Creating a Culture of Patient Safety: Session 5

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Objectives

- Describe strategies to adopt evidence-based practices into quality improvement efforts
- Examine common quality improvement tools and effectiveness to address patient safety.
- Structure your quality improvement effort for success.
- Compare Just Culture and High Reliability Organization concepts for risk reduction and safety event analysis.

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Definition: Evidence-Based Practices

"the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients".

From: Evidence-based medicine: what it is and what it isn't. *Br Med J.* 1996;312(13):71-72. doi:10.1136/bmj.312.7023.71

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U.S. Preventive Services Task Force (USPSTF) Grade Definition (After July 2012)

Grade	Definition	Suggestions for Practice
A	The USPSTF recommends the service. There is high certainty that the net benefit is substantial.	Offer or provide this service.
B	The USPSTF recommends the service. There is high certainty that the net benefit is moderate to or there is moderate certainty that the net benefit is moderate to substantial.	Offer or provide this service.
C	The USPSTF recommends selectively offering or providing this service to individual patients based on professional and patient preferences. There is at least moderate certainty that the net benefit is small.	Offer or provide this service for selected patients depending on individual circumstances.
D	The USPSTF recommends against this service. There is moderate or high certainty that the service has no benefit or that the harms outweigh the benefits.	Discourage the use of this service.
I Statement	The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of the service. Evidence is lacking, of poor quality, or conflicting, and the balance of benefits and harms cannot be determined.	Read the clinical considerations section of the USFSTF Recommendation Statement. If the service is offered, patients should understand the uncertainty about the balance of benefits and harms.

U.S. Preventive Services Task Force (USPSTF) Levels of Certainty Regarding Net Benefit

Level of Certainty *	Description
High	The available evidence usually includes consistent results from well-designed, well-conducted studies in representative primary care populations. These studies assess the effects of the preventive service on health outcomes. This conclusion is therefore unlikely to be strongly affected by the results of future studies.
Moderate	The available evidence is sufficient to determine the effects of the preventive service on health outcomes, but confidence in the estimate is constrained by such factors as: • The number, size, or quality of individual studies. • Inconsistency of findings across individual studies. • Limited generalizability of findings to routine primary care practice. • Lack of coherence in the chain of evidence. As more information becomes available, the magnitude or direction of the observed effect could change, and this change may be large enough to alter the conclusion.
Low	The available evidence is insufficient to assess effects on health outcomes. Evidence is insufficient because of: • The limited number or size of studies. • Important flaws in study design or methods. • Inconsistency of findings across individual studies. • Gaps in the gain of evidence. • Findings not generalizable to routine primary care practice. • Lack of information on important health outcomes. More information may allow estimation of effects on health outcomes.

Successful Collaboration with Organizational Leaders When Proposing Quality Improvement Initiatives

1. Identify project champion and stakeholders.

2. Keep discussions based on improving the patient's experience and clinical outcomes.

3. Keep personality conflicts out of the conversation.

4. Gather potential financial impact for successful implementation of proposed improvements.

See *HQ Solutions* and *Making the Business Case for Quality*

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Successful Collaboration with Organizational Leaders When Proposing Quality Improvement Initiatives (cont.)

5. Reference Evidence Based Practice guidelines and national measures from:
   - ❑ Agency for Healthcare Research and Quality (AHRQ) (e.g., National Clinical Guideline),
   - ❑ Cochrane (e.g., clinical evidence comparisons),
   - ❑ Specialty professional associations and societies (e.g., American Cardiology Association)
   - ❑ The Leapfrog Group (e.g., hospital-based measures), and
   - ❑ National Quality Forum (NQF) (e.g., 29 Serious Reportable "Never Events, Nurse Sensitive Measures, Ambulatory Sensitive Measures, Long-Term Care Measures, and Hospital Measures)

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Common QI Tools and Effectiveness to Address Patient Safety

Cause Mapping
Driver Diagram
Failure Modes and Effect Analysis (FMEA)
Flow Chart
Histogram
Pareto Chart
PDSA
Project Planning Form
Run Chart
Scatter Diagram

From Outcome Engenuity and IHI's QI Essentials Toolkit

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Cause Mapping

What it is:
A visual explanation of why an incident occurred which connects individual cause-and-effect relationships to reveal the connection between causes and outcomes within a system.

When to Use It:
When an unexpected event has occurred and you want to visualize the chain of events that led to that outcome.

Why Use It:
- To capture direct and probabilistic causes of an incident.
- To identify more potential solutions and ensure that your solutions will break the causal chain that led to the event.

From Outcome Engenuity

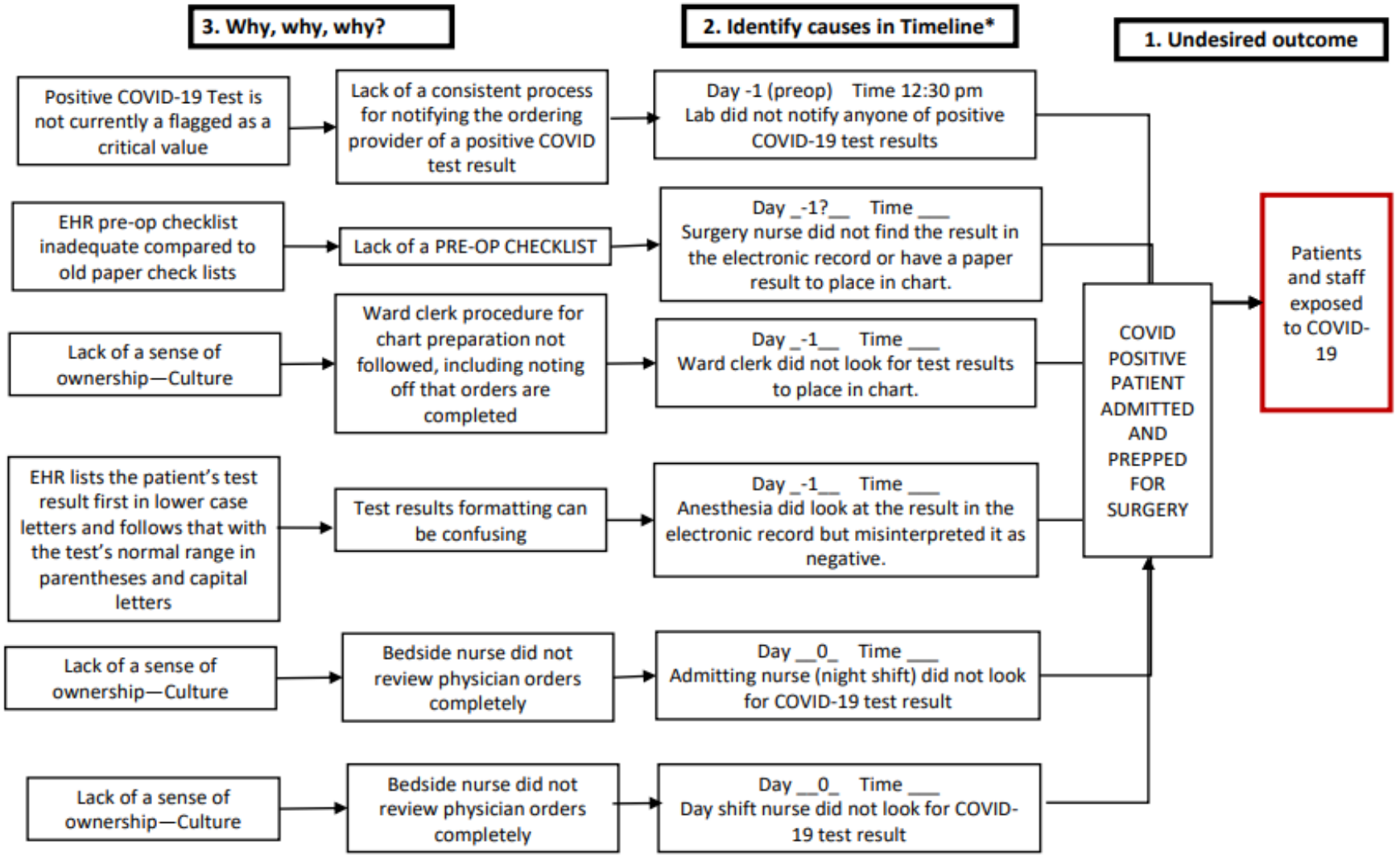
Cause Map of Event When Patient with Positive COVID Test Admitted for Surgery

Patient/Resident Factors

Age: 27
Primary Dx: scheduled for EGD
Comorbidities: none
Relevant Lab Values: positive pre-procedure COVID test
Other:

Environmental Factors

Nurse caring for surgical patient also caring for OB and newborn



*Events/causes in the timeline may be human errors or behavioral choices; each human error or behavioral choice should have a preceding cause that answers the question "why?"

Driver Diagram

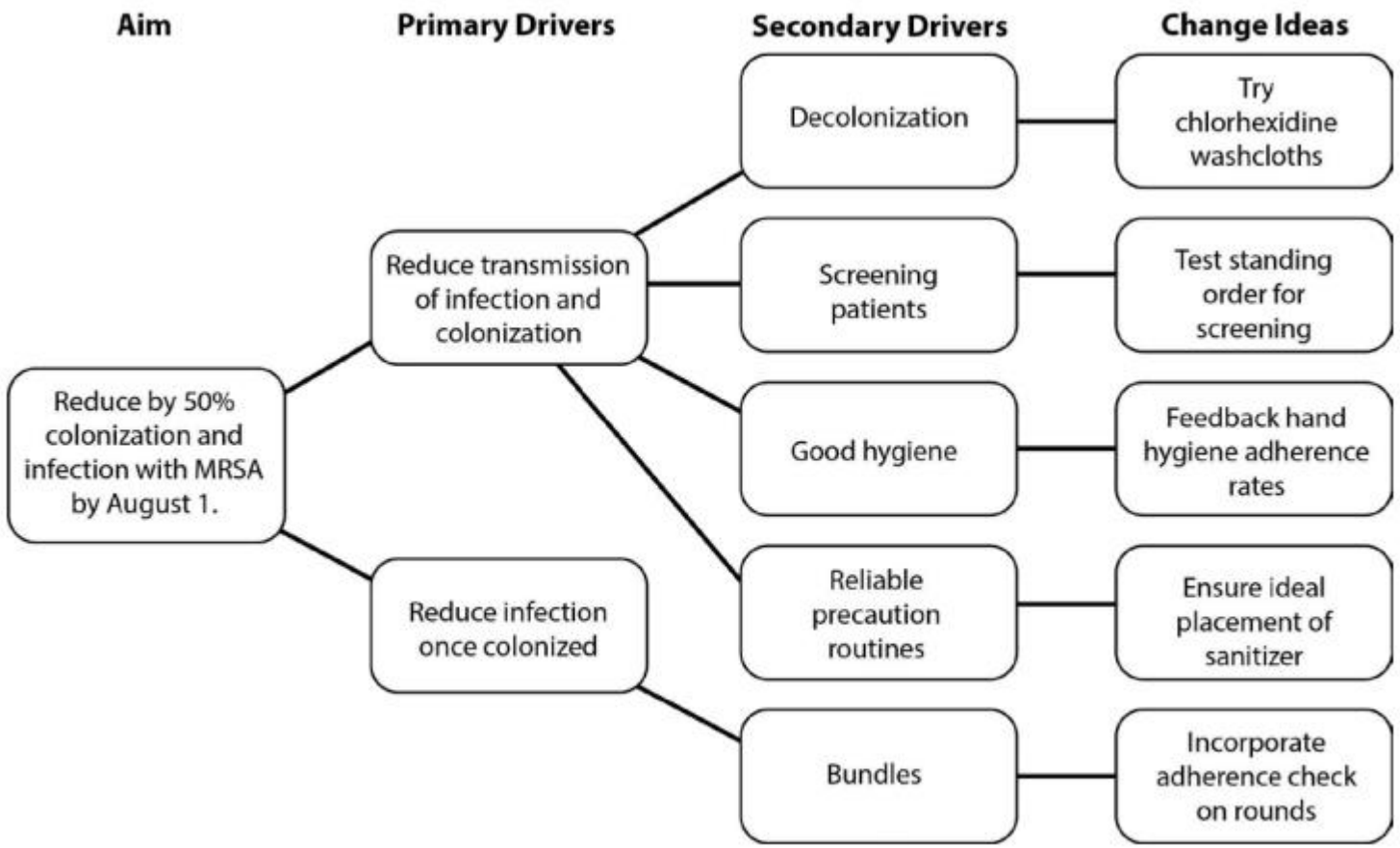
What it is:
A visual display of a team's theory of what "drives," or contributes to, the achievement of a project aim.

When to Use It:
For communicating a team's work to a range of stakeholders because it clearly shows the team's view of the project.

Why Use It:
It shows the relationship between the overall aim of the project, the primary (key) drivers that contribute directly to achieving the aim, the secondary drivers that are components of the primary drivers, and specific change ideas to test for each secondary driver.

From IHI's QI Essentials Toolkit

Driver Diagram



From IHI's QI Essentials Toolkit

FMEA (Failure Modes Effects Analysis)

What it is:
A structured way to identify and address potential problems, or failures and their resulting effects on the system or process before an undesirable event occurs.

When to Use It:
To evaluate both new and existing processes and systems.

Why Use It:

- For new processes – to identify potential bottlenecks or unintended consequences before you implement the process.
- For existing processes – to make the process more efficient and safe; to understand how proposed changes will impact the system.

From IHI's QI Essentials Toolkit

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 are written to discontinue a medication or change the existing order.	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.

From IHI's QI Essentials Toolkit

Flow Chart

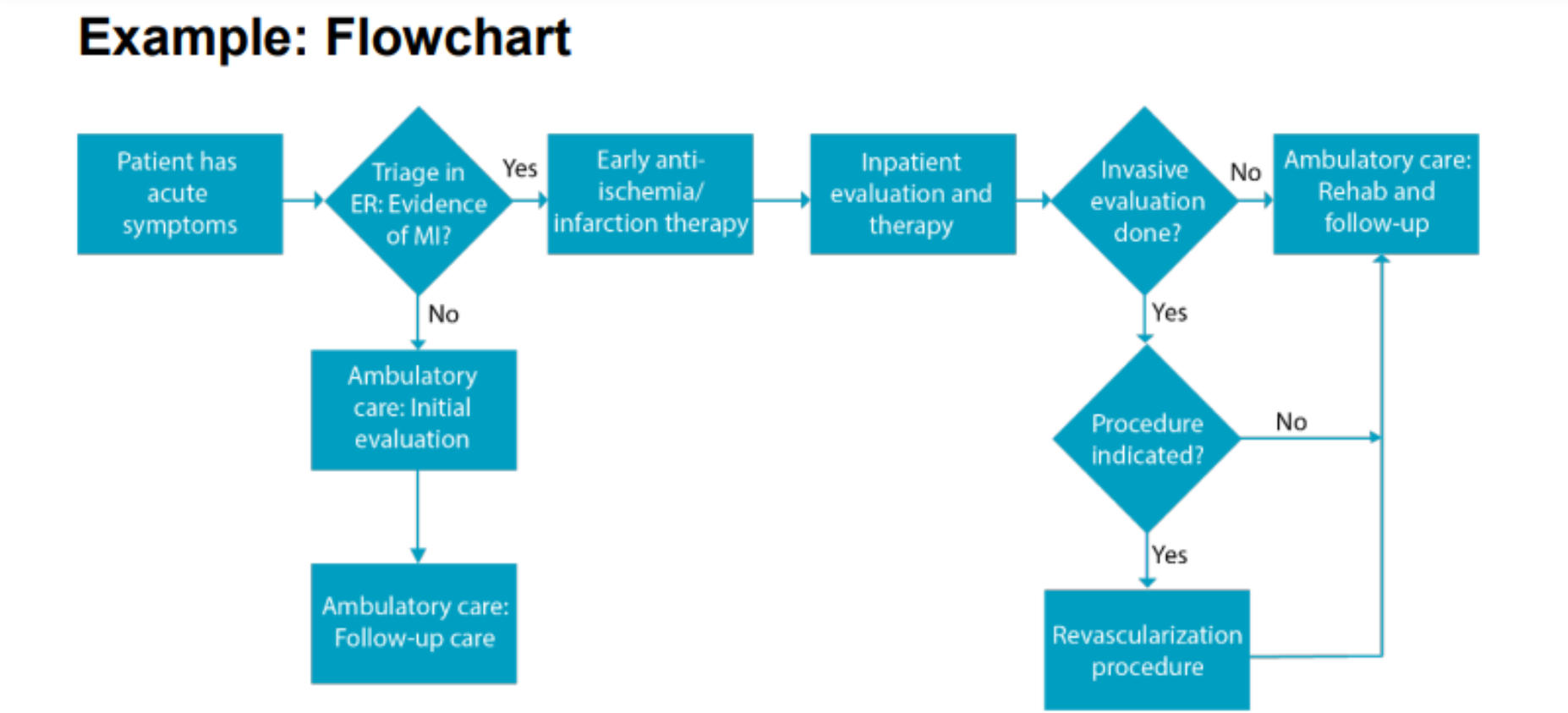
What it is:
A visual representation of the sequence of steps in a process.

When to Use It:
When seeking to understand current processes so that the team is able to identify problems or bottlenecks, focus discussions, and identify resources.

Why Use It:
Understanding the process as it currently operates is an important step in developing ideas about how to improve it.

From IHI's QI Essentials Toolkit

Flow Chart



From IHI's QI Essentials Toolkit

Histogram

What it is:
A special type of bar chart used to display the variation in continuous data (e.g., time, weight, size, or temperature)

When to Use It:
When summary statistics alone do not give a complete and informative picture of the performance of a process.

Why Use It:
A histogram enables a team to recognize and analyze patterns in data that are not apparent simply by looking at a table of data, or by finding the average or median.

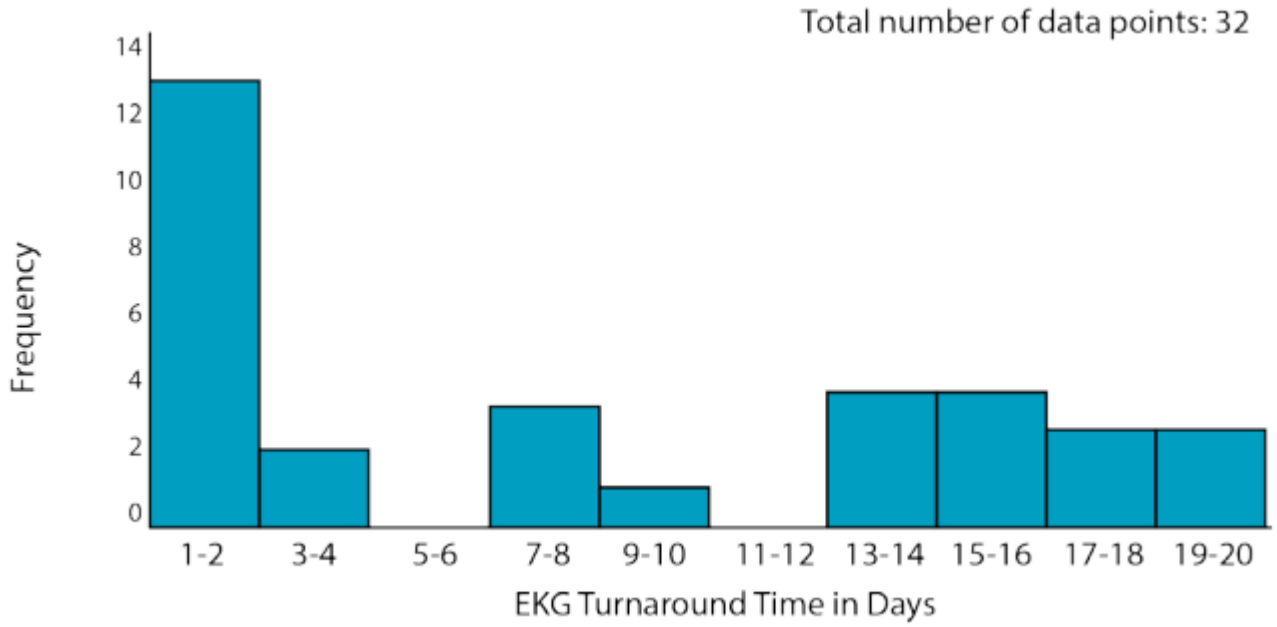
From IHI's QI Essentials Toolkit

EKG Turnaround Time in Days

9	16	1	4
15	8	13	1
13	16	14	17
7	2	20	2
2	2	18	3
1	1	2	7
1	2	15	2

Average = 8.3 Days

Data Table



Histogram

From IHI's QI Essentials Toolkit

Pareto Chart (also known as the 80/20 Rule)

What it is:
A special type of bar chart which the various factors contributing to an overall effect are arranged in order from the largest to the smallest contribution to the effect.

When to Use It:
When wanting to identify the factors that have the largest contribution to an effect (the “vital few”) as compared to factors that are useful to know about but have a relatively smaller contribution to the effect (the “useful many”).

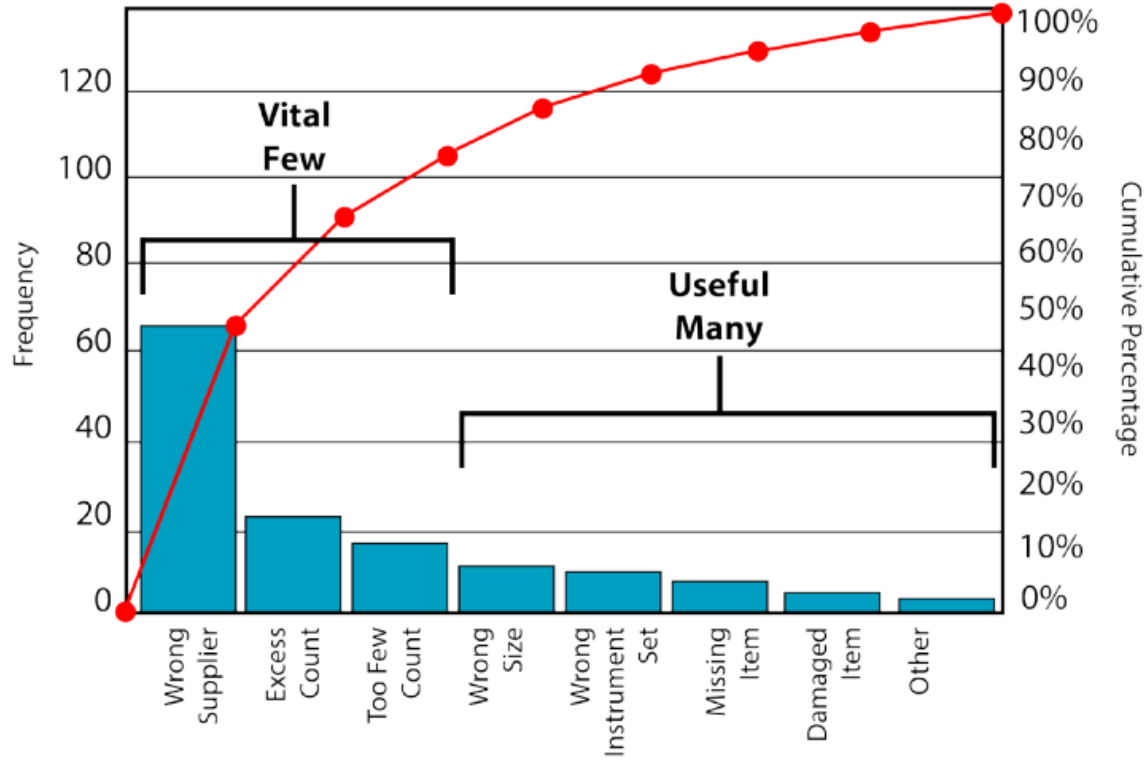
Why Use It:
A Pareto Chart enables a team to concentrate their improvement efforts on the factors that have the greatest impact. It also helps a team explain their rationale for focusing on certain areas and not others.

From IHI’s QI Essentials Toolkit

Error Type	Frequency	Percent	Cumulative %
Wrong Supplier	67	46.5	46.5
Excess Count	24	16.7	63.2
Too Few Count	17	11.8	75
Wrong Size	10	6.9	81.9
Wrong Sterile Instrument Set	10	6.9	88.8
Missing Item	8	5.6	94.4
Damaged Item	6	4.2	98.6
Other	2	1.4	100
TOTAL	144	100	

Data Table – Types of Errors Found During Surgical Set Up

Pareto Chart – Types of Errors Found During Surgical Set Up



PDSA – Plan, Do, Study, Act

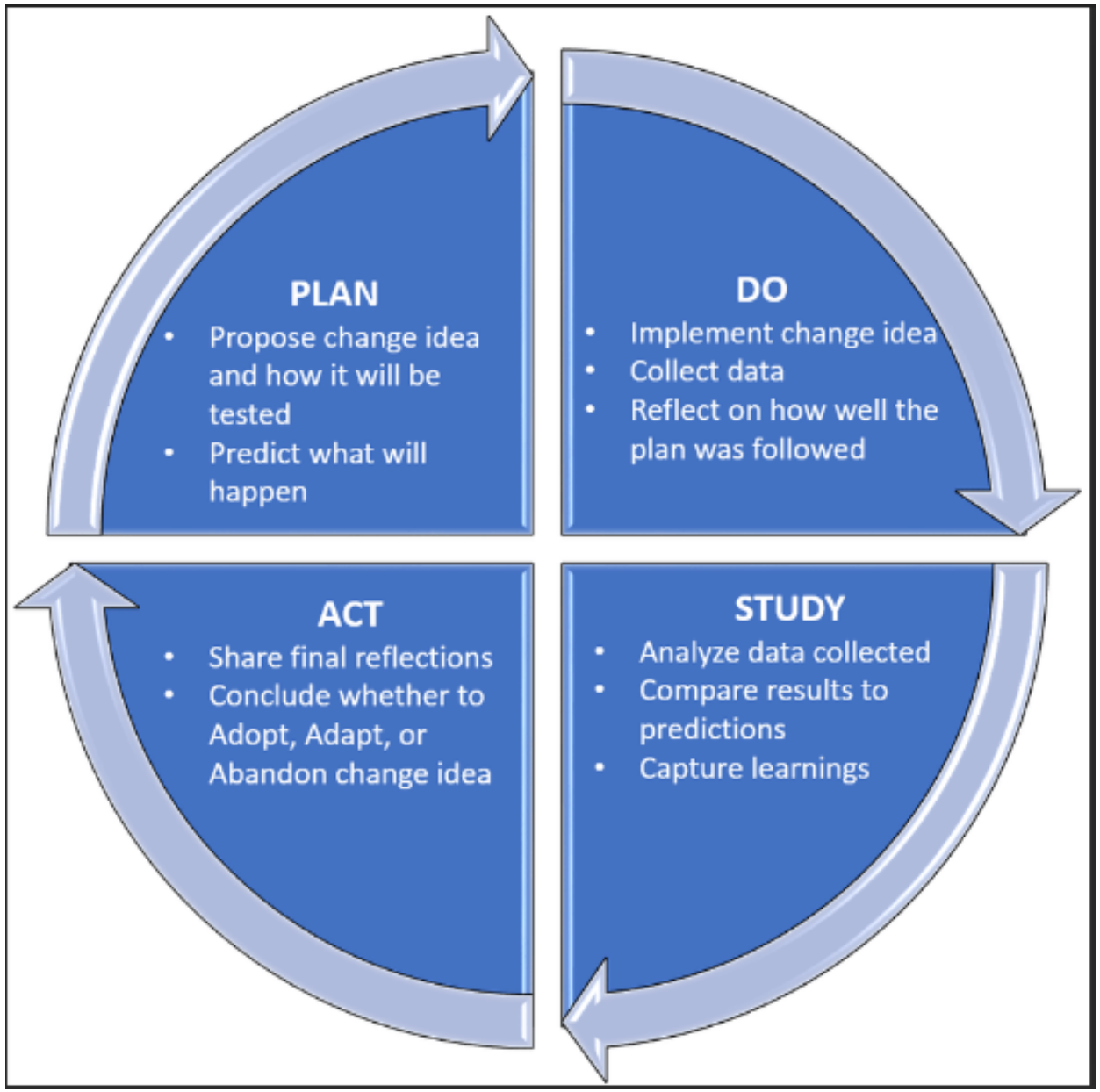
What it is:
A systematic process for gaining valuable learning and knowledge for the continual improvement of a process or service; a tool for documenting a test of change;

When to Use It:
For any change to a process your team wants to trial.

Why Use It:
It allows learning as quickly as possible whether an intervention works in a particular setting and to making adjustments according to increase the changes of delivering and sustaining the desired improvement.

From IHI's QI Essentials Toolkit and *The problem with the Plan-Do-Study-Act cycles*

PDSA



From ResearchGate

Project Planning Form

What it is:
A tool to track the list of changes that a team is testing (including all PDSA cycles), the person responsible for different aspects of each test, and the timeframe for each phase of the work.

When to Use It:
At the beginning of an improvement project to initiate planning.

Why Use It:
To help teams think systematically about their improvement project; to allow a team to see at a glance the full picture of a project.

From IHI's QI Essentials Toolkit

Example: Project Planning Form

Team: John, Sally, Mark, Dave, Laura, and Beth **Project**: Lowering Depression Scores: Achieve a 15-point decrease in PHQ-9 scores for 50% of depressed patients by May 1.

Driver – list the drivers you'll be working on	Process Measure	Goal
1. Patient education	% of patients in depressed population receiving education materials before leaving office will have documented use of education materials	90% of patients in depressed population will have documented use of educational materials before leaving office
2. Follow-up assessment	% of patients in depressed population that have a follow-up assessment within the first eight weeks of their initial diagnosis	75% of patients in depressed population have a follow-up assessment within the first eight weeks of their initial diagnosis
3.		
4.		
5.		
6.		

Driver Number (from above)	Change Idea	Tasks to Prepare for Tests	PDSA	Person Responsible	Timeline (T = Test; I = Implement; S = Spread)													
					Week													
					1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Provide pamphlet and link to short video at time of patient discharge	Need to make sure we have enough pamphlets on site; need to ensure link to video works	Nurse will hand materials to patient before leaving the exam room with all patients scoring high on the PHQ-9	Beth and Mark	**T**	**T**												
2	Patients will come back to the office for a follow-up assessment within eight weeks of depression diagnosis	Need to schedule appointments within timeframe and get patients to attend follow-up appointment; need to make sure secretaries are aware of this test	Have secretaries write down the date and time of the follow-up appointment on the back of the clinic's business card	Laura	**T**	**T**												

Run Chart

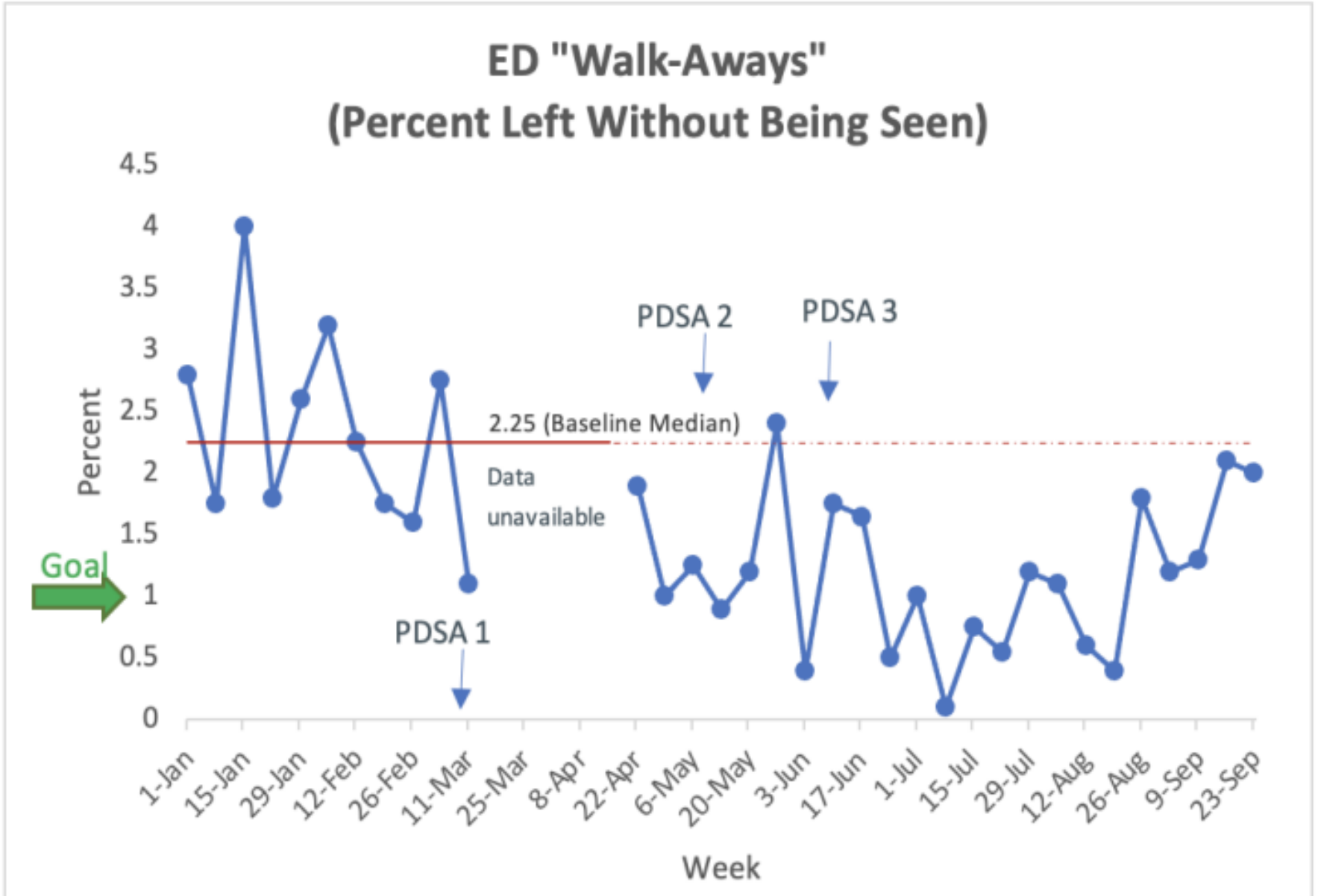
What it is:
A graph of data over time.

When to Use It:
When you have collected data which indicates performance of a certain process. How many points for statistical significance?

Why Use It:
To help the team formulate aims by depicting how well (or poorly) a process is performing; to
depict the current performance of a process and to help you determine whether the changes you are making are leading to improvement; to give direction as you work on improvement and information about the value of particular changes.

From IHI's QI Essentials Toolkit, IHI's Run Chart Tool, and ASQ's Run Chart

Example: Run Chart



Scatter Diagram

What it is:
A graphical representation of the relationship between two variables.

When to Use It:
When you have paired numerical data

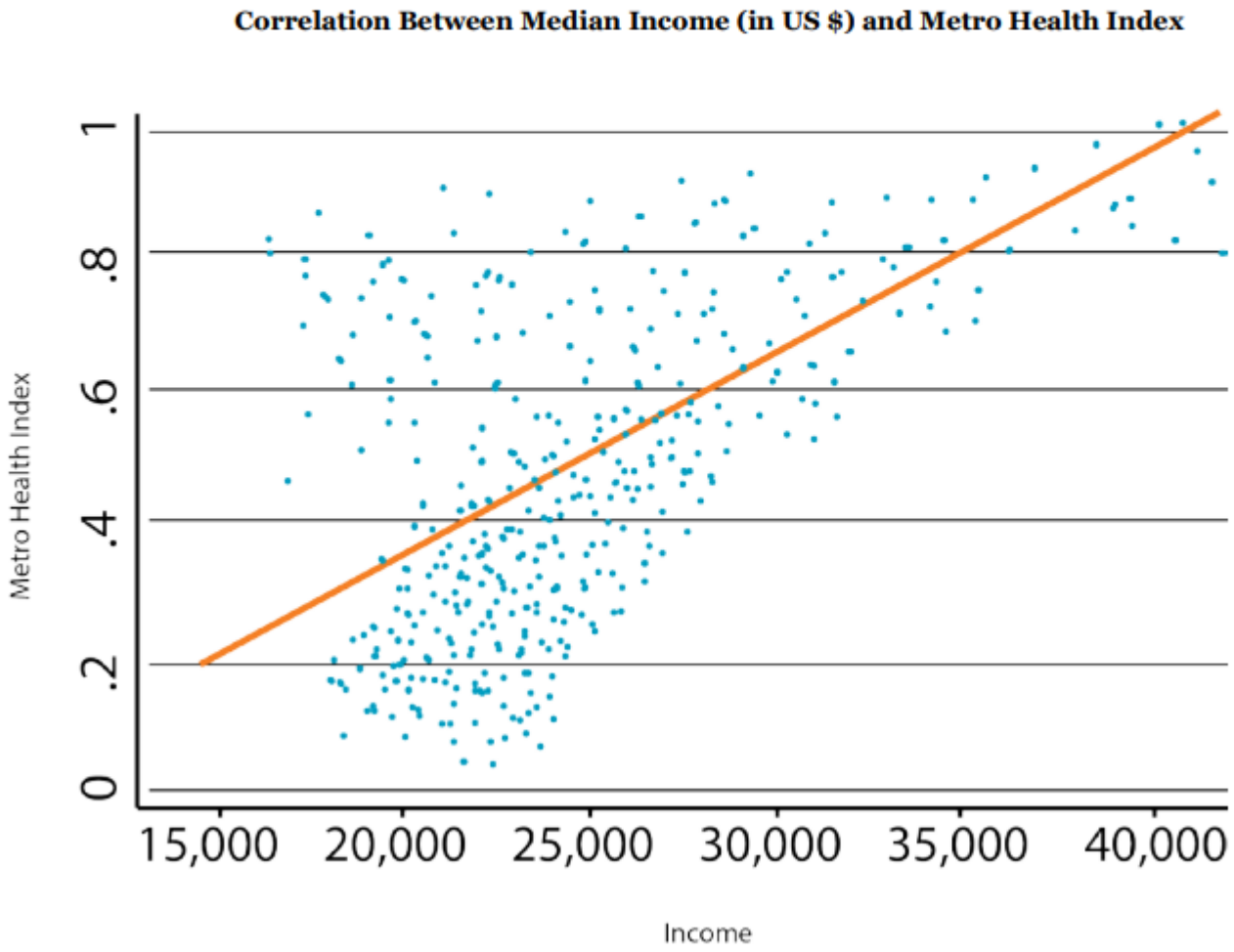
Why Use It:
To help identify cause-and-effect relationships between two variables. (It shows a correlation between two variables; it does NOT prove causation).

From IHI's QI Essentials Toolkit

Example: Scatter Diagram

This example scatter diagram shows the relationship between median income (X-axis) and Metro Health Index, a measure of people who smoke or are obese (Y-axis). The researcher wanted to see if there was correlation between income and health outcomes.

Indeed, the scatter diagram indicates that cities with a lower median income tend to have a lower Metro Health Index (indicating much higher levels of smoking and obesity). As the income level increases, so does the Metro Health Index. The scatter diagram shows a strong **positive correlation** between income and Metro Health Index.



Setting Up Your QI Project for Success – Identify and Deal With Barriers

1. Psychological
   - fear of change
   - fear of failure
   - grief over loss of familiar processes
   - fear of loss of control or power

2. Physical
   - Space constraints
   - Inadequate staffing levels

3. Procedural
   - lack of basic management expertise
   - lack of training in quality improvement
   - outdated or misguided organizational policies

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Setting Up Your QI Project for Success – Resources to Overcome Barriers

TeamSTEPPS® Change Management

CUSP – Comprehensive Unit-based Safety Program Team

Equipped: overcoming barriers to change to improve quality of care (theories of change); Lachman P, Runnacles J, Dudley J.

- Lens 1: Systems Theory for Change
- Lens 2: The Psychology of Change
- Lens 3: A Theory of Knowledge to Test Change
- Lens 4: Management of Variation to Improve Care

Found on AHRQ website

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Evaluating Implementation - Tools

Process Control Chart – visually plot your performance data over time in a graph or chart to seen and better understand any variation that might be occurring

Process Evaluation – monitor the implementation throughout the course of the QI initiative; assess how implementation is proceeding and if changes are being implemented as intended.

Summative Evaluation – planned throughout the project and focuses on assessing if the planned changes were successful in changing outcomes based on data collected during the program

From AHRQ Roadmap for Implementing Pediatric Quality Measures for Performance Improvement

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Evaluating Implementation – Needed Actions

Focus the Evaluation

- Tailor the evaluation to your initiative and the stakeholders' needs
- Determine resources and personnel available for your evaluation
- Develop and prioritize evaluation questions

Gather Credible Evidence

- Choose appropriate and reliable indicators to answer your evaluation questions
- Determine the data sources and methods to measure indicators
- Establish a clear procedure to collect evaluation information
- Complete an evaluation plan based on program description and evaluation design

From AHRQ Roadmap for Implementing Pediatric Quality Measures for Performance Improvement

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What is a High Reliability Organization?

- High reliability - consistent performance at high levels of safety over long periods of time.
- Used in high-risk organizations that manage extreme hazards in complex situation with success.
- Healthcare is a high-risk industry that can use High Reliability Organization (HRO) principles.
- Systems thinking and human factors engineering are inherent in HROs.

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High Reliability Principle – Preoccupation with Failure

- Team members recognize failures in the system before an error occurs and address the problem before it's out of control
- The organization encourages reporting of errors or near misses
- Team members feel comfortable speaking up if an impending error is discovered
- Nonpunitive analysis of incident reports and sharing the findings of analysis occurs; findings are communicated to staff as a strategy to promote system-level thinking
- Errors are analyzed with a focus on how the system failed rather than the individual.

From Kemper and Boyle, 2009

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High Reliability Principle – Reluctance to Simplify

- Team members listen carefully to others' views and questions is encouraged.
- Concerns from all disciplines are valued for their unique perspective.
- Everyone's concerns are taken seriously and considered during decision making about processes.

From Kemper and Boyle, 2009

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High Reliability Principle – Sensitivity to Operations

- Team members brief each other at the beginning of a work shift on what activities are expected and where resources will be needed

From Kemper and Boyle, 2009

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High Reliability Principle – Commitment to Resilience

- Team members are trained to handle the types of situations that require immediate action.
- Analysis of incidences results in lessons learned about system-level risks; risks and improvements are communicated to the team.

From Kemper and Boyle, 2009

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High Reliability Principle – Deference to Expertise

- Experts are available for team members to consult when an unexpected clinical situation occurs.
- Team members are comfortable asking for help when unfamiliar situations arise.

From Kemper and Boyle, 2009

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Additional Information About High Reliability

- Joint Commission offers a no cost evaluation of an accredited organization's readiness to begin their High Reliability Organization journey – ORO 2.0

- The Joint Commission suggests that health care organizations work to create a strong foundation before they can begin to mature as a high reliability organization. Those foundations include developing leadership commitment to a zero-harm goal, establishing a patient safety culture, and instituting a robust process improvement culture.

From PSNet, 2019

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What is a Just Culture?

A culture where the accountability for outcomes is a shared between those responsible for setting up the system (management) and individuals working within the system (providers and staff).

AHRQ Patient Safety Network, 2019

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Just Culture and High Reliability Concepts for Risk Reduction and Safety Event Analysis

Both concepts are working to strengthen an organization's culture of safety.

Just Culture removes or lessens the fear of speaking up and reporting events of harm.

High Reliability Organizations focus on creating systems that do not fail by providing team members with highly effective tools to utilize in creating their processes.

Both embrace Systems Thinking and a Reporting Culture which are foundational to creating a culture of patient safety throughout an organization.

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Reflection, Discussion, Q&A

- What one thing did you learn today?
- Which of the QI tools listed have you used in your own QI initiatives?
- Were you unfamiliar with any of the tools listed?
- Would anyone be willing to share a QI project they did and its outcome? Why was it successful? Or why was it unsuccessful?

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Post Session Zoom Survey

Please respond to the following statements whose responses are formatted with the Likert scale of strongly disagree to strongly agree.

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Thank You

"Continuous improvement is better than delayed perfection."

- Mark Twain

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