



# Patient Safety Essentials Toolkit

- Action Hierarchy (part of RCA<sup>2</sup>)
- Ask Me 3<sup>®</sup>
- Cause & Effect Diagram
- Developing Reliable Processes
- 5 Whys
- Flowchart
- FMEA
- Huddles
- SBAR

***IHI's Patient Safety Essentials Toolkit*** is a helpful companion for you and your organization on the journey to delivering safe, reliable care every time, for every patient. Each of the nine tools in the toolkit includes a short description, instructions, an example, and a blank template.

# Upcoming Programs

The Institute for Healthcare Improvement (IHI) is pleased to offer a diverse portfolio of programs to help accelerate measurable and continued progress. Find new ideas, get results in a particular area, or take your organization to a new level. All courses offer continuing education credits.

## Conference

### [IHI Patient Safety Congress](#)

Every May

This annual meeting brings together people who are passionate about ensuring safe care equitably for all across the globe. It is the must-attend event for committed health care professionals who continue to shape smarter, safer care for patients wherever it's provided – from the hospital to outpatient settings to the home.

## In-Person Training

### [Patient Safety Executive Development Program](#)

Every Spring and Fall

Boston, MA

This intensive, week-long program allows those responsible for implementing and maintaining a patient safety program in an organization, hospital, department, or inpatient or outpatient facility at locations across the globe to develop a robust plan for safe and reliable care.

## Certification

### [CPPS: Certified Professional in Patient Safety](#)

More than 2,500 professionals have earned the CPPS credential, representing all 50 US states and 10 countries. It is earned by professionals who have demonstrated a high level of proficiency in the core standards of patient safety. This credential is awarded through a thorough examination covering five patient safety domains and provides a means to demonstrate proficiency and skill in the discipline.

## Membership

### [IHI Patient Safety & Quality Coalition](#)

The IHI Patient Safety & Quality Coalition is a diverse group of stakeholders that share a commitment to the delivery of safe patient care. It is designed to accelerate visibility, opportunity, and thought leadership for solutions providers, vendors, associations, and advocacy groups.

## IHI Open School

### [IHI Open School: Patient Safety Curriculum](#)

The IHI Open School offers more than 30 self-paced, online courses. Through narrative, video, and interactive discussion, the courses create a dynamic learning environment to inspire students and health professionals of all levels. Explore 50+ new videos from leading experts and 200-level modules for health care leaders, both part of the redesigned Patient Safety curriculum.

For more information, see [ihio.org/Education](https://www.ihio.org/Education)



## Patient Safety Essentials Toolkit: Ask Me 3<sup>®</sup>

Ask Me 3<sup>®</sup> is an educational program that encourages patients and families to ask three specific questions of their providers to better understand their health conditions and what they need to do to stay healthy. Providers should plan to discuss each question, and ensure their patient or advocate understands the answers:

1. What is my main problem?
2. What do I need to do?
3. Why is it important for me to do this?

Designed by health literacy experts, Ask Me 3 is intended to help patients become more active members of their health care team and to provide a critical platform to improve communications between patients, families, and health care professionals.

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# Instructions

Encourage your patients or their advocates to ask the three questions when they see a health care provider, prepare for a medical procedure, or receive a medication. Talk to your patients and distribute Ask Me 3 materials at your organization.

You can also help improve communication with patients by taking these steps:

## **Adopt universal precautions.**

Be aware of red-flag behaviors, such as patients failing to complete registration forms or being unable to explain a medication's purpose, which may indicate low health literacy. However, the absence of these cues should not be assumed to mean adequate health literacy.

Most adults struggle with low health literacy at some point in their lives. Use clear communication strategies with all patients, regardless of their apparent health literacy skills.

**Slow down** for better understanding. Remember that patients may not ask you to slow down.

**Limit information and repeat it** to promote retention of critical information. Focus on a few key points.

**Avoid medical jargon.** Use simple, non-medical terms: for example, consider saying “heart” instead of “cardiac,” “harmless” instead of “benign,” and “not a brand name” instead of “generic.”

**Use illustrations** to explain important ideas. Pictures and graphs can reinforce key concepts and actions.

**Use easy-to-read written materials** for all patients.

Use active voice and simple terms.

Break up information with headings, subheadings, and bulleted lists.

**Make visits interactive.** Encourage patients to ask questions throughout the visit, not only at the end.

**Use “teach-back” to gauge comprehension.** Ask the patient to repeat the information shared. If the patient cannot explain what they have been told, assume you have not clearly communicated the information, begin a new explanation of the topic, and then ask the patient to “teach-back” the information again.

**Remind patients they are not alone.** Everyone wants help with health information. Asking questions helps people understand how to stay well or to get better.

## Example: Ask Me 3

Read how Joe Jensen and his daughter, Rose, use the Ask Me 3 questions with Dr. Taylor, or view a [video of the exchange online](#):

- **Dr. Taylor:** Joe, I think your shortness of breath and swelling are caused by congestive heart failure. We need to schedule an echocardiogram to find out what the cause is. The echocardiogram will determine your ejection fraction and if there are any underlying issues with your heart valves. In the meantime, I'm going to start you on a couple of prescription medications for your high blood pressure and for the swelling.
- **Joe Jensen:** Okay.
- **Dr. Taylor:** Do either of you have any questions?
- **Joe Jensen:** So, I have high blood pressure. Is that my main problem?
- **Dr. Taylor:** No, high blood pressure is not your main problem. Your main problem is congestive heart failure. This condition causes your heart to be weaker and have to work harder to pump blood through your body. It can cause swelling in your legs and it can cause shortness of breath.
- **Joe Jensen:** Okay, I think my brother may have the same condition. What do I need to do?
- **Dr. Taylor:** First, before you leave, let's schedule an appointment for your test. After you leave you need to get your two prescriptions filled. And finally, you need to take your Lotensin and Lasix. I'm going to suggest that your daughter write up a schedule for your medications.
- **Rose Jensen:** A written schedule of my father's medications will help. Why is it so important for him to have the test and take these medications?
- **Dr. Taylor:** Those are really good questions. The echocardiogram will hopefully tell us exactly what's causing the heart failure. The test will also help us find out how far along the heart failure is. It's important to take your medications because you're helping your heart not work as hard. The swelling will decrease or disappear, and you're slowing down the disease. Does that help you understand why the test and medications are important?
- **Joe Jensen:** Yes. Yes, I understand. I'll make sure to schedule my test and take my medications.

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## Template: Ask Me 3

[Download Ask Me 3 posters and brochures](#) in English, French, and Spanish for your organization. These materials provide an overview of the Ask Me 3 program and encourage patients to ask their health care providers the three main program questions every time they talk with a health care provider and write down the answers:

1. What is my main problem? \_\_\_\_\_
2. What do I need to do? \_\_\_\_\_
3. Why is it important for me to do this? \_\_\_\_\_

## Resources

CDC (Centers for Disease Control and Prevention). Health Literacy—A Public Health Priority. In: Health Literacy for Public Health Professionals.

<http://www.cdc.gov/healthliteracy/training/page215.html>

HRSA (U.S. Department of Health and Human Services, Health Resources and Services Administration). Health Literacy.

<https://www.hrsa.gov/about/organization/bureaus/ohe/health-literacy/index.html>

The Joint Commission. "What Did the Doctor Say?" *Improving Health Literacy to Protect Patient Safety. A Health Care at the Crossroads Report.*

[http://www.jointcommission.org/What\\_Did\\_the\\_Doctor\\_Say/](http://www.jointcommission.org/What_Did_the_Doctor_Say/)

Koh H, Berwick D, Clancy C, et al. New federal policy initiatives to boost health literacy can help the nation move beyond the cycle of costly "crisis care." *Health Affairs*. 2012;31(2):434–443.

<http://content.healthaffairs.org/content/early/2012/01/18/hlthaff.2011.1169.abstract>

Roter D. Oral literacy demand of health care communication: challenges and solutions. *Nursing Outlook*. 2011;59(2):79–84. <http://www.ncbi.nlm.nih.gov/pubmed/21402203>

U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion. National Action Plan to Improve Health Literacy. Washington, DC. 2010.

U.S. Department of Health and Human Services. Healthy People 2010. Washington, DC: U.S. Government Printing Office. 2000. Originally developed for Ratzan SC, Parker RM. Introduction. In National Library of Medicine Current Bibliographies in Medicine: Health Literacy. Selden CR, Zorn M, Ratzan SC, Parker RM, Editors. NLM Pub. No. CBM 2000-1. Bethesda, MD: National Institutes of Health, U.S. Department of Health and Human Services. 2000.

## Ask Me 3 Materials: Terms and Conditions for Use

### Trademark

Ask Me 3® is a registered trademark licensed to the Institute for Healthcare Improvement.

### Complimentary Materials and Resources Available

IHI provides, through a non-exclusive, non-transferable license, certain Ask Me 3 materials and resources for download and distribution free of charge to aid in the promotion of health communication, including health literacy, and increased patient safety.

We request that individuals who download and distribute Ask Me 3 materials and resources, representing themselves or organizations, please abide by the terms and conditions for use of these materials.







## Patient Safety Essentials Toolkit:

# Cause and Effect Diagram

A common challenge for improvement teams is determining what changes they can test to improve a process. A cause and effect diagram is an organizational tool that helps teams explore and display the many causes contributing to a certain effect or outcome. It graphically displays the relationship of the causes to the effect and to each other, helping teams identify areas for improvement.

The cause and effect diagram is also known as an Ishikawa diagram, for its creator, or a fishbone diagram, for its resemblance to the bones of a fish. Teams list and group causes under the categories of Materials, Methods, Equipment, Environment, and People.

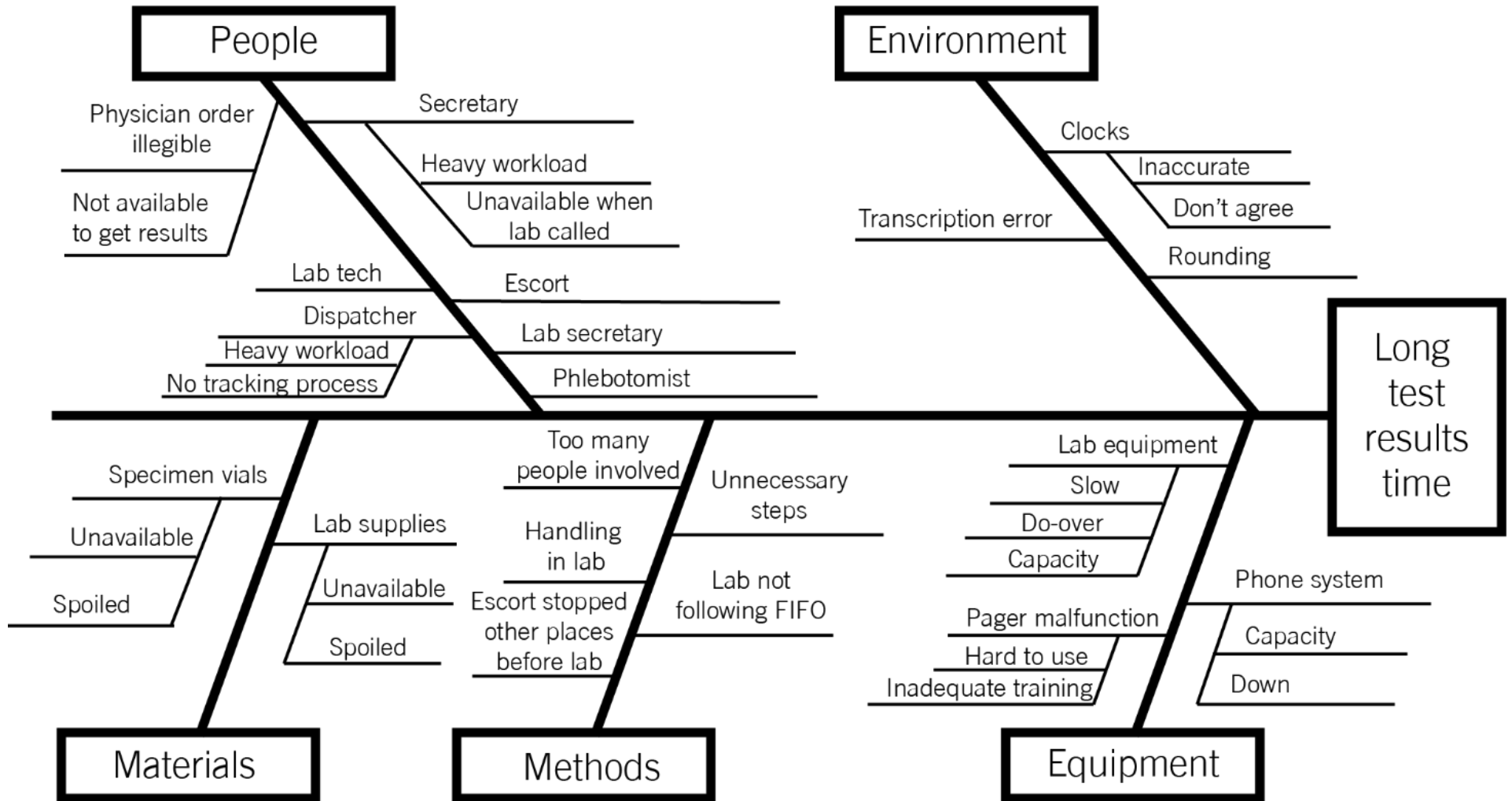
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## Instructions

- 1) Write the effect you wish to influence in a box on the right-hand side of the page.
- 2) Draw a horizontal line across the page to the left, starting at the box you just drew.
- 3) Decide on five or six categories of causes for the effect. The standard categories in a classic cause and effect diagram are Materials, Methods, Equipment, Environment, and People.
- 4) Draw diagonal lines above and below the horizontal line to create “fishbones,” and label each line at the end with one of the categories you have chosen. Draw a box around each label.
- 5) For each category, generate a list of the causes that contribute to the effect. List the causes by drawing “branch bones.” As necessary, draw additional branch bones from the causes to show sub-causes.
  - Tip: Develop the causes by asking “Why?” until you have reached a useful level of detail — that is, when the cause is specific enough to be able to test a change and measure its effects.

## Example: Cause and Effect Diagram

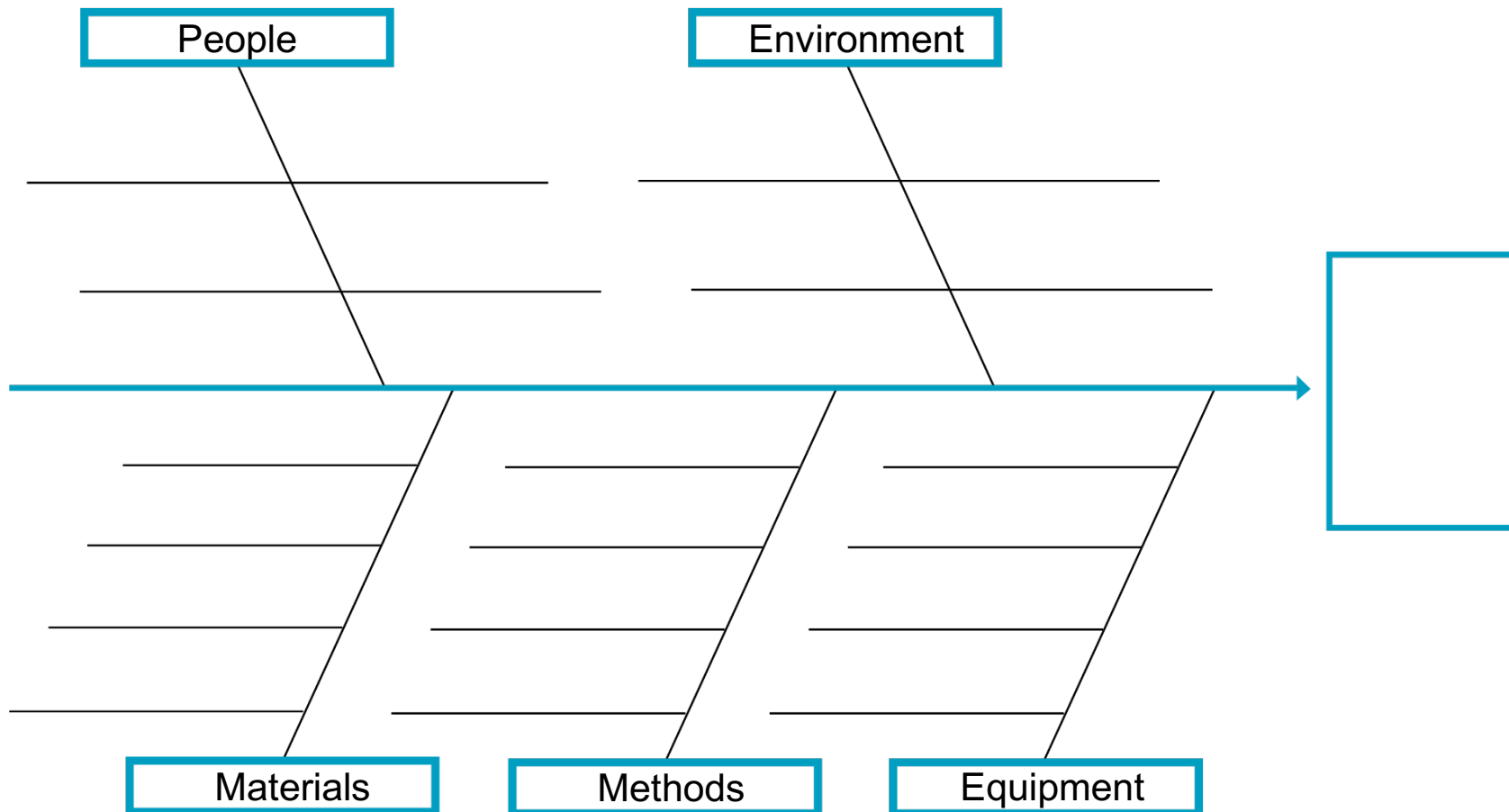


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## Template: Cause and Effect Diagram

Team: \_\_\_\_\_ Project: \_\_\_\_\_

- 1) Input the effect you'd like to influence.
- 2) Input categories of causes for the effect (or keep the classic five).
- 3) Input causes within each category.





# Patient Safety Essentials Toolkit: Developing Reliable Processes

Reliable processes and systems can reduce defects, increase consistency, and improve patient outcomes — all desirable goals within a health care organization. Creating and sustaining reliable processes, however, requires thoughtful planning and execution. This checklist of four steps — segmentation, visualization, standardization/simplification, and back-up planning — will help ensure your systems are designed with reliability in mind.

- The first step — segmentation — requires you to select a segment of the population to begin testing a process. (Starting with a segment of a population allows teams to design reliable processes they can then spread and customize, if necessary, to other segments.) Population segments should be easy to identify, should engage staff willing to participate, and should have high enough volume to enable daily tests of change.
- The second step — visualization, ideally via a flowchart — provides representation of the sequence of steps in a process you want to make more reliable for the segment of the population you have identified. Understanding a process and its potential defects is critical to improving that process.
- Next, standardize and simplify. The goal of this step is to ensure that the process steps are simple, easy, and based on roles (not dependent on specific individuals).
- Lastly, step four requires you to develop a back-up plan. Even after you have standardized all steps in your process and corrected any defects, there may still be occasions when the process you have designed doesn't work. A back-up plan creates some redundancy and resilience in the process and creates a safeguard to protect patients and staff.

One important note: This methodology should be used only for non-catastrophic events, i.e., events in which patients will not be severely harmed in the next 3–4 hours.

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- |  |  |           |
|--|--|-----------|
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| • Ask Me 3 <sup>®</sup>                        | • Five Whys                            | • Huddles |
| • Cause & Effect                               | • Flowchart                            | • SBAR    |

# Instructions

## Segment

- 1) Identify the entire population of patients that are affected by the process that you are trying to make more reliable (e.g. all surgical patients).
- 2) Select a segment of the whole population where patients are easy to identify, where staff are willing to engage, and where the patient volume is sufficient to allow daily tests of change (e.g., the larger population includes all surgical patients; the subset can be patients undergoing knee and hip replacement surgery).

## Visualize (via a high-level flow diagram of 3 to 5 boxes)

- 1) Get the “right” people in the room — those who know the process best.
- 2) Start by defining the first and the last step in the process — so that everyone has a shared understanding of where the process you’re working on begins and ends.
- 3) Using a high-level flow diagram, fill in all the steps in the process from first to last. Show the process as it actually works (not as it should work).
- 4) Review the flow diagram to check for accuracy and completeness.
- 5) Identify all potential defects and prioritize those that might lead to other defects or that pose the most significant risk.
- 6) Identify the defect that you intend to fix first.

## Standardize and Simplify

- 1) Determine which defect you want to standardize and why.
- 2) Ask people who do the work to contribute ideas.
- 3) Standardize the processes by answering the following questions:
  - a. Who will complete the task? (Answer with a named role, not a named individual.)
  - b. What is the task they will complete?
  - c. When will they complete the task? (Try to make it part of normal or existing workflow if possible.)
  - d. Where will they complete the task? (Answer in terms of physical location.)
  - e. How will they complete the task? (Answer in practical terms: What will the person physically do to complete the task?)
  - f. What will they use to complete the task? (Is there a tool, template, or checklist needed to support completion of the task?)

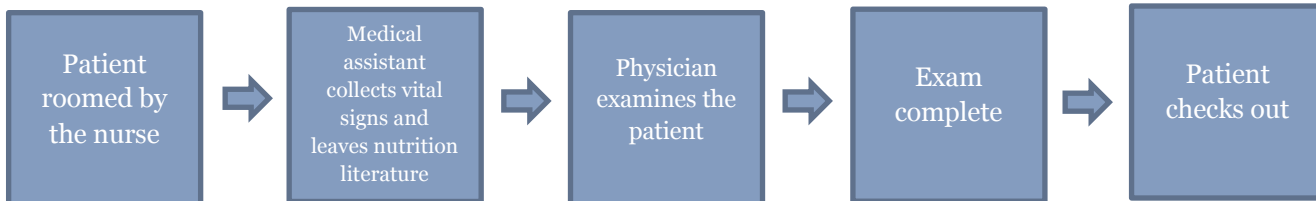
## Develop a Back-up Plan

- 1) Identify which process steps require a back-up plan.
- 2) Develop your back-up plan using the principles described above (standardization and simplification) by answering the following questions:
  - a. Who will complete the task? (Answer with a named role, not a named individual.)
  - b. What is the task they will complete?
  - c. When will they complete the task? (Try to make it part of normal or existing workflow if possible.)
  - d. Where will they complete the task? (Answer in terms of physical location.)
  - e. How will they complete the task? (Answer in practical terms: What will the person physically do to complete the task?)
  - f. What will they use to complete the task? (Is there a tool, template, or checklist needed to support completion of the task?)
- 3) Incorporate your back-up plan into the existing workflow.

## Example: Developing Reliable Processes

**Problem:** A primary care practice identified that many of its teenage patients were not receiving nutrition literature during a visit to the office. The improvement team developed a clear aim: At least 95 percent of the teenage patients (the segment of the population) will receive nutrition literature during their next visit.

They visualized the process (via a flow chart):



Next, they standardize the process:

**Who:** Medical assistant

**What:** Gives patient nutritional information

**Where:** In the exam room

**When:** When the patient is roomed

**How:** Handing nutrition literature to the patient

**With what:** (There is no tool to complete this task)

After testing and standardizing this process, the improvement team discovered that the process worked between 80 and 90 percent of the time. (The biggest defect was that, occasionally, the medical assistant did not leave behind the literature.) It was time to move to Step 4, developing a back-up plan.

The team collected several suggestions to build an effective back-up plan. Because every patient has to check out with the office secretary, the improvement team decided to test using the secretary as the back-up plan. As a patient is exiting the office, the secretary will ask the patient if he or she received nutrition literature. If the response was “yes,” there was no action to take. If the response was “no,” the secretary would contact one of the nurses to remedy the defect (not receiving the literature).

They standardized the back-up plan:

**Who:** The office secretary

**What:** Ask teenage patient if he or she received nutrition literature

**When:** At checkout, prior to patient exiting office

**Where:** Checkout desk

**How:** Ask patient

**With what:** (There is no tool to complete this task)

This added process was part of a function that the secretary easily added to his workflow. As a result, the team achieved its aim of 95 percent of teenage patients receiving nutrition literature. The team is now meeting to determine whether to roll out the process to all patients in the practice.



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## Template: Developing Reliable Processes

### Standardize and Simplify

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\_\_\_\_\_
  - f. With what will they complete the task? (Is there a tool, template, or checklist needed to support completion of the task?)  
\_\_\_\_\_

### Develop a Back-up Plan

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  - d. Where will they complete the task? (Answer in terms of physical location.)  
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  - e. How will they complete the task? (Answer in practical terms: What will the person physically do to complete the task?)  
\_\_\_\_\_
  - f. With what will they complete the task? (Is there a tool, template, or checklist needed to support completion of the task?)  
\_\_\_\_\_
- 3) Incorporate your back-up plan into the existing workflow.





## Patient Safety Essentials Toolkit:

# 5 Whys: Finding the Root Cause of a Problem

The key to solving a problem is to first truly understand it. Often, our focus shifts too quickly from the problem to the solution, and we try to solve a problem before comprehending its root cause. What we think is the cause, however, is sometimes just another symptom.

One way to identify the root cause of a problem is to ask “Why?” five times. When a problem presents itself, ask “Why did this happen?” Then, don’t stop at the answer to this first question. Ask “Why?” again and again until you reach the root cause.

This simple tool can be surprisingly insightful in helping you figure out what is really going on and can help you avoid quick fixes. It is especially useful for tackling chronic problems that show up over and over again in a complex system.

The technique is attributed to Taiichi Ohno, father of the Toyota Production System, which revolutionized automobile manufacturing with methods now known as Lean. It’s important to note that there may be multiple root causes of a problem, and that different people who see different parts of the system may answer the questions differently. For a more comprehensive tool, please see [RCA<sup>2</sup>: Improving Root Cause Analyses and Actions to Prevent Harm](#).

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# Instructions

- 1) Gather a group of interprofessional stakeholders who are familiar with the problem or event you are exploring.
- 2) Define the problem or event in clear, plain language.
- 3) Define the problem as a pattern and not just as an isolated event.
- 4) Ask “why” five times (at least) until you get to the root cause of the problem.
- 5) Explore the best way to solve the problem and make the subsequent changes to the system to ensure it doesn’t happen again.

## Example: 5 Whys

A patient received the wrong medication.

- 1) **Why** did the patient receive the wrong medication?

*The nurse did not complete patient identification.*

- 2) **Why** did the nurse not complete patient identification?

*The patient did not have a wristband.*

- 3) **Why** did the patient not have a wristband?

*The wristband had been removed for a procedure and not replaced.*

- 4) **Why** was the wristband not replaced?

*The printer for the wristbands was not working.*

- 5) **Why** was the printer not working?

*The staff needed to support IT had been reduced and was overworked.*

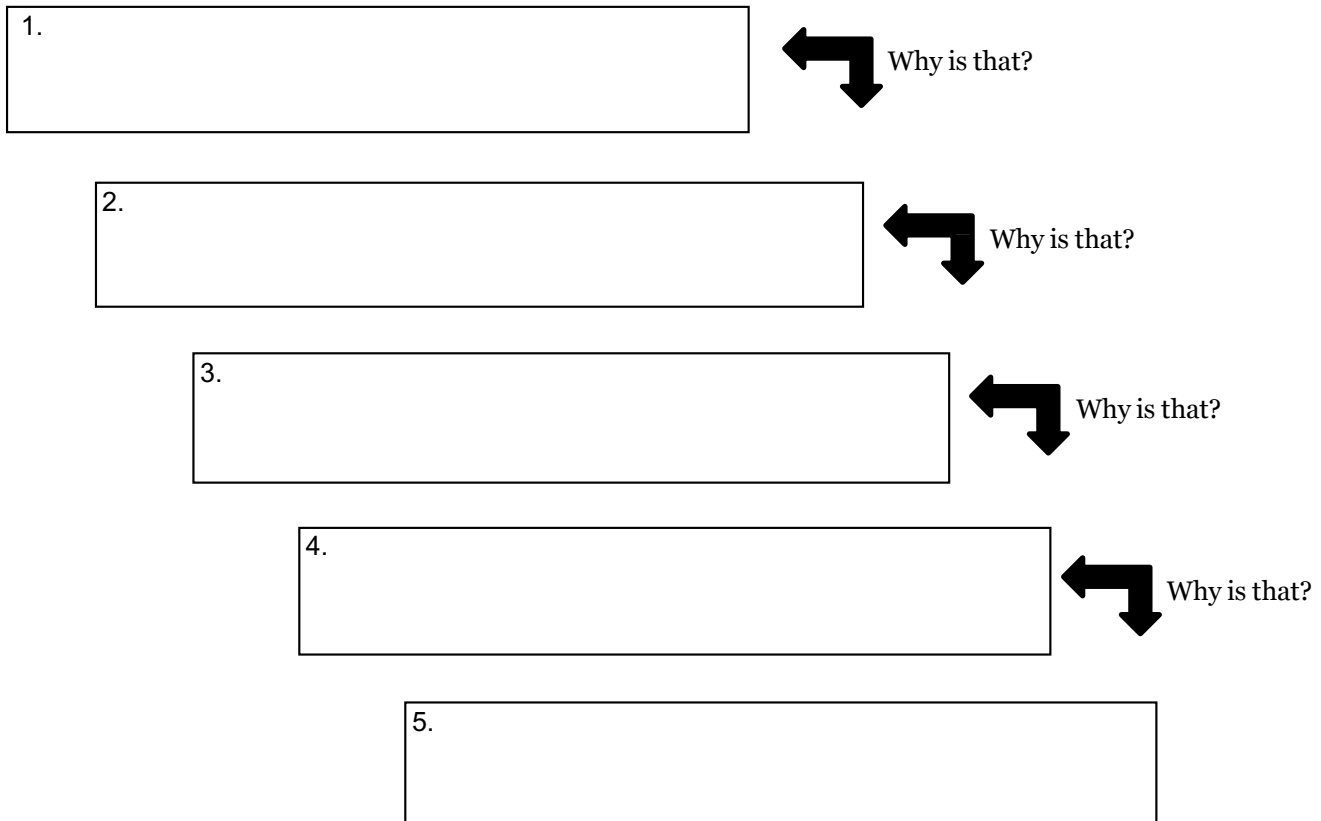
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## Template: 5 Whys

**EVENT. What happened?** Define the problem as an *event*:

**PATTERN. What's been happening?** Define the problem as a *pattern* by selecting a poor performance factor:

**STRUCTURE. Why is it happening?** What are the tangible and intangible structures determining the results we see?



**ACTION. What are the implications for action?** What can you do to change the results?



## Patient Safety Essentials Toolkit:

# Flowchart

A flowchart — also known as a “process map” — is a visual representation of the sequence of steps in a process. Understanding the process as it currently operates is an important step in developing ideas about how to improve it. This makes flowcharts especially useful in the early phases of improvement work.

To create a flowchart, teams brainstorm all the steps in the process as it currently exists. Teams write each process step in a box (or on a sticky note). In addition to the steps themselves, they use a diamond shape (or sticky note turned on its corner) to indicate points in the process where a decision needs to be made. For decision steps, the team writes a yes/no question. Then they use lines to show the connections between the boxes and diamonds.

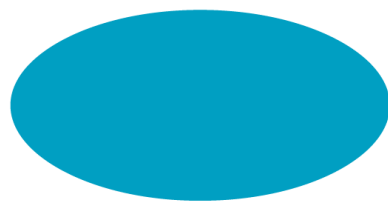
Having a shared understanding of the current process helps teams identify problems or bottlenecks, focus discussions, and identify resources. For example, teams can identify steps in the process that do not add value, such as delays; unnecessary work, duplication, or expense; and breakdowns in communication. It is at these points where the improvement work can start.

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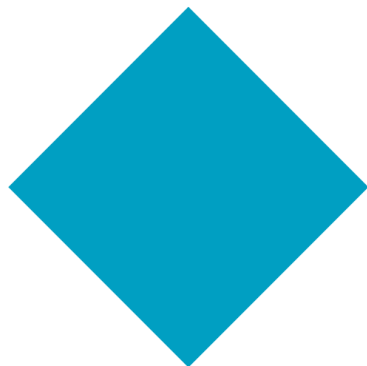
- 1) Get the “right” people in the room — those who know the process best.
- 2) Start by defining the first and the last step in the process — so that everyone has a shared understanding of where the process you’re working on begins and ends.
- 3) Using the shapes below, fill in all the steps in the process from first to last. Show the process as it actually works (not as it should work).
  - Tip: Use sticky notes (one for each step) to create a flowchart. This allows you to add steps and move steps around as you depict the process.
  - Tip: Note that some steps are parallel — that is, they happen at the same time.
- 4) Review the flowchart to check for accuracy and completeness.
- 5) Assign action items to team members to fill in unfamiliar steps and verify accuracy.
- 6) When the flowchart is complete and accurate, analyze it, use it, revisit it, and keep it up to date.



Start and end of a process



Activity or task



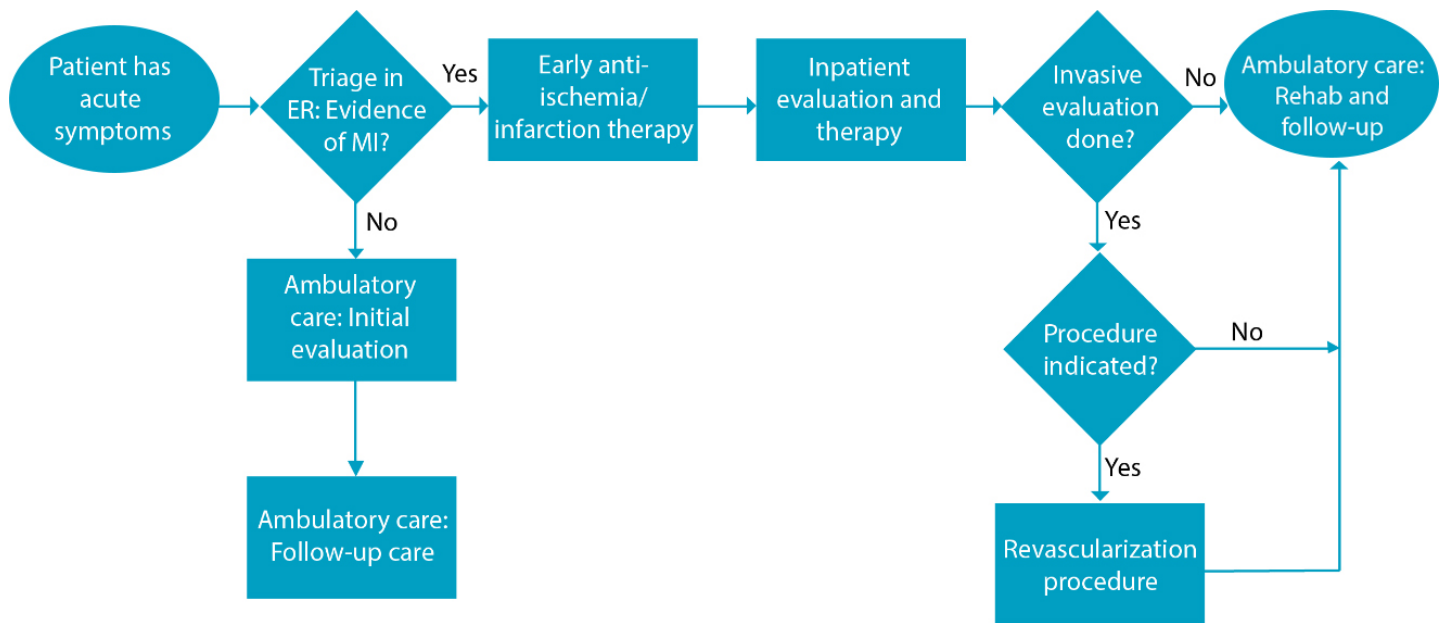
Decision point (yes/no question)



Flow line

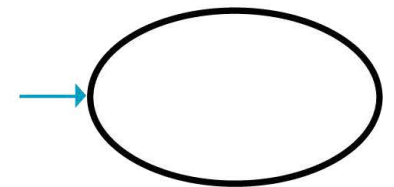
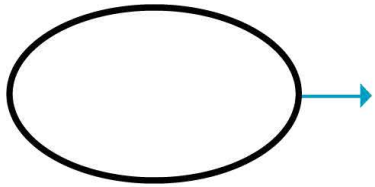


# Example: Flowchart



## Template: Flowchart

Use the symbols on the previous page to map out your system.





# Patient Safety Essentials Toolkit: Failure Modes and Effects Analysis (FMEA)

Failure Modes and Effects Analysis (FMEA) is a tool for conducting a systematic, proactive analysis of a process in which harm may occur. In an FMEA, a team representing all areas of the process under review convenes to predict and record where, how, and to what extent the system might fail. Then, team members with appropriate expertise work together to devise improvements to prevent those failures — especially failures that are likely to occur or would cause severe harm to patients or staff.

The FMEA tool prompts teams to review, evaluate, and record the following:

- Steps in the process
- Failure modes (What could go wrong?)
- Failure causes (Why would the failure happen?)
- Failure effects (What would be the consequences of each failure?)

Teams use FMEA to evaluate processes for possible failures and to prevent them by correcting the processes proactively rather than reacting to adverse events after failures have occurred. This emphasis on prevention may reduce risk of harm to both patients and staff. FMEA is particularly useful in evaluating a new process prior to implementation and in assessing the impact of a proposed change to an existing process.

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- Action Hierarchy (part of RCA<sup>2</sup>)
- Ask Me 3<sup>®</sup>
- Cause & Effect
- Developing Reliable Processes
- Five Whys
- Flowchart
- **FMEA**
- Huddles
- SBAR

# Instructions

**1) Select a process to evaluate with FMEA.**

Evaluation using FMEA works best on processes that do not have too many sub-processes.

If you're hoping to evaluate a large and complex process, such as medication management in a hospital, divide it up. For example, do separate FMEAs on medication ordering, dispensing, and administration processes.

**2) Recruit a multidisciplinary team.**

Be sure to include everyone who is involved at any point in the process. Some people may not need to be part of the team throughout the entire analysis, but they should certainly be included in discussions of those steps in the process in which they are involved. For example, a hospital may utilize couriers to transport medications from the pharmacy to nursing units. It would be important to include the couriers in the FMEA of the steps that occur during the transport itself, which may not be known to personnel in the pharmacy or on the nursing unit.

**3) Have the team list all of the steps in the process.**

Working with a team that represents every point in the process you're evaluating, establish a mutually agreed upon, ordered list of all the steps in the process.

- Tip: Flowcharting can be a helpful tool for visualizing a process. Learn more at <http://www.ihl.org/resources/Pages/Tools/Flowchart.aspx>.

NOTE: You can use the [interactive FMEA Tool](#) on IHI's website to complete the following steps. If you are not using the interactive FMEA Tool, draw a nine-column table as follows.

Steps in the Process	Failure Mode	Failure Causes	Failure Effects	Likelihood of Occurrence (1-10)	Likelihood of Detection (1-10)	Severity (1-10)	Risk Profile Number (RPN)	Actions to Reduce Occurrence of Failure
1								
2								
3								

#### 4) Fill out the table with your team.

In the left-most column, input the numbered list of the steps in the process. Then, working with the members of the team who are involved in specific steps, fill out the remaining columns as follows:

- **Failure Mode** [*What could go wrong?*]: List anything that could go wrong during that step in the process.
- **Failure Causes** [*Why would the failure happen?*]: List all possible causes for each of the failure modes you've identified.
- **Failure Effects** [*What would be the consequences of the failure?*]: List all possible adverse consequences for each of the failure modes identified.
- **Likelihood of Occurrence** (1–10): *On a scale of 1-10, with 10 being the most likely, what is the likelihood the failure mode will occur?*
- **Likelihood of Detection** (1-10): *On a scale of 1-10, with 10 being the most likely, what is the likelihood the failure will be detected if it does occur?*
- **Severity** (1-10): *On a scale of 1-10, with 10 being the most likely, what is the likelihood that the failure mode, if it does occur, will cause severe harm?*
- **Risk Profile Number (RPN)**: For each failure mode, multiply together the three scores the team identified (i.e., *likelihood of occurrence x likelihood of detection x severity*). The lowest possible score will be 1 and the highest 1,000. To calculate the RPN for the entire process, simply add up all of the individual RPNs for each failure mode.
- **Actions to Reduce Occurrence of Failure**: List possible actions to improve safety systems, especially for failure modes with the highest RPNs.
  - a) Tip: Teams can use FMEA to analyze each action under consideration. Calculate how the RPN would change if you introduced different changes to the system.

#### 5) Use RPNs to plan improvement efforts.

Failure modes with high RPNs are probably the most important parts of the process on which to focus improvement efforts. Failure modes with low RPNs are not likely to affect the overall process much, even if eliminated completely, and they should therefore be at the bottom of the list of priorities.

Identify the failure modes with the top 10 highest RPNs. These are the ones the team should consider first as improvement opportunities.

- **Use FMEA to plan actions to reduce harm from failure modes.**
  - a) If the failure mode is likely to occur:
    - Evaluate the causes and see if any or all of them can be eliminated.
    - Consider adding a forcing function (that is, a physical constraint that makes committing an error impossible, such as medical gas outlets that are designed to accept only those gauges that match).
    - Add a verification step, such as independent double-checks, bar coding on medications, or alert screens.
    - Modify other processes that contribute to causes.

- b) If the failure is unlikely to be detected:
  - Identify other events that may occur prior to the failure mode and can serve as “flags” that the failure mode might happen.
  - Add a step to the process that intervenes at the earlier event to prevent the failure mode. For example, add pharmacy rounds to remove discontinued medications from patient care units within 1 hour of discontinuation, to decrease the risk that the medications will still be available for use (the failure mode).
  - Consider technological alerts such as devices with alarms to alert users when values are approaching unsafe limits.
- c) If the failure is likely to cause severe harm:
  - Identify early warning signs that a failure mode has occurred, and train staff to recognize them for early intervention. For example, use drills to train staff by simulating events that lead up to failure, to improve staff ability to recognize these early warnings.
  - Provide information and resources, such as reversal agents or antidotes, at points of care for events that may require immediate action.
- **Use FMEA to evaluate the potential impact of changes under consideration.**

Teams can use FMEA to discuss and analyze each change under consideration and calculate the change in RPN if the change were implemented. This allows the team to “verbally simulate” the change and evaluate its impact in a safe environment, prior to testing it in a patient care area. Some ideas that seem like great improvements can turn out to be changes that would actually increase the estimated RPN.
- **Use FMEA to monitor and track improvement over time.**

Teams should consider calculating a total RPN for the process as described above and then set a goal for improvement. For example, a team may set a goal of decreasing the total RPN for the medication ordering process by 50% from the baseline.

## Example: Failure Modes and Effects Analysis (FMEA) – Medication Dispensing Process

Steps in the Process	Failure Mode	Failure Causes	Failure Effects	Likelihood of Occurrence (1-10)	Likelihood of Detection (1-10)	Severity (1-10)	Risk Profile Number (RPN)	Actions to Reduce Occurrence of Failure
Orders are written for new medications.	The first dose may be given prior to pharmacist 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 incorrect route.	6	5	1	30	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 to change or discontinue medication may take hours to process.	All doses needed for a 24-hour period are delivered to the drawer. Drawer is not changed until next routine delivery.  24-hour supply of refrigerated medications is delivered.  Multi-dose vials may be kept in the patient-specific drawer. Medications are available in dispensing machine.	Patients may receive medications that have been discontinued or the incorrect dose of a medication that has been changed.	10	5	5	250	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	4	60	Prepare all non-standard doses in the pharmacy and dispense each as a patient-specific unit dose.

Steps in the Process	Failure Mode	Failure Causes	Failure Effects	Likelihood of Occurrence (1-10)	Likelihood of Detection (1-10)	Severity (1-10)	Risk Profile Number (RPN)	Actions to Reduce Occurrence of Failure
Pharmacy staff fill dispensing and storing devices with medications.	Errors may occur during filling and medications may be placed in incorrect bins.	<p>Many medications are placed in the dispensing machine at one time.</p> <p>Multiple medications and doses are placed in patient-specific drawers.</p>	Patient may receive a medication that has not been prescribed.	3	5	5	75	<p>Use bar code scanning for all medications to verify information prior to administration.</p> <p>Involve patients and families in verification before each administration.</p>
Medications requiring refrigeration and intravenous solutions are stored separately.	The wrong medication may be selected.	Medications are stored together and may not be in patient-specific bins, so it is easy to select the wrong one.	Patient may receive an incorrect medication, incorrect dose, or via incorrect route.	3	5	5	75	<p>Use bar code scanning for all medications to verify information prior to administration.</p> <p>Involve patients and families in verification before each administration.</p>
Medications packaged in multi-dose vials are available.	The incorrect dose may be drawn from the vial.	Staff must draw each dose prior to administration without a double-check.	Patient may receive an incorrect medication, incorrect dose, or via incorrect route.	4	5	7	140	<p>Prepare each dose in pharmacy and dispense each as a single-unit dose.</p> <p>Remove multi-dose vials from dispensing machines.</p>



Steps in the Process	Failure Mode	Failure Causes	Failure Effects	Likelihood of Occurrence (1-10)	Likelihood of Detection (1-10)	Severity (1-10)	Risk Profile Number (RPN)	Actions to Reduce Occurrence of Failure
Nursing staff access medications for administration from storage device.	Nursing staff may bypass proper procedure to access medications.	Nursing bypass of procedure may depend on proximity of machines to patient rooms, as nurses may want to decrease time traveling back and forth.	Patient may receive an incorrect medication, incorrect dose, or via incorrect route.	7	5	8	280	Use bar code scanning for all medications to verify information prior to administration.  Involve patients and families in verification before each administration.
Staff access narcotics for administration.	Staff with substance abuse problems may be diverting narcotics.	System for access may allow incorrect information to be entered (e.g., staff may be able to enter names of other staff).	Clinical staff may be working in an impaired state.	5	5	10	250	Use individually assigned identification cards that must be swiped through a card reader or use thumbprint readers to access narcotics.

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## Template: Failure Modes and Effects Analysis (FMEA)

Steps in the Process	Failure Mode	Failure Causes	Failure Effects	Likelihood of Occurrence (1-10)	Likelihood of Detection (1-10)	Severity (1-10)	Risk Profile Number (RPN)	Actions to Reduce Occurrence of Failure
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
							<b>Total RPN (sum of all RPNs):</b>	

**Failure Mode:** What could go wrong?

**Failure Causes:** Why would the failure happen?

**Failure Effects:** What would be the consequences of failure?

**Likelihood of Occurrence: 1–10 [10 = very likely to occur]**

**Likelihood of Detection: 1–10 [10 = very unlikely to detect]**

**Severity: 1–10 [10 = most severe effect]**

**Risk Priority Number (RPN):** Likelihood of Occurrence × Likelihood of Detection × Severity



# Patient Safety Essentials Toolkit: Huddles

A huddle is a short, stand-up meeting — 10 minutes or less — that is typically used once at the start of each workday or shift in a clinical setting.

In ambulatory surgery centers, huddles occur once per day in each unit (for example, with the operating room staff). In primary care, staff can huddle in the morning to discuss scheduled patients as a team.

The daily huddle gives teams a way to proactively manage quality and safety, including a review of important standard work such as checklists. Often, standard work will be the output of previous quality improvement projects, and huddles provide a way to ensure process improvements stick. Huddles enable teams to look back to review performance and to look ahead to flag concerns proactively.

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- Action Hierarchy (part of RCA<sup>2</sup>)
- Ask Me 3<sup>®</sup>
- Cause & Effect
- Developing Reliable Processes
- Five Whys
- Flowchart
- FMEA
- **Huddles**
- SBAR

# Instructions

Teams can adapt the following standard five-item huddle agenda to their own needs and choose the flow that works best for them. See the last page for a blank template.

- 1) Safety and quality concerns and successes in the past day or shift
  - The huddle leader shares and invites successes from the team to celebrate.
  - The huddle leader invites concerns from the team related to patients, staff, or physicians while everyone else listens. This includes report-outs on the use of safety and quality tools, such as checklists or structured communication techniques for speaking up about safety.
  - The designated recorder notes any concerns that need follow-up on the visual management board, and the team strikes through items as they are completed during the day. The board includes any follow-up with physicians.
  - If the supervisor observed standard work the previous day, she or he provides feedback on what went well and what can be improved.
- 2) Safety and quality issues for patients on today's schedule
  - One person previews patients for the day, identifying any issues and the plans to address them. Review is faster and easier to reference during the shift if there is a list of patients and issues noted on the visual management board. (Be sure to adhere to the patient privacy standards in your health care system.)
  - The team notes any issues about equipment or patient rooms that affect quality and safety.
- 3) Review of tracked issues
  - The team provides updates on previously identified issues that are tracked on the visual management board.
- 4) Inputs on other safety and quality issues
  - The huddle leader invites the team to raise any other issues that may affect quality or safety today.
- 5) Announcements and information to share
  - The huddle leader and team identify safety and quality issues relevant to other areas that the huddle leader will share with appropriate individuals (e.g., head of another unit). Consider holding huddles among relevant leadership groups (e.g., department heads, organizational leadership) to review such concerns.
  - Close with critical announcements and schedule changes. You can save time if announcements and schedule changes are posted on the visual management board for staff reference, and the supervisor can simply point out changes and direct staff to read the announcement.

**Note:** An approach similar to huddles involves convening staff for safety briefings (beginning of the shift) as well as debriefings (end of the shift). Like huddles, safety briefings and debriefings consist of short, frequent meetings to discuss safety and quality concerns in a nonpunitive manner.

## Example: Huddles

- 1) Safety and quality concerns and successes in the past day
  - The designated recorder points out that yesterday a nurse reported she planned to follow up with two physicians about whether their patients with urinary catheters were ready to have them removed. The team learns that the physicians indicated that all these patients should have their catheters removed. After confirming that the catheters were discontinued, the team updates the visual management board.
- 2) Safety and quality issues for patients on today's schedule
  - A nurse notes that two patients on the unit are receiving medications that may make them drowsy. She asks the team to be on the alert for increased fall risks.
  - A nursing assistant notes that the call button in Room 3A is in the process of being repaired.
- 3) Review of tracked issues
  - The team reviews the visual management board and reminds everyone that there are still two patients with similar last names on the unit, but one of them is scheduled for discharge later in the day.
- 4) Inputs on other safety and quality issues
  - The huddle leader notes that the nursing staff identified that they are receiving a lot of orders for medications that must be cut in half, increasing the risk of incorrect doses. The huddle leader will share this information with the pharmacy so they can order tablets in the dosages that are needed to eliminate the need for splitting.
- 5) Announcements and information to share
  - A list of high-alert medications is now available on all the unit's medication carts. The latest schedule changes are on the visual management board.

# Template: Huddles

Print this huddle agenda and post it on your visual management board as a reminder to the huddle team.

- 1) Safety and quality concerns and successes in the past day
  - Patients
  - Staff
  - Physicians
- 2) Safety and quality issues for patients on today's schedule
- 3) Review of tracked issues
- 4) Inputs on other safety and quality issues
- 5) Announcements and information to share



## Patient Safety Essentials Toolkit: Action Hierarchy (part of RCA<sup>2</sup>)

Root cause analysis (RCA) is a process widely used by health professionals to learn how and why errors occurred, but these investigations have had inconsistent results. Prevention of future harm requires action. To emphasize this point, IHI has renamed the process Root Cause Analyses and Actions, or RCA<sup>2</sup> (“RCA squared”).

The purpose of an RCA<sup>2</sup> review is to identify system vulnerabilities and implement strong actions that will eliminate or mitigate those vulnerabilities. Review teams strive to identify actions that prevent or minimize the chances of the event recurring and reduce the severity or consequences if it should recur. After a comprehensive investigation of root causes, including assessment of human factors and cognitive thinking, a tool such as this Action Hierarchy will assist teams in identifying which actions will have the strongest effect for successful and sustained system improvement.

Action Hierarchy levels and categories are based on [Root Cause Analysis Tools](#) from the VA National Center for Patient Safety.

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- **Action Hierarchy (part of RCA<sup>2</sup>)**
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- FMEA
- Huddles
- SBAR

# Instructions

After completing the RCA<sup>2</sup> investigation and analysis process, RCA<sup>2</sup> teams work to identify corrective actions to mitigate root causes of the adverse event using the following steps:

- 1) Review and clarify causal statements for all identified contributing factors.

*Note: Focus contributing factors and causal statements on system-level issues and do not assign blame to individuals. The RCA<sup>2</sup> process is not recommended for blameworthy events as defined by the organization (e.g., criminal or deliberately unsafe acts); administrative or human resources systems are the appropriate avenues in such cases.*

- 2) For each causal statement, brainstorm actions that could mitigate the cause and minimize the chances of the event recurring and reduce the severity or consequences should it recur. Patients and families may provide valuable insight and suggestions to identify actions as well as causal factors.
- 3) Rank the strength of each action using a tool like the Action Hierarchy (see template).
- 4) Identify at least one strong or intermediate action for each identified cause, focusing on actions that contribute to effective and sustained system improvement.

*Note: In some cases, it may be necessary to recommend “weaker” actions as temporary measures until stronger actions can be implemented. Actions classified as weaker, such as training and policy changes, are often necessary to establish proficiency and expectations, but when used alone are unlikely to be sufficient for sustained improvement.*

- 5) Present the findings of the RCA<sup>2</sup> process, including each recommended action, to a member of the organization’s senior leadership team for approval. If an action isn’t approved, document the reason and select a replacement action, as needed. Use an established method like the [Model for Improvement](#) to develop and test changes.
- 6) Assign an individual (could be outside of the RCA<sup>2</sup> team) responsible for implementation and measurement of each corrective action and set a date by which each action must be completed. Monitor implementation on an ongoing basis to ensure that changes achieve the desired results.



## Example: Action Hierarchy Tool

**Case Example 1:** The nursing staff was providing the patient with routine morning care. This consisted of showering the patient in the shower room on the ward. The patient was seated in a chair being washed when he slid off the chair and hit his face, hip, and shoulder. The doctor examined the patient at 7:55 AM and ordered x-rays and head imaging. No fractures or bleeding were noted. Checks of vital signs, neurological status, pain, and mobility were initiated as per policy and reported as normal. The patient was assisted with mobility in the day following the fall to ensure he was stable.

**Stronger Action:** Require and implement use of a shower chair with secure straps that prevent sliding.

**Intermediate Action:** Identify patients at risk for falling and have additional staff help with showering.

**Weaker Action:** Retrain nursing staff on the required procedure for showering patients.

**Case Example 2:** An inpatient with pneumonia has an abnormal finding on chest x-ray with recommended repeat chest x-ray in three months. She is released home, and her primary care doctor is not aware of the chest x-ray result. She returns in one year with advanced lung cancer.

**Stronger Action:** Automatically include and flag test results that require follow-up in the discharge documentation that goes to the primary care doctor and require acknowledgment and follow-up.

**Intermediate Action:** Develop and implement standard communication with patients who receive a chest x-ray, including explaining the need for follow-up and providing written contact information if the patient has questions or is not reached within a defined timeframe.

**Weaker Action:** Update a policy on appropriate test result communication and follow-up.

Before filling out the template, first save the file on your computer. Then open and use that version of the tool. Otherwise, your changes will not be saved. Note that you do not need to fill in every action; we recommend that you have at least one strong or intermediate action for every RCA.

# Template: Action Hierarchy Tool

	Action Category	Example	Action
<b>Stronger Actions</b>  (these tasks require less reliance on humans to remember to perform the task correctly)	Architectural/physical plant changes	Replace revolving doors at the main patient entrance into the building with powered sliding or swinging doors to reduce patient falls.	
	New devices with usability testing	Perform heuristic tests of outpatient blood glucose meters and test strips and select the most appropriate for the patient population being served.	
	Engineering control (forcing function)	Eliminate the use of universal adaptors and peripheral devices for medical equipment and use tubing/fittings that can only be connected the correct way (e.g., IV tubing and connectors that cannot physically be connected to sequential compression devices or SCDs).	
	Simplify process	Remove unnecessary steps in a process.	
	Standardize on equipment or process	Standardize on the make and model of medication pumps used throughout the institution. Use bar coding for medication administration.	
	Tangible involvement by leadership	Participate in unit patient safety evaluations and interact with staff; support the RCA <sup>2</sup> process; purchase needed equipment; ensure staffing and workload are balanced.	
<b>Intermediate Actions</b>	Redundancy	Use two RNs to independently calculate high-risk medication dosages.	
	Increase in staffing/ decrease in workload	Make float staff available to assist when workloads peak during the day.	
	Software enhancements, modifications	Use computer alerts for drug-drug interactions.	
	Eliminate/reduce distractions	Provide quiet rooms for programming PCA pumps; remove distractions for nurses when programming medication pumps.	
	Education using simulation-based training, with periodic refresher sessions and observations	Conduct patient handoffs in a simulation lab/environment, with after action critiques and debriefing.	
	Checklist/cognitive aids	Use pre-induction and pre-incision checklists in operating rooms. Use a checklist when reprocessing flexible fiber optic endoscopes.	
	Eliminate look- and sound-alikes	Do not store look-alikes next to one another in the unit medication room.	
	Standardized communication tools	Use read-back for all critical lab values. Use read-back or repeat-back for all verbal medication orders. Use a standardized patient handoff format.	
	Enhanced documentation, communication	Highlight medication name and dose on IV bags.	
<b>Weaker Actions</b>  (these tasks require more reliance on humans to remember to perform the task correctly)	Double checks	One person calculates dosage, another person reviews their calculation.	
	Warnings	Add audible alarms or caution labels.	
	New procedure/ memorandum/policy	Remember to check IV sites every 2 hours.	
	Training	Demonstrate correct usage of hard-to-use medical equipment.	

Action Hierarchy levels and categories are based on *Root Cause Analysis Tools*, VA National Center for Patient Safety, [http://www.patientsafety.va.gov/docs/joe/rca\\_tools\\_2\\_15.pdf](http://www.patientsafety.va.gov/docs/joe/rca_tools_2_15.pdf). Examples are provided here.

The full RCA<sup>2</sup> tool is available here: <http://www.ihl.org/resources/Pages/Tools/RCA2-Improving-Root-Cause-Analyses-and-Actions-to-Prevent-Harm.aspx>



## Patient Safety Essentials Toolkit:

# SBAR: Situation-Background-Assessment-Recommendation

The SBAR (Situation-Background-Assessment-Recommendation) technique provides a framework for communication between members of the health care team about a patient's condition. SBAR is an easy-to-remember, concrete mechanism useful for framing any conversation, especially critical ones, requiring a clinician's immediate attention and action. It allows for an easy and focused way to set expectations for what will be communicated and how between members of the team, which is essential for developing teamwork and fostering a culture of patient safety.

This tool includes:

- SBAR Guidelines (“Guidelines for Communicating with Physicians Using the SBAR Process”): Explains in detail how to implement the SBAR technique
- SBAR Worksheet: A worksheet/script that a provider can use to organize information in preparation for communicating with a physician about a critically ill patient (includes both an example and a blank SBAR Worksheet template)

Both the worksheet and the guidelines use the physician team member as the example; however, they can be adapted for use with all other health professionals.

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# Guidelines for Communicating with Physicians Using the SBAR Process

1) Use the following modalities according to physician preference, if known. Wait no longer than five minutes between attempts.

- Direct page (if known)
- Physician's Call Service
- During weekdays, the physician's office directly
- On weekends and after hours during the week, physician's home phone
- Cell phone

Before assuming that the physician you are attempting to reach is not responding, utilize all modalities. For emergent situations, use appropriate resident service as needed to ensure safe patient care. Start by defining the first and the last step in the process — so that everyone has a shared understanding of where the process you're working on begins and ends.

2) Prior to calling the physician, follow these steps:

- Have I seen and assessed the patient myself before calling?
- Has the situation been discussed with resource nurse or preceptor?
- Review the chart for appropriate physician to call.
- Know the admitting diagnosis and date of admission.
- Have I read the most recent MD progress notes and notes from the nurse who worked the shift ahead of me?
- Have available the following when speaking with the physician:
  - Patient's chart
  - List of current medications, allergies, IV fluids, and labs
  - Most recent vital signs
  - Reporting lab results: provide the date and time test was done and results of previous tests for comparison
  - Code status

3) When calling the physician, follow the SBAR process:

**(S) Situation:** What is the situation you are calling about?

- Identify self, unit, patient, room number.
- Briefly state the problem, what is it, when it happened or started, and how severe.

**(B) Background:** Pertinent background information related to the situation could include the following:

- The admitting diagnosis and date of admission
- List of current medications, allergies, IV fluids, and labs

- Most recent vital signs
- Lab results: provide the date and time test was done and results of previous tests for comparison
- Other clinical information
- Code status

**(A) Assessment:** What is the nurse’s assessment of the situation?

**(R) Recommendation:** What is the nurse’s recommendation or what does he/she want?

Examples:

- Notification that patient has been admitted
- Patient needs to be seen now
- Order change

4) Document the change in the patient’s condition and physician notification.

Example 1: SBAR Report to Physician about a Critical Situation	
<b>S</b>	<p><b>Situation</b> Dr. Jones, this is Sharon Smith calling from the CCU. I have Mr. Holloway in Room 217, a 55-year-old man who looks pale and sweaty, feels confused and weak, and is complaining of chest pressure.</p>
<b>B</b>	<p><b>Background</b></p> <ul style="list-style-type: none"> <li>• He has a history of HTN.</li> <li>• He was admitted for a GI bleed, received 2 units.</li> <li>• His last crit two hours ago was 31.</li> <li>• His vital signs are BP 90/50, pulse 120.</li> </ul>
<b>A</b>	<p><b>Assessment</b> I think he’s got an active bleed and we can’t rule out an MI, but we don’t have a troponin or a recent H&amp;H.</p>
<b>R</b>	<p><b>Recommendation</b> I’d like to get an EKG and labs, and I need for you to evaluate him right away.</p>

Example 2: SBAR Report to a Primary Care Physician	
<b>S</b>	<p><b>Situation</b> Patient arrived for appointment on wrong day.</p>
<b>B</b>	<p><b>Background</b></p> <ul style="list-style-type: none"> <li>• Patient arrived for 11:00AM appointment today.</li> <li>• Appointment is scheduled for 11:00AM tomorrow.</li> <li>• Patient comes from 40 miles away and needed to have friend drive them to appointment.</li> <li>• Doctor has 1+ appointment available on schedule.</li> <li>• Doctor's hall partner has some open times.</li> <li>• We don't know if the mistake was with the patient or the call center.</li> </ul>
<b>A</b>	<p><b>Assessment</b> We should see the patient today.</p>
<b>R</b>	<p><b>Recommendation</b> I recommend that we use the 1+ time or have your hall partner see this patient.</p>

Before filling out the template, first save the file on your computer. Then open and use that version of the tool. Otherwise, your changes will not be saved.

## Template: SBAR

<p><b>S</b></p>	<p><b>Situation:</b> What is the situation you are calling about?</p> <ul style="list-style-type: none"> <li>Identify self, unit, patient, room number.</li> <li>Briefly state the problem, what is it, when it happened or started, and how severe.</li> </ul>	
<p><b>B</b></p>	<p><b>Background:</b> Pertinent background information related to the situation could include the following:</p> <ul style="list-style-type: none"> <li>The admitting diagnosis and date of admission</li> <li>List of current medications, allergies, IV fluids, and labs</li> <li>Most recent vital signs</li> <li>Lab results: provide the date and time test was done and results of previous tests for comparison</li> <li>Other clinical information</li> <li>Code status</li> </ul>	
<p><b>A</b></p>	<p><b>Assessment:</b> What is the nurse's assessment of the situation?</p>	
<p><b>R</b></p>	<p><b>Recommendation:</b> What is the nurse's recommendation or what does he/she want? Examples:</p> <ul style="list-style-type: none"> <li>Notification that patient has been admitted</li> <li>Patient needs to be seen now</li> <li>Order change</li> </ul>	