leaders to coach team members to perform to the best of their abilities; and
- create dynamic leadership-staff partnerships to promote collaboration, shared decision-making and accountability for improving care quality, patient safety and staff satisfaction.

This toolkit contains a broad range of tools to support QI at the unit level. Each tool complements existing unit-level resources, education and information-sharing strategies to address harm reduction.

Who should use the toolkit?

Unit-level frontline and managerial-level staff who are leading a QI initiative.

THE CULTURE OF QUALITY

An organization's culture embodies the core values, guiding principles, behaviors and attitudes that collectively contribute to daily operations, thus driving the policies, practices and processes used to accomplish work. Culture matures over many years as norms are passed from one generation of staff to the next. As a result, shifting an organization's culture requires commitment and deliberate management of the change process from the top down.

When an organizational culture of quality is achieved, all employees — from senior leadership to frontline staff — have infused QI into the way they do business daily. Employees continuously consider how processes can be improved and QI is no longer seen as an additional task but as a frame of mind in which the application of QI is second nature. The elements that will be palpable in the environment are:

- commitment;
- infrastructure;
- empowerment;
- customer focus;
- teamwork;
- collaboration; and
- continuous improvement.

While a number of approaches can be found in an organizational culture of quality, the most notable are Lean, high reliability and the tracer methodology. These approaches were designed to be used across the entire organization and require leadership support and significant resources for effective implementation.

Lean management

Lean management principles, which began as Toyota's production system model, have been successfully applied to healthcare delivery. Lean philosophy aims to reduce waste so that all work addresses value and serves patients' needs.

For Lean principles to take root, leaders must create a culture receptive to Lean thinking, starting at the top of the organization. All staff — especially frontline staff — should be involved in helping redesign processes to improve flow and reduce waste. Lean management requires extensive education and fundamental changes to how an organization operates.

Lean experts note that the only sustainable process is one in which the participants believe. The best way to create belief in a process is for all participants to contribute their experiences and be able to see the process in its entirety. To create this shared understanding, Lean teams conduct a four- to five-day intensive session, known as a Kaizen event, focused on analyzing current processes and identifying opportunities for improvement.

High-reliability organizations

The concept of high reliability — or concepts for consistent performance at high levels of safety over long periods of time — originated in the high-risk nuclear and aviation industries. These concepts have been applied to healthcare to create an organization that proactively identifies risks and implements practices to reduce harm. A goal of "zero harm" is often a component of implementing high reliability.

To be effective, HRO implementation requires commitment at all levels. Extensive training is required, as are changes across the organization including leadership practices, organizational priorities and culture. The concept of high reliability can be summarized as changing mindsets from "How can I succeed?" to "How can I never fail?"

Tracer methodology

The Joint Commission includes the tracer methodology as a component of its onsite survey process. A tracer is designed to use hospital information to follow the experience of care or treatment for numerous patients through the organization's care delivery process. TJC uses three types of tracers:

- individual tracers focus on a select number of patients;
- system tracers examine systems of care, including data management, infection control and medication, based on reviews of individual tracers; and
- specific tracers evaluate risk points and safety concerns within different types and levels of care.

The tracer methodology can be adapted and used to continuously examine a hospital's care processes and is not limited to use within TJC's survey. Tracer results may help identify priority areas for improvement activities.

PLANNING YOUR QI PROJECT

Every QI project needs foundational elements to succeed, including:

- executive leadership support;
- clinical leaders;
- unit-based champions;
- a team or person to oversee the project;
- organizational readiness;
- a project plan;
- measures and goals;
- data; and
- resources.

Selecting your team

Each quality initiative should have a dedicated team of individuals with defined roles who are responsible for planning, implementing and measuring results. The team should be comprised of individuals interested in the improvement subject who will work well together and can contribute subject-specific expertise. Team members' roles should include:

- executive sponsor(s);
- clinical leaders;
- unit-based champions;
- day-to-day leaders; and
- technical experts.

Unit-level QI benefits from the input of individuals who work with the processes every day. Participation by various stakeholders ensures that many viewpoints are given and that new ideas are available for the team to consider.

RESOURCES:

- [*Science of improvement: Forming the team – IHI*](#)
- [*Appoint a safety champion for every unit – IHI*](#)



TIPS:

In addition to the types of members included in unit-based teams, consider the following:

- Teams should be limited in size, with five to eight members being ideal.
- Each team member should be supported by their supervisor in terms of time commitment.
- Diverse team members will benefit the group's work (i.e., including members from multiple disciplines and those without direct patient care responsibilities, such as environmental services and transport).
- Team members should receive QI training when needed.
- Team members should understand and periodically discuss their roles to serve colleagues not represented on the team and inform all stakeholders of the team's work.
- Each team member should report on their progress as a standing agenda item during routine meetings.
- Team members should endeavor to attend all meetings and should not send a representative in their stead unless preapproved by the team. Substituting team members will slow the team's work.

Information gathering and gauging readiness

Once the team is formed, begin gathering information. Having a thorough history of performance and previous improvement attempts is important for success. The questions below can help develop historical knowledge.

Don't forget to engage frontline staff in information gathering. Frontline staff integrate their experiences and knowledge into the implementation of QI interventions to promote buy-in, ensure the sustainability of changes and contribute to culture change.

Questions to ask at the beginning of the initiative

Conducting research at the beginning of a QI project provides a historical and complete perspective of what has been trialed previously, why it succeeded or failed and how staff responded to it. Questions the team should ask include:

- When was the last *[insert targeted healthcare-acquired condition]*?
- Do we know what caused the *[insert targeted HAC]*?
- What methods to address *[insert targeted HAC]* have been successful to date?
- Were there previous efforts to address *[insert targeted HAC]*? If yes, what aspects of that initiative were successful, what didn't work and why?
- What data have been shared with unit staff on *[insert targeted HAC]* rates?
- How can leadership help ensure that this initiative is successful?

← RESOURCE:

- [Learn from defects tool – AHRQ](#)

Brainstorming

Once you have a baseline assessment of the work ahead, begin to brainstorm. Brainstorming with your group establishes a framework and ground rules to facilitate the generation of a high volume of ideas by creating an atmosphere free of criticism and judgment.

Brainstorming should be used whenever the team is attempting to identify new approaches or concepts. When a team is stuck in the "same old way" of thinking, for example, brainstorming can help motivate team members, generate enthusiasm, get input from each team member and build on one another's creativity. The team can brainstorm when it is ready to identify potential process changes or ways to spread improvements.



TIP:

Remember to include feedback and ideas from team members from all shifts (night shift, day shift and weekend staff).

← RESOURCE:

- [Brainstorming tool – IHI](#)

Harnessing technology for QI

Leveraging technology can be a powerful tool to aid QI work. Effective use of technology provides QI staff with reliable and timely data, thus informing priorities. Examples of how technology resources can be integrated into QI work include:

- electronic medical records:
 - clinical decision support,
 - alert warning systems,
 - surveillance reporting, and
 - standardizing order sets and protocols;
- reporting and analytics platforms;
- patient engagement tools (e.g., patient portals);
- infection control support and monitoring (e.g., hand hygiene monitoring, terminal room cleaning); and
- patient safety (e.g., safety alarms, video monitoring, wearable technology).

While technology use can be an asset to drive QI efforts, implementing any new tool also requires planning and careful consideration of data security and patient privacy.

Patient and care partner engagement in QI work

Beyond the internal hospital team, QI teams should attempt to identify opportunities to engage patients, families and caregivers in designing the intervention, gathering ideas for opportunities for improvement and assessing the initiative's progress. Once identified, these opportunities can then be added to the initiative's action plan.

The Agency for Healthcare Research and Quality defines patient, family and care partner engagement as “a set of behaviors by patients, family members and health professionals and a set of organizational policies and procedures that foster both the inclusion of patients and family members as active members of the healthcare team and collaborative partnerships with providers and provider organizations.”

Examples of such strategies include:

- helping design and test new processes or protocols to reduce HACs and readmissions;
- including patient-centered concepts to meaningfully engage patients and care partners in education for physicians-in-training and staff orientation curriculum; and
- incorporating patient-centered care practices for preventing HACs and readmissions.

Using patient stories in QI

Improvement and innovation activities aim to enhance services so patients move smoothly through a coordinated system to ensure they receive high-quality care. This involves looking at different ways to provide services around patients' needs and preferences rather than the needs and preferences of services. The goal is to enhance the patient experience by improving the delivery, quality and flow of care.

Collecting patient stories is an important component in understanding how patients perceived the healthcare they received and how hospitals can improve service delivery. Stories can be used to:

- examine aspects of the patient journey through data collection for a clinical service;
- understand the whole patient experience to assist staff through education and reflection; and
- support the need for and/or the impact of a service improvement or innovation project relative to a patient's experience and whether improvements have been sustained over time.

Using patient stories for change involves interviewing patients directly to gather their insights related to the service received. Although satisfaction surveys have been collected and analyzed for many years, patient stories build on the survey information by allowing patients to give the qualitative insights needed for service improvement projects.

← RESOURCE:

- [*Guide to Patient and Family Engagement in Hospital Quality and Safety – AHRQ*](#)

Organizational readiness

Organizational readiness is a change management concept that refers to staff and patient receptiveness to accept change and the organization's capacity to implement change, which may be key to determining an intervention's long-term success.

Though the potential benefits of implementing an intervention may be obvious, an organization or unit may need more time to prepare or put processes in place to optimize the success and hardwiring of innovative practices.

A readiness assessment helps staff identify and plan for potential barriers to the initiative's success by exploring key stakeholders' concerns, leadership support and other structural or process changes that may be needed but may not be immediately obvious without performing an assessment.



TIP:

As part of the readiness assessment, consult frontline staff for their input on potential approaches to implementing the intervention. Some staff may be concerned about how a change could affect them, so teams should prepare for questions.

RESOURCE:

- [Module III: Can We Do It Here? – AHRQ](#)

Improvement capability self-assessment

Another option to assess improvement capability is the Institute for Healthcare Improvement's Improvement Capability Self-Assessment Tool, which an organization can use periodically to determine its progress in the improvement journey. This tool is helpful to organizations interested in:

- stimulating discussion about strengths and areas for improvement;
- understanding the organization's improvement capability; and
- reflecting on and evaluating specific improvement projects.

RESOURCE:

- [Improvement Capability Self-Assessment Tool - IHI](#)

GETTING STARTED: HOW TO IMPROVE

After you have completed your background research and discussed barriers/challenges and potential solutions with the team, it is time to get to work! Staying organized and having specific goals and data will help to measure change. This chapter outlines the steps to beginning your QI project.

Action planning tool

An action plan is a statement of steps needed to achieve a particular goal or objective. The action planning tool provides project teams with systematic guidance to develop, implement and track plans targeted at specific tasks that need to be completed and determine which resources are needed to reach the goals. The team can use the action planning tool to identify specific actions to accomplish, the timeline for completion and the individuals responsible for each action.

Steps to complete an action plan:

- Identify change process leaders and stakeholders.
- Develop an aim statement (refer to the [IHI improvement tool](#) for details).
- Using the aim statement, identify individual team members involved in frontline patient care and developing and approving internal policies and protocols.
- Identify process changes and key strategies and steps (tasks) required to accomplish them.
- Identify the resources and team members needed to complete the steps.
- Include the completion date by which changes/best practices will be implemented.
- Identify measures to track the impact of changes on achieving the aim.
- Identify the target audience.

Once the above have been identified, teams can start to fill in the tool. A sample tool is displayed here on page 8.

Selecting QI measures

Measures should be selected at the beginning of any QI initiative to help teams determine the initiative's progress and success over time. Measures also can be chosen any time teams identify an issue affecting the success of the initiative that needs to be monitored.

Measures help teams to:

- assess whether the interventions implemented are having the desired impact;
- make adjustments to increase adherence to and the success of implemented interventions and see how the adjustments impact the desired outcomes; and
- monitor and document the successful performance and sustainability of implemented interventions.

Measure types

When selecting measures, include different types in the QI plan. The following are the most important measure types for a unit-based QI team:

- **Process measures:** Are the parts/steps in the system performing as planned? Are efforts to improve the system on track?
- **Outcome measures:** How does the system impact the values of patients, their health and well-being? What are the impacts on other stakeholders such as payers, employees or the community?
- **Balancing measures (looking at a system from different directions/dimensions):** Are changes to improve one part of the system causing new problems elsewhere in the system (i.e., creating unintended consequences)?

← RESOURCES:

- [Science of Improvement: Establishing Measures – IHI](#)
- [Science of Improvement: Tips for Effective Measures – IHI](#)

ACTION PLANNING TOOL

Initiative

Hospital

Administrative champion

Team lead

Lead physician

Nurse lead

Data lead

Other team member(s)

AIM Statement:

Consider each process change or key strategy below and complete the worksheet components for implementing them. Add other strategies as appropriate for your hospital.

1	2	3	4	5	6
Process Change/ Key Strategy	List Next Steps (How will you implement process change/ key strategy?)	Resources/ Stakeholders Available/Needed? (Which departments and staff will be involved?)	Owner(s)	Completion Date (If not in place)	Measurement Strategy (What data will be used to monitor progress/track the impact of changes?)

DATA COLLECTION AND REPORTING

Standardizing the process

A well-documented, standardized data collection plan is essential to the successful start of a QI project. At a minimum, teams should establish who will collect the data for the measures, what methodology will be used to collect the data (so that others can reliably reproduce the data) and when the data should be collected. Documenting the data collection procedure for each measure ensures reliable and reproducible data over time to better assess “real” changes in performance rather than any variability caused by who is collecting the data.

Displaying and sharing QI data

Once the measures have been selected, data collection frequency and how and when the team will monitor the data need to be decided. Teams should also determine how to display the data (i.e., in a run chart or table) and how to disseminate the results to staff. See sample charts on the next few pages.

Once the measures to track and collect data have been decided, the team will choose a standardized format to display and share the data to identify trends and assess performance.

← RESOURCES:

- [*The 7 Basic Quality Tools for Process Improvement* – ASQ](#)
- [*Which chart or graph is right for you?* – Tableau](#)
- [*Improving the Visual Display of Data* – IHI](#)



TIPS:

Data can be presented in many formats, each of which has advantages and disadvantages. Regardless of format, the presentation should:

- be easy to understand;
- be concise (choose the best way to summarize the data);
- be tailored to the needs of the audience;
- tell a story (what does the data say?); and
- emphasize comparisons, changes and patterns. What story is being conveyed? Can the data be used to motivate others?

QUALITY IMPROVEMENT TOOLS

After reviewing your data, you can determine the next steps for your QI project using [the curated set of tools](#) featured at the end of this toolkit. Some scenarios to which these tools can be applied include:

- when you want to quickly test an intervention;
- when interventions have been implemented but the project’s data are still moving in an undesirable direction;
- when it is unclear if changes are resulting in an improvement and more sophisticated ways to analyze and display data are being sought;
- when significant improvement has been achieved but the goal is to reach the “100th percentile;” or
- when outcomes exceeded the goal but a new decline in performance is realized.

SAMPLE CHARTS

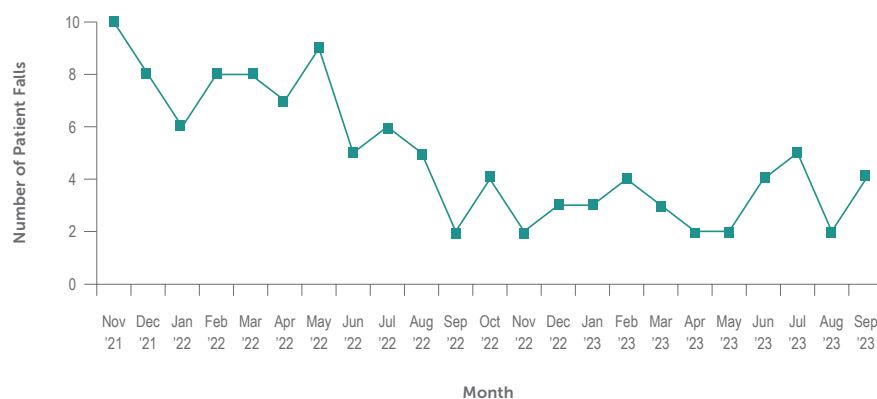
Run charts

The run chart is the most common method of displaying quality performance data over time. However, there are various data displays described below that may be useful.

RESOURCE

- [QI Essentials Toolkit: Run Chart and Control Chart – IHI](#)

SAMPLE RUN CHART



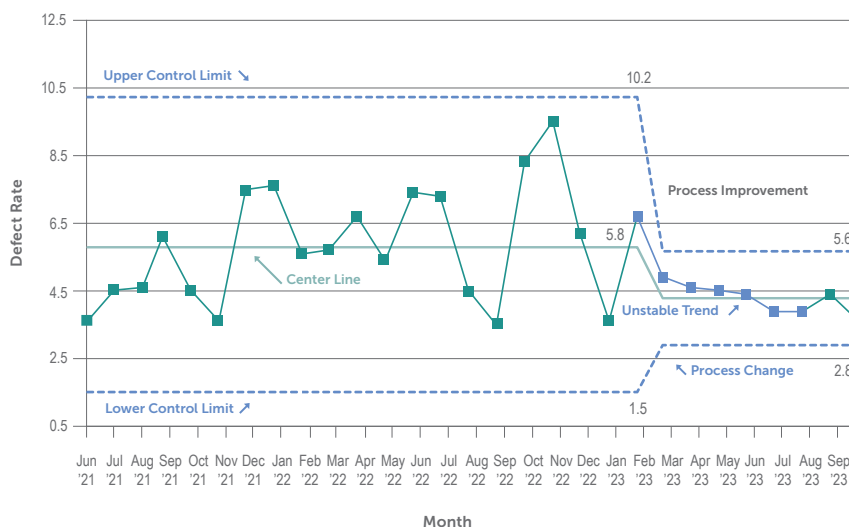
Control charts

A control chart is similar to a run chart in that it shows how data change over time, but it also includes statistically calculated upper and lower control limits to help teams distinguish between common and special causes of variation within a process. Control charts identify special cause variation to help staff track progress and monitor a process to ensure sustained performance from a QI effort.

RESOURCES

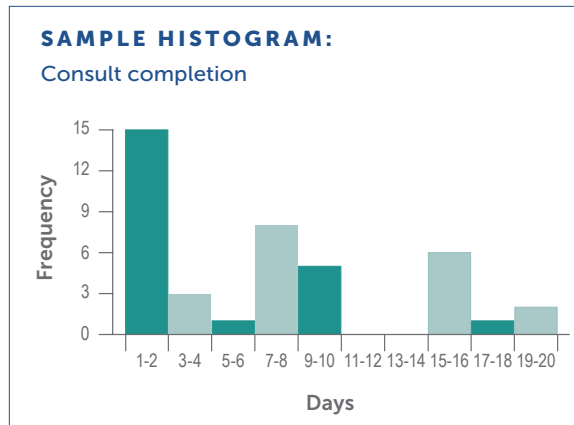
- [QI Essentials Toolkit: Run Chart and Control Chart – IHI](#)
- [Statistical Process Control – AHRQ](#)

ANATOMY OF A CONTROL CHART



Histogram

A histogram is a type of bar chart that groups data into ranges and is used to display variation in continuous data such as time, weight or size. A histogram can help a team see a pattern in data that may not be visible in other formats. The team can more easily compare time periods, averages and medians, and see changes over time.

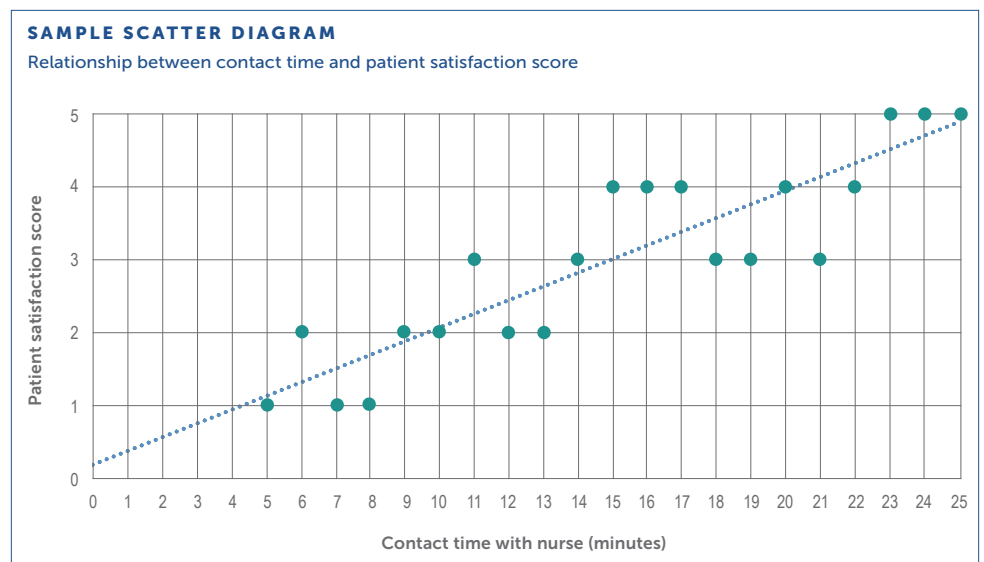


RESOURCES

- [QI Essentials Toolkit: Histogram – IHI](#)
- [Histogram – AHRQ](#)

Scatter diagram

A scatter diagram or scatter plot is a graph that shows the relationship between two variables. One variable is displayed on an x-axis, the other on a y-axis. The scatter diagram is used to determine whether a cause-and-effect relationship exists between two variables. It can also be used to illustrate the impact that changing one variable has on a related variable.



RESOURCES

- [QI Essentials Toolkit: Scatter Diagram – IHI](#)
- [Scatter Diagram – AHRQ](#)

Pareto chart

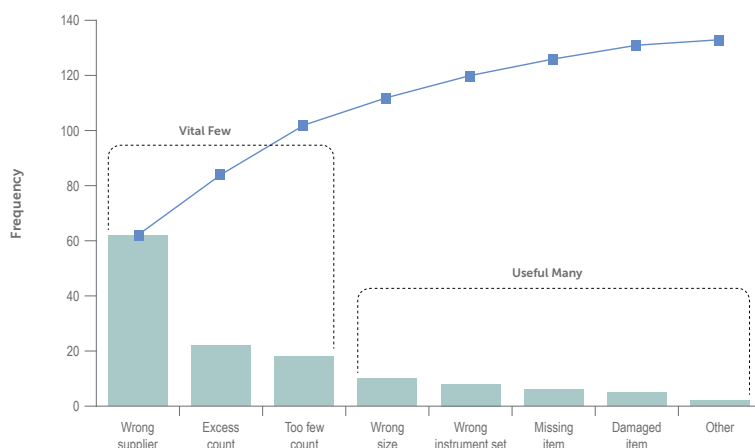
A Pareto chart is a type of bar chart in which factors that contribute to an overall effect are arranged based on the size of their contribution, from largest to smallest. At the beginning of an initiative, a Pareto chart can help teams concentrate their improvement efforts on the factors that have the greatest impact. Once the selected causes are resolved, teams should consider creating a new chart to identify new priorities.

RESOURCES

- [QI Essentials Toolkit: Pareto Chart – IHI](#)
- [Pareto Chart – AHRQ](#)

SAMPLE PARETO CHART:

Causes for operating room start time delays



MAINTAINING MOMENTUM AND SUSTAINING CHANGE

Use the tools in this section to maintain the QI project's momentum, ensuring the implemented interventions are hardwired into practice on the unit. Follow the guidance to spread improvements that worked well on one unit to other units at the organizational level.

Holding regular QI team meetings

The QI team meeting is an opportunity to plan the initiative, allow each team member to report on their role-specific activities, review the progress of the initiative and update the action plan. Have a regular standing agenda and updated data to review at each meeting.

← RESOURCE

- [QI Project Management – IHI](#)

Sustainability checklist

Sustainability refers to locking in progress that has been made and continually building upon it. A sustainability checklist includes prompts to:

- identify a process owner;
- establish key leadership for support and buy-in, tool assessment and development;
- monitor results; and
- identify and communicate project milestones to celebrate the team's successes.

Teams should complete the sustainability checklist before implementing a new intervention and review it periodically. The checklist can also be used once interventions have been successfully trialed and teams are hardwiring them into daily workflow.

Use the checklist to consider ideas that address particular factors, then plan next steps for the team to achieve sustainability. Efforts to achieve sustainability will be more successful if many ideas are implemented. Use the checklist to build on prior success by evaluating ongoing improvement and seeking opportunities for continued improvement and innovation.

← RESOURCE

- [Sustainability Planning Worksheet – IHI](#)

Spreading improvements

According to IHI, spread refers to the process of “actively disseminating best practice and knowledge about every intervention and implementing each intervention in every available care setting.” Spreading innovations and best practices maximizes the initial team's investment and provides the benefit of improved care to a broader group of patients.

When should interventions be spread throughout the organization?

Once the team has tested the change/intervention on a single unit and established that it affects the outcome in the desired direction, the intervention can be spread to other relevant parts of the hospital.

← RESOURCES

- [How-to Guide: Sustainability and Spread – IHI](#)
- [The Seven Spreadly Sins – IHI](#)



TIPS:

As teams prepare to spread an intervention they have successfully trialed, at a minimum, it is important to plan ahead and:

- prepare for spread;
- establish an aim for spread; and
- develop, execute and refine a spread plan.

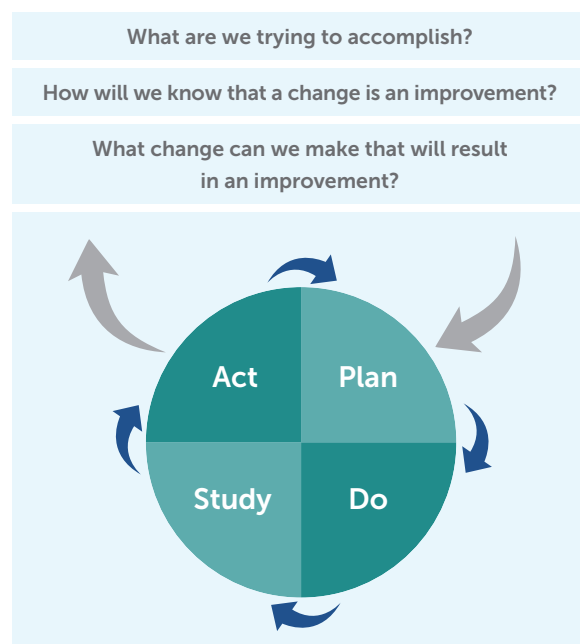
In addition, unit-based teams should try to adopt best practices that have been successful on other units.

TOOLS FOR SUCCESS

Model for Improvement/ Plan-Do-Study-Act Cycles

The gold standard for QI work is IHI's Model for Improvement.

MODEL FOR IMPROVEMENT



The PDSA cycle refers to the process of completing multiple, small tests of change. The cycle consists of four parts:

- **PLAN:** Develop a plan to test the change.
- **DO:** Carry out the test.
- **STUDY:** Observe and learn from the results.
- **ACT:** Identify modifications to the test.

The team can use the Model for Improvement tool to improve a process. The model provides direction on how the team should set the project aim, select measures and changes, and test, implement and spread. The model leads the team through the steps required to achieve improvement results.

After the action plan is created and the desired changes have been determined, teams can use the PDSA worksheet to start planning for small tests of change. The worksheet will guide teams to answer the following questions:

What are we trying to accomplish?

This is the improvement's aim. It should be specific, measurable, assignable, realistic and time-based.

How will we know if a change is an improvement?

When answering this question, the team will identify the measures to be used to track the improvements.

What change can we make that may result in improvement?

This question will lead to the specific process changes that the team plans to test.

EQIC has included the following set of QI tools to use in your projects. You will see sample scenarios in which each of these tools can be used to solve different patient safety problems



TIPS:

When testing new interventions, begin analyzing the process with one patient or event, including how the intervention impacted workflow. Teams can then continue testing and refining changes in a continuous process before expanding to include more patients/events/staff.

Following a PDSA cycle, remember to provide regular feedback to process participants, the rest of the QI team and executive sponsors. When you are confident that the change is producing the desired effects, begin planning to make the change a permanent part of staff workflow, then spread the change to all unit staff and beyond.

RESOURCES:

- [How to Improve – IHI](#)
- [PDSA worksheet – IHI](#)

TOOL: CAUSE AND EFFECT DIAGRAM

What is the tool?

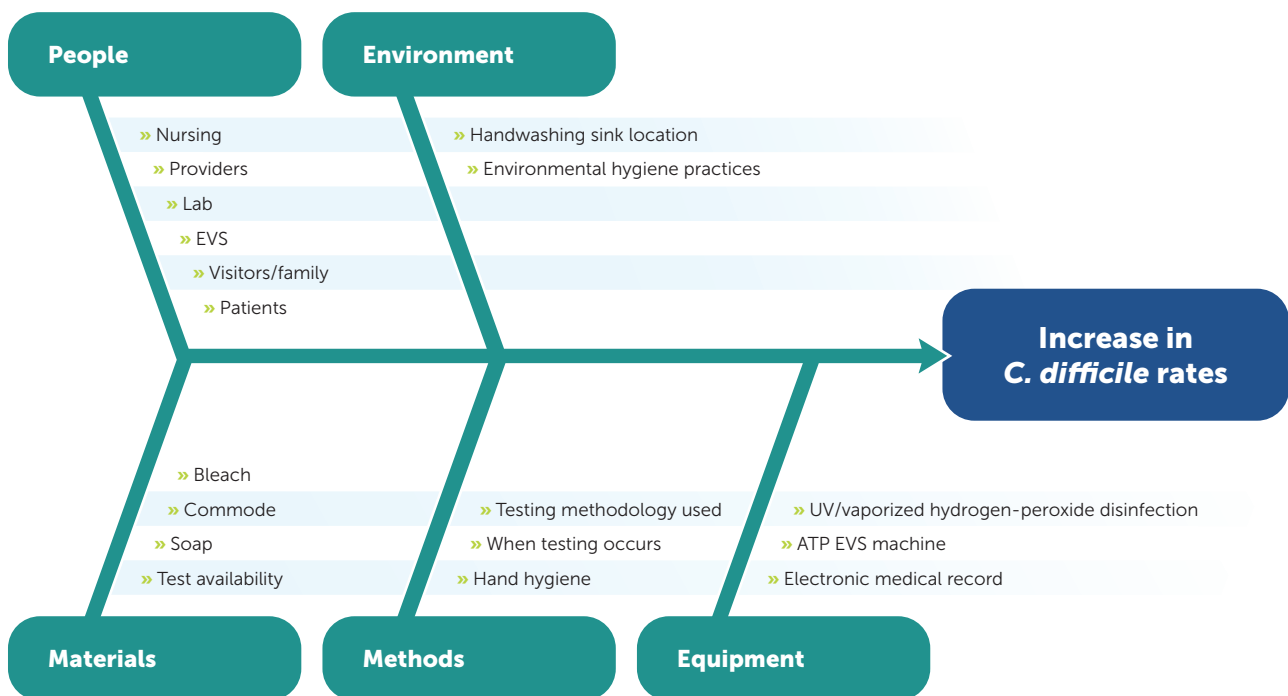
The **Cause and Effect Diagram** is a graphic tool used to explore and display a list of causes associated with a certain effect. The graph organizes the list of causes into categories and is also known as an Ishikawa or “fishbone” diagram.



When should the tool be used?

Teams should use a cause and effect diagram to explore multiple causes that may be contributing to a particular outcome. It can be used for a brainstorming activity and can help identify previously undiscovered areas for improvement. The cause and effect diagram should be constructed by a team comprised of stakeholders who are familiar with the process that produces the effect.

Example: Hospital data show an increase in *C. difficile* rates. A team of stakeholders was assembled to explore the possible causes of the rate increase. Because there were numerous possible causes that were contributing to the increased rate, a cause and effect diagram was used.



REFERENCE:

QI Essentials Toolkit: "[Cause and Effect Diagram.](#)"

TOOL: DRIVER DIAGRAM

What is the tool?

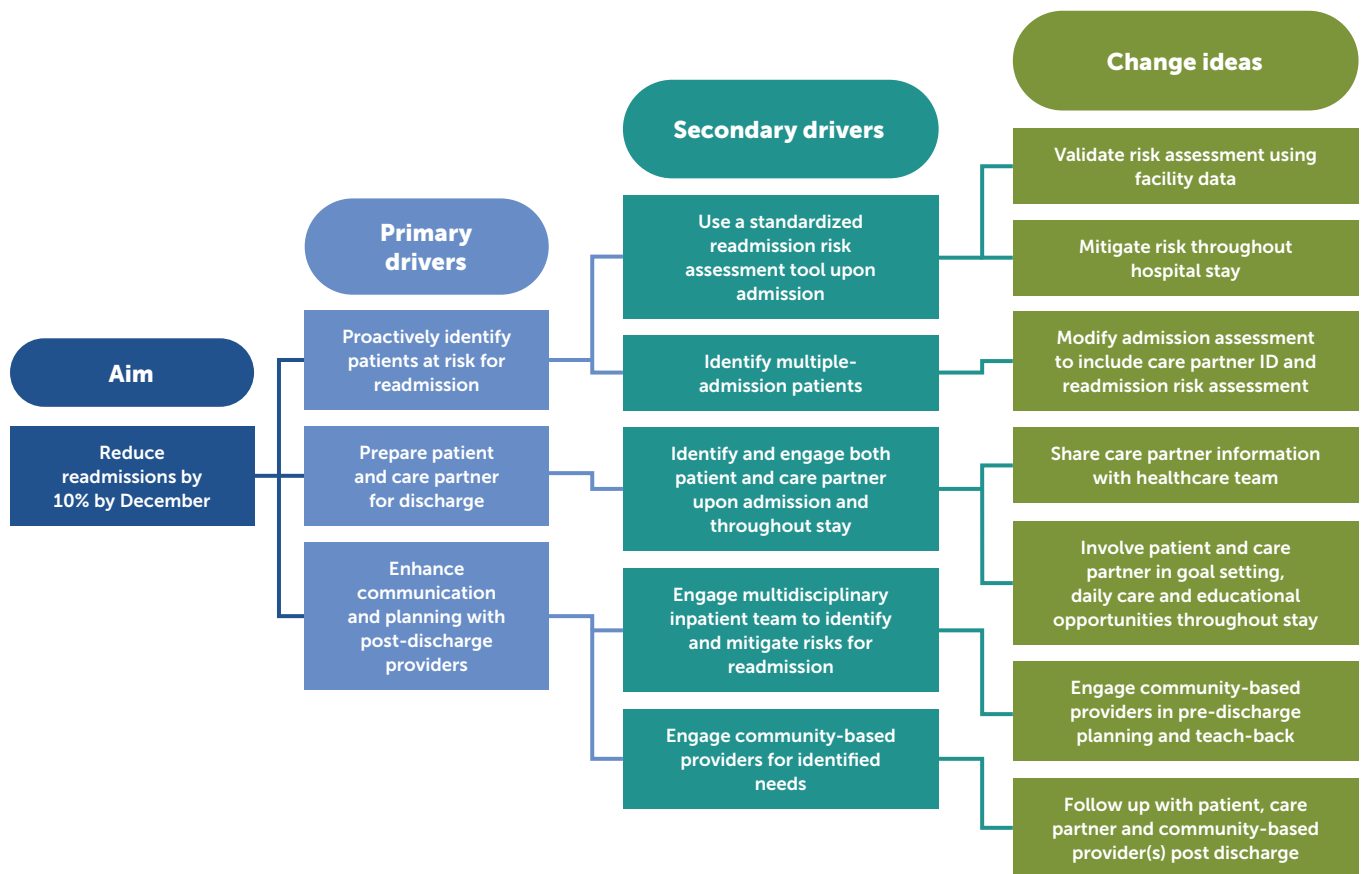
Driver Diagrams are visual displays of what “drives” or contributes to the achievement of a project aim. The diagram breaks down “drivers” of the aim into smaller, secondary drivers and then identifies ideas or solutions to address each smaller driver.



When should the tool be used?

The Driver Diagram can be used to help a team identify priority actions to be taken to achieve a specific aim.

Example: A hospital aims to reduce its readmissions by 10% by December.



REFERENCE:

Institute for Healthcare Improvement. [“Driver Diagram.”](#)

TOOL: FAILURE MODE AND EFFECTS ANALYSIS

What is the tool?

The FMEA Method attempts to identify all possible failures (what might go wrong) in a process and identifies the potential causes and effects of these failures before they occur. The team can then take proactive steps to prevent or minimize process failures.



When should the tool be used?

FMEA can be used during a quality improvement project's planning phase to help identify and prioritize areas for improvement based on a risk calculation.

Example: A hospital is implementing a new medication dispensing process and wants to prevent medication errors.
(Adopted from IHI, referenced below)

Step in process	Potential failure mode	Potential causes of failure	Potential failure effects	Likelihood of occurrence (1-10)	Likelihood of detection (1-10)	Severity (1-10)	Risk score	Actions to reduce occurrence of failure
Orders are written for new medications.	The first dose may be given prior to the pharmacist's review of the orders.	Medication ordered may be available and easily accessed in the dispensing machine.	Patient may receive incorrect medication, incorrect dose or a dose via an incorrect route.	6	5	5	150	Assign clinical pharmacists to patient care units so that all medication orders can be reviewed as they occur.
Orders are written to discontinue a medication or change the existing order.	Orders are written to discontinue a medication or change the existing order.	All doses needed for a 24-hour period are delivered to the drawer. Multi-dose vials may be kept in the patient-specific drawer. Medications are available in the dispensing machine.	Patient may receive medications that have been discontinued or the incorrect dose of a medication that has been changed.	8	5	8	320	Schedule pick-ups of discontinued medications, including refrigerated medications, twice per day. Use dispensing machine screen to verify all information regarding current and discontinued medications prior to each administration.
Orders are written for a non-standard dose of a medication.	Nursing staff may prepare an incorrect dose when manipulating the medication.	Staff prepare the dose using medications from the dispensing machine and manipulate them to get the dose ordered.	Patient may receive an incorrect dose.	3	5	8	120	Prepare all non-standard doses in the pharmacy and dispense each as a patient-specific unit dose.

REFERENCES:

1. CMS. ["Guidance for Performing Failure Mode and Effects Analysis with Performance Improvement Projects."](#)
2. Institute for Healthcare Improvement. ["Failure Modes and Effects Analysis."](#)

TOOL: FLOWCHART

What is the tool?

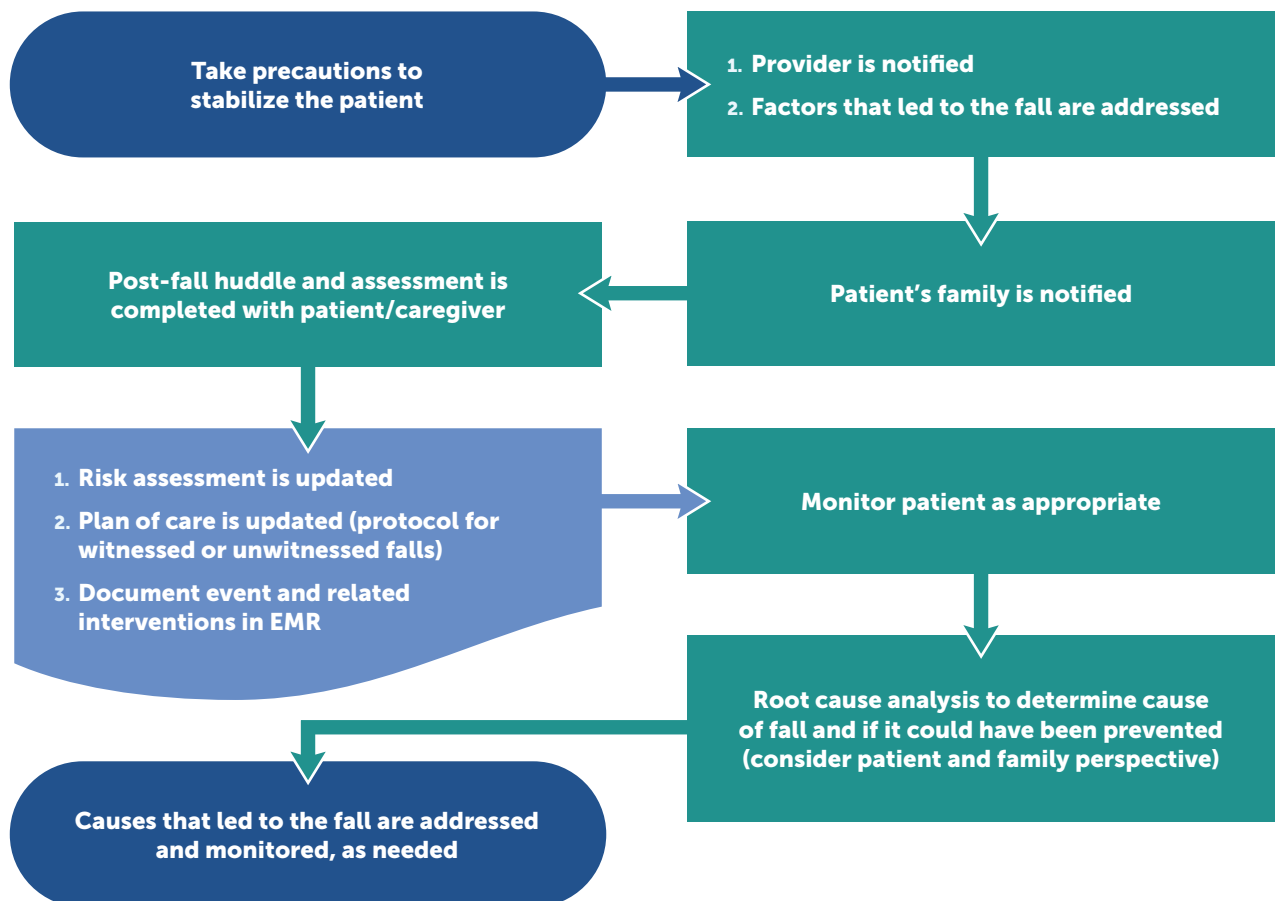
Flowcharts, also known as *process maps*, are used to visually convey the steps in a process.



When should the tool be used?

Flowcharts help teams closely examine and demonstrate workflows to create a shared understanding of how a current process works. Mapping out processes can be particularly helpful to compare and contrast the actual versus the ideal flow and identify activities that can improve performance.

Example: A hospital is mapping out the process to capture the steps that need to be taken after a patient falls.



REFERENCES:

1. Agency for Healthcare Research and Quality. "[Flowchart.](#)"
2. Institute for Healthcare Improvement. "[Flowchart.](#)"

TOOL: PROCESS MAP

What is the tool?

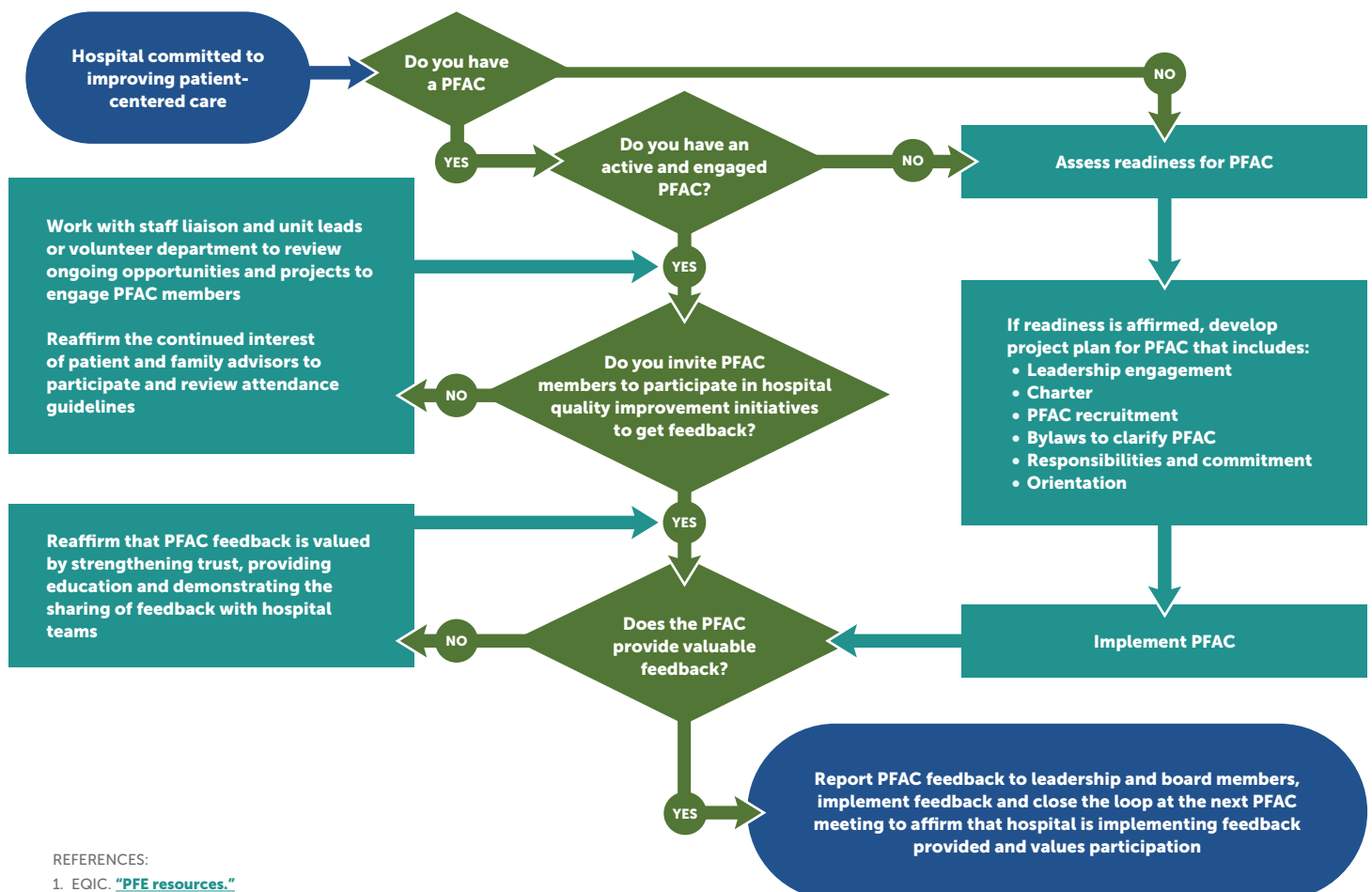
A **Process Map** identifies the steps and decisions of a process in a diagram.



When should the tool be used?

A **Process Map** can be used to brainstorm ideas for process improvement, increase communication and provide process documentation. It is a valuable tool for helping improve efficiency and productivity by visualizing and analyzing workflows to pinpoint bottlenecks, repetitions and delays.

Example: A hospital wants to improve patient-centered care through a patient and family advisory committee. Using a process map guides the team on how to assess readiness for and implement a PFAC, gather patient feedback on their care experiences and then use this feedback in ongoing quality improvement projects.



REFERENCES:

1. EQIC. ["PFE resources."](#)
2. Institute for Healthcare Improvement. ["5 Steps for Creating Value Through Process Mapping and Observation."](#)
3. Six Sigma. ["Process Mapping."](#)

TOOL: ROOT CAUSE ANALYSIS

What is the tool?

Root Cause Analysis is a process for identifying the fundamental causal factor(s) underlying variations in performance. The RCA can include the occurrence or possible occurrence of an event that could lead to patient harm (commonly referred to as a “near miss”) and is most commonly used after an event has occurred.



When should the tool be used?

Following the occurrence or near occurrence of an undesirable event that could result in patient harm, an RCA can uncover contributing factors and help organizations identify opportunities for improvement to deliver safer care.

Example: A 78-year-old male is admitted for coronary artery bypass surgery. The patient developed atrial fibrillation and hypotension after the operation and was treated with vasopressors. His condition stabilized and he began working with a physical therapist who noted an open wound on his sacrum. A skin assessment revealed an eraser-size wound with purple coloring around it. A wound, ostomy and continence nurse was consulted, who described the wound as unstageable and made recommendations.

Best practice		Describe the deviation	Contributing factor
Pressure injury risk (Braden scale) and skin assessments were documented on admission and daily		Assessments were not documented	Inconsistent shift-change handoffs
Patients with impaired sensory perception, mobility and activity as defined by the Braden scale had the following interventions documented: <ul style="list-style-type: none"> • Repositioning q2 hours • Heels off of bed • Appropriate support surfaces (for pressure redistribution) 		Patient's unstable condition and lack of turning led to an unstageable pressure ulcer.	Nursing concern was stabilizing the patient, which led to infrequent head-to-toe skin assessment and repositioning.
Action taken/ to be taken	Person responsible for action plan	Measurement strategy: (Includes methodology, goal, sampling strategy, frequency and duration of measurement. Includes a threshold that will trigger additional analysis and/or action if not achieved.)	Reporting and communication
Staff training/ education on skin assessment and repositioning protocol	Clinical education, unit manager	<ul style="list-style-type: none"> • Educate providers on skin assessment and frequency of assessment. • Identify at-risk patients. • Assess staff understanding; nurse managers or skin champions to review 50% of all charts for compliance for 10 days. • Provide 1:1 and just-in-time training as needed. 	<ul style="list-style-type: none"> • Review in staff meetings. • Share data at QI meetings.
Monitor compliance of best practices	Unit manager, skin champions	<ul style="list-style-type: none"> • Direct observation of all licensed staff to assess application of best practices • Implement turning program; nurse managers or skin champions to review 50% of all charts for compliance for 10 days. • Provide 1:1 and just-in-time training as needed. 	<ul style="list-style-type: none"> • Review in staff meetings. • Share data at QI meetings.

TOOL: VALUE STREAM MAP

What is the tool?

A **Value Stream Map** is a **lean** tool used to visualize and understand the flow of information from start to finish. The tool can map a patient's path to treatment to improve service, reduce delays (i.e., patient wait times) and quantify improvement opportunities.

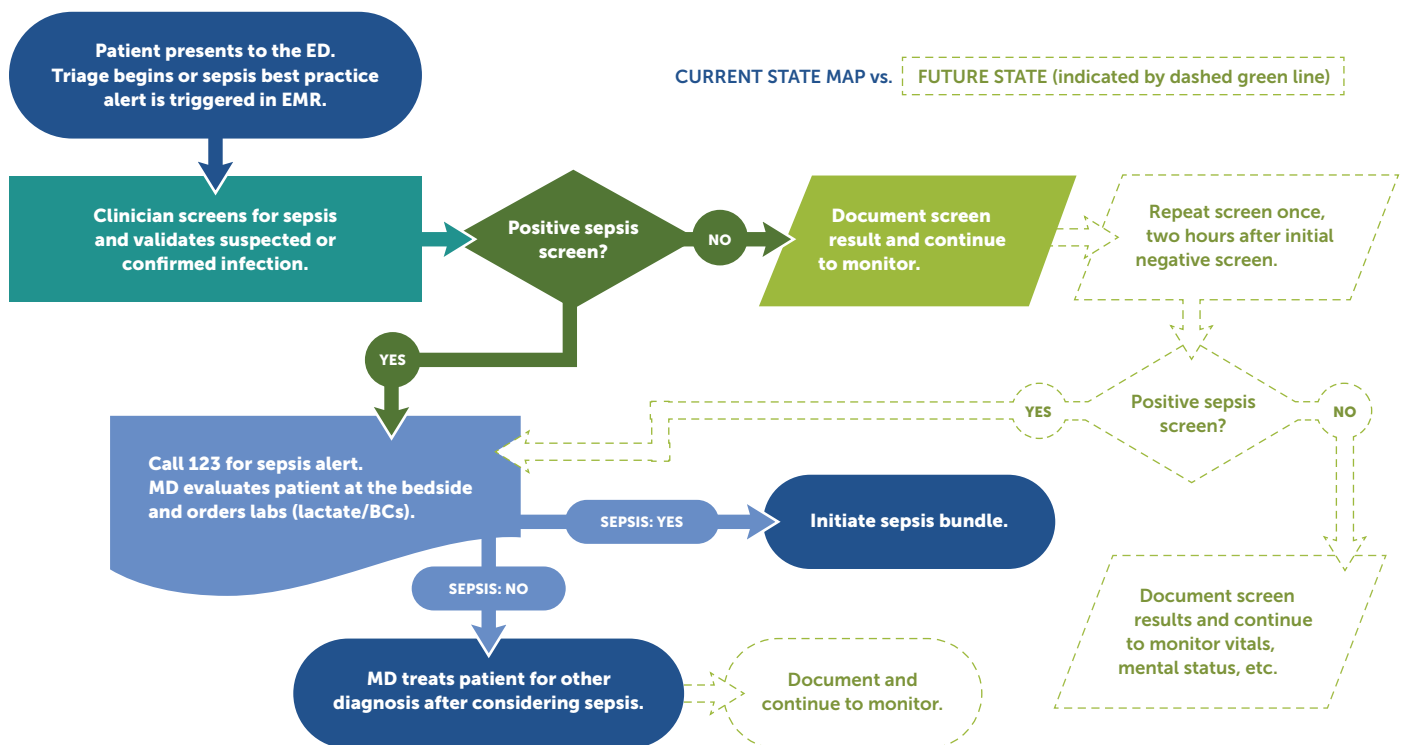


When should the tool be used?

A **value stream map** can be used to:

- » create a current and future (ideal) state that maximizes value and minimizes waste; and
- » facilitate clear communication and collaboration around the flow of information, low value and/or errors.

Example: A hospital lacks a sepsis management protocol to support the early identification and treatment of patients presenting in the emergency department with sepsis, severe sepsis or septic shock. A multidisciplinary task force maps out the current steps that occur once a patient presents to the ED and then updates the process to achieve a more ideal future state.



REFERENCES:

1. Institute for Healthcare Improvement. ["5 Steps for Creating Value Through Process Mapping and Observation."](#)
2. Agency for Healthcare Research and Quality. ["Ways to Approach the Quality Improvement Process."](#) See section 4.C.2. Lean.
3. ASQ. ["What is Value Stream Mapping?"](#)
4. Quality One International. ["Introduction to Value Stream Mapping."](#)
5. Lucidchart. ["Value Stream Mapping Symbols and Icons."](#)

AHRQ

[Health Information Technology Flowchart](#)
[Six Domains of Healthcare Quality](#)

IHI

[Going Lean in Health Care](#) (IHI Innovation Series white paper)
[Idea Generation Tools: Brainstorming, Affinity Grouping and Multivoting](#)
[Improvement Project Roadmap](#)
[Quality Improvement Essentials Toolkit](#)

More Resources

Aha Media Group. [How to Write Patient Stories That Make an Impact](#).

American Hospital Association. [Improving Patient Safety and Healthcare Quality through Health Information Technology](#).

Brassard, M. and Ritter, D. *The Memory Jogger 2: Health Care Edition: A Pocket Guide of Tools for Continuous Improvement and Effective Planning* (GOAL/QPC, 2016).

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The Office of the National Coordinator for Health Information Technology. [Health IT Enabled Quality Improvement: A Vision to Achieve Better Health and Health Care](#).

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This material was prepared by the Healthcare Association of New York State, Inc., a Hospital Quality Improvement Contractor under contract with the Centers for Medicare & Medicaid Services, an agency of the U.S. Department of Health and Human Services. Views expressed in this material do not necessarily reflect the official views or policy of CMS or HHS, and any reference to a specific product or entity herein does not constitute endorsement of that product or entity by CMS or HHS.

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