

Quality Improvement and Patient Safety (QIPS) Foundations

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Objectives

- Describe how the quality and safety process is very similar to our familiar scientific method
 - Identify the key differences
- Build a run-control chart
 - How to use QI approach to AAO-HNS Tonsillectomy in Children CPG



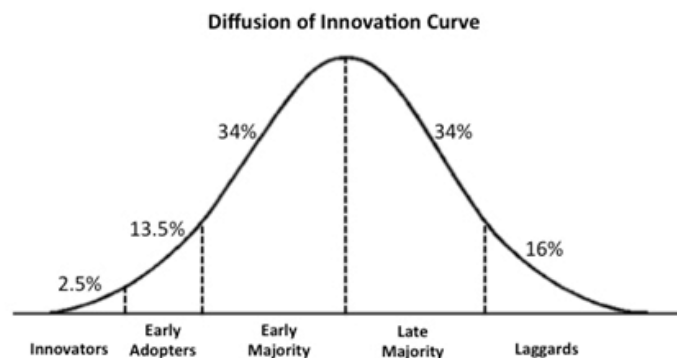
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As American physician and educator Arthur L. Bloomfield (1888–1962) explained, safety is an industry imperative: “There are some patients whom we cannot help; there are none whom we cannot harm.”

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How do we create impactful and sustainable change?

- Collaboration/stakeholder participation



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Culture Shift

- We need to start thinking about system and process failures as how we make things better, not people failures
 - How does the current infrastructure allow that adverse event to happen or set that person or group up to fail?
- **Science** of improvement
 - Framework and defined structure of how we make meaningful change
 - Not just some “corporate” or management gimmick
 - PDSA cycles

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4. Breakdown of the Shame-and-Blame Culture

Healthcare professionals must rely on a cultural intervention that **promotes teamwork, collaboration, and communication**, and avoids isolation and fragmentation.

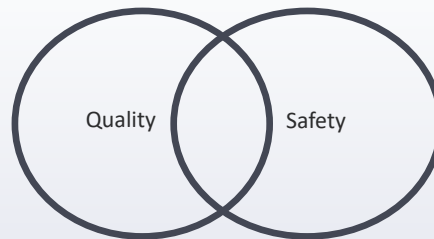


Transparency extends to healthcare professionals, as **communication and collaboration** across all teams (e.g., surgical technicians, nurses, and physicians) **is essential**.

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Health Systems Cannot Afford to Overlook Patient Safety

- Whether looking at the bottom line or, more significantly, the human face of patient harm, safety is an issue that health systems must prioritize.
 - People don't come to hospitals to suffer from or die of preventable harm, yet it's the third leading cause death in U.S.
 - Furthermore, as value-based care escalates, patient harm will increasingly cost health systems money. No one gains when patients are hurt.
- Patient safety won't be achieved without quality improvement measures that include integrated clinical, cost, and operational data; automation; actionable insight; and full integration across the continuum of care.
- Everyone stands to gain with improved patient safety.



What is quality and what is safety?

Two distinct, but overlapping areas: improving efficiency and preventing harm

- Quality
- Safety

$$\text{VALUE} = \frac{\text{QUALITY}}{\text{COST}}$$

MS12671_1

= Efficiency

Safety = prevent/avoid patient harm

- Severity of harm
 - Adverse event
 - Near miss
 - No harm
- Not all events and opportunities are created equal
 - M&M classification

What is Patient Safety?

- Prevention of errors and adverse effects to patients associated with healthcare

- WHO

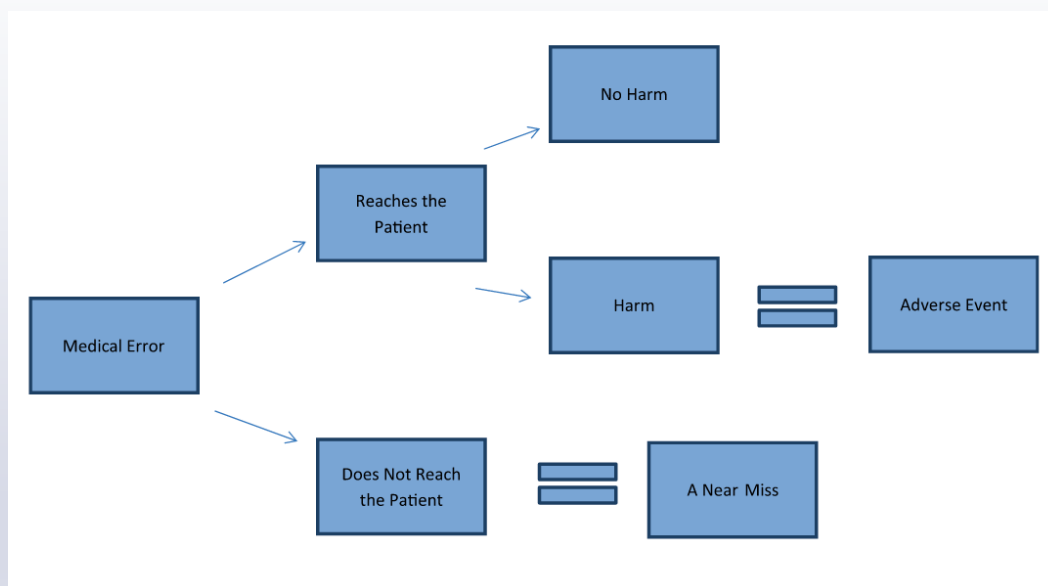
- Absence of preventable harm to a patient during the process of health care



Harm severity grading		
1	Minimal	Deviation from normal postop course without need for pharmacological treatment or surgical or radiologic intervention [allowed medications include physiotherapy, antiemetics, analgesics, diuretics, electrolytes, etc]
2	Mild	Required pharmacological treatment other than grade 1, includes blood transfusions and TPN
3	Moderate	Required surgical or radiologic intervention
4	Severe	Life threatening complication, permanent nerve injury or disability, clinically significant organ system dysfunction
5	Death	Classify as I: expected, no process improvement opportunities identified; II: expected, process improvement opportunities identified; III: unexpected

Medical Error

- Defined by the IOM as: “a failure to complete a planned action as intended or the use of a wrong plan to achieve an aim.”
 1. A medical error does not always lead to patient harm because it may not reach the patient and it may not be such a critical aspect in the process of care as to injure the patient.
 2. A near miss is a medical error that has the potential to cause patient harm but has not.
 - The knowledge that something kept the error from reaching the patient provides an excellent opportunity to learn about processes of care; understanding how we intentionally or accidentally prevent an error from reaching a patient allows clinicians to improve safety systems.
 3. An adverse event is a medical error in management or intervention that leads to patient injury and results in prolonged hospitalization or the presence of a disability at hospital discharge.



Sentinel Event

- Defined by the Joint Commission as: “an unexpected occurrence involving death or serious physical or psychological injury, or the risk thereof.”
 - Individual health-care organizations have the responsibility of defining serious physical or psychological injury, but the intent is to capture injuries of permanence and significance, such as loss of limb or function (e.g. wrong site surgery).
 - Once a sentinel event has been identified, the Joint Commission mandates:
 1. Investigation be immediately undertaken to determine the root causes that have led to the event
 2. Implementation of an action plan and monitoring to minimize future risk that this event will recur

What is Quality and Safety?

- It is...
 - Specific
 - Measurable = clinical outcomes (unplanned readmissions, unplanned return to OR, length of stay, surgical site infection, other adverse events, etc.)
 - But may also be operational – clinic efficiency, appointment scheduling, etc.
 - Achievable
 - Relevant
 - Timely
- Identifying processes and workflows
 - Improving process = improving clinical outcomes $\neq p - value$
- Tapping into “experts”
 - “Boots-on-the-ground” clinical care providers
- Being able to make that jump from “measurement to management”
 - Taking data signals and threats into action items to change daily process

Recognize Pitfalls

- Stakeholder buy-in
- Balancing measures
- Avoid “weaponization” of PSQI
- Identify resource needs
 - Data science/analytics
- Ask where is this data coming from?
 - Validation

How do you identify process
improvement opportunities that are
pertinent to your practice?

Data sources

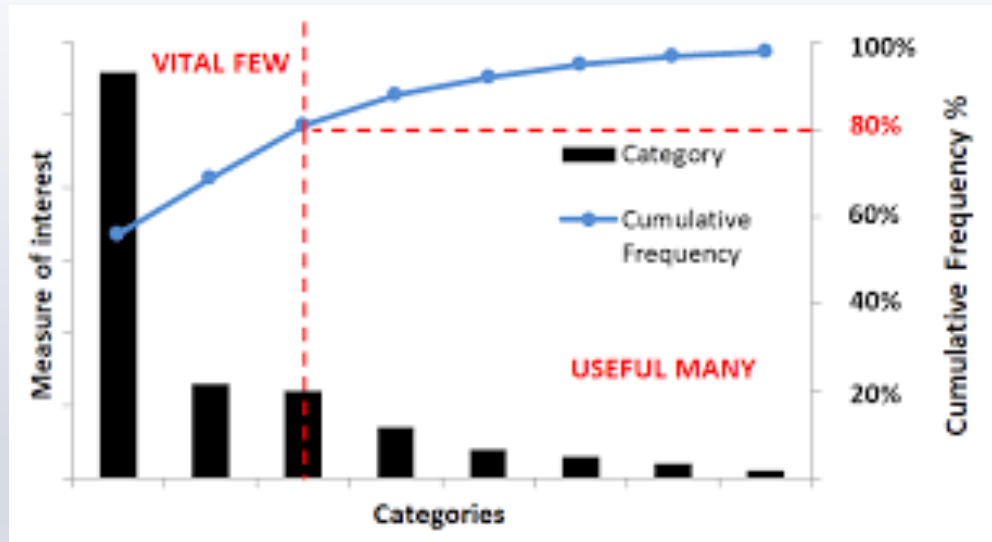
- Morbidity and mortality conferences
- Safety event reporting systems
- Sentinel events
- Hospital-based national data registries
- Nationally identified patient safety priorities



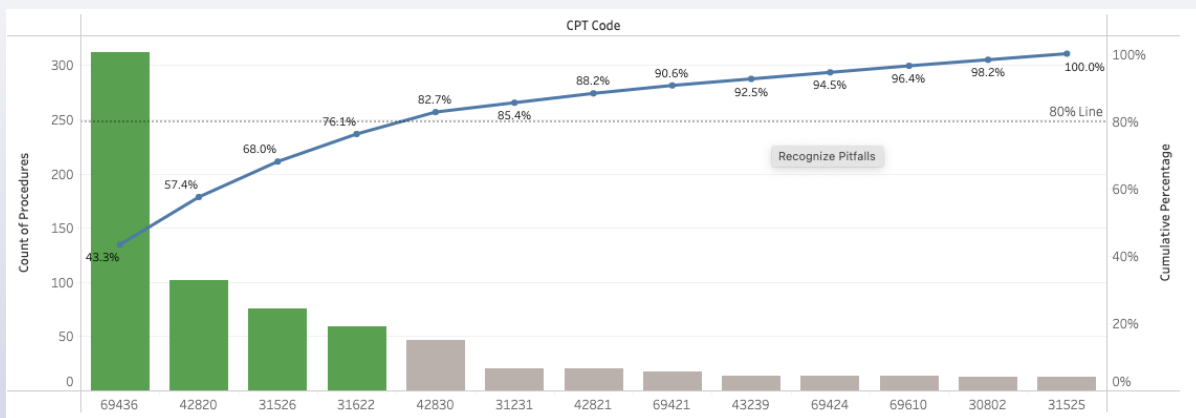
Identification of Process Improvement Opportunities

- Selected case review
 - Sentinel event
 - M&M
 - Safety reporting systems identified cases
 - Data registries
- Clinical/service area
 - Pareto chart

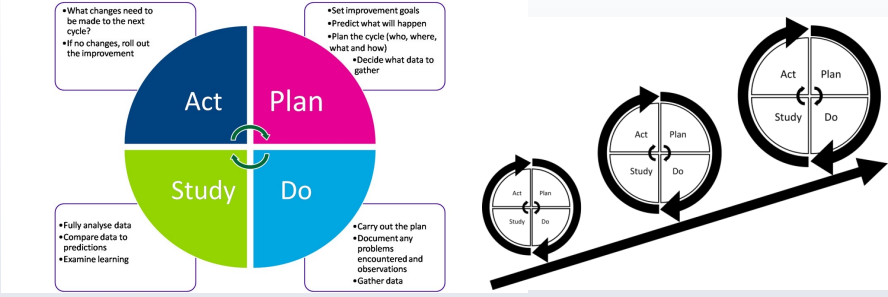
Pareto chart



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The diagram illustrates the Quality and Safety Framework (PDSA model) as a continuous cycle of improvement. It features a large central circle divided into four quadrants: Plan (pink), Do (blue), Study (green), and Act (dark blue). Surrounding this circle are four text boxes detailing the steps of the cycle:

- Plan:**
 - Set improvement goals
 - Predict what will happen
 - Plan the cycle (who, where, what and how)
 - Decide what data to gather
- Do:**
 - Carry out the plan
 - Document any problems encountered and observations
 - Gather data
- Study:**
 - Fully analyse data
 - Compare data to predictions
 - Examine learning
- Act:**
 - What changes need to be made to the next cycle?
 - If no changes, roll out the improvement

To the right of the central circle, three smaller versions of the PDSA cycle are shown, each progressively larger and positioned along an upward-pointing arrow, indicating a continuous process of improvement.

Quality and safety framework

Analagous to our familiar scientific method [IHI model] = PDSA (plan, do, study, act)

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Quality and safety framework

- Hypothesis
 - SMART Aim (specific, measurable, achievable, relevant, timely)
 - PS/QI projects are set up not show statistical significance but to improve an outcome/process
- Methods [identifying process improvement initiatives and opportunities], in lieu of Chi-square, t-test, multivariable analysis, etc.
 - Pareto chart
 - Adverse event chart review
 - A3
 - Root cause analysis
 - Learning from defects
 - Fishbone/Ishikawa diagram
 - SWARM
 - Process mapping
 - Key driver diagram

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Quality and safety structure (continued...)

- **Methods**
 - **Interpretation**, instead of p-values, use trends or changes in variation
 - Variation
 - Common
 - Special
- **Results**
 - **Run chart**
 - **Run control chart**
- **Discussion/interpretation of results**
 - Adopt
 - Adapt
 - Abandon

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SMART Aim

- **Specific**
- **Measurable**
 - Length of stay (LOS)
 - Surgical site infections (SSIs)
 - Adverse events (AEs)
- **Achievable**
- **Relevant**
- **Timely**

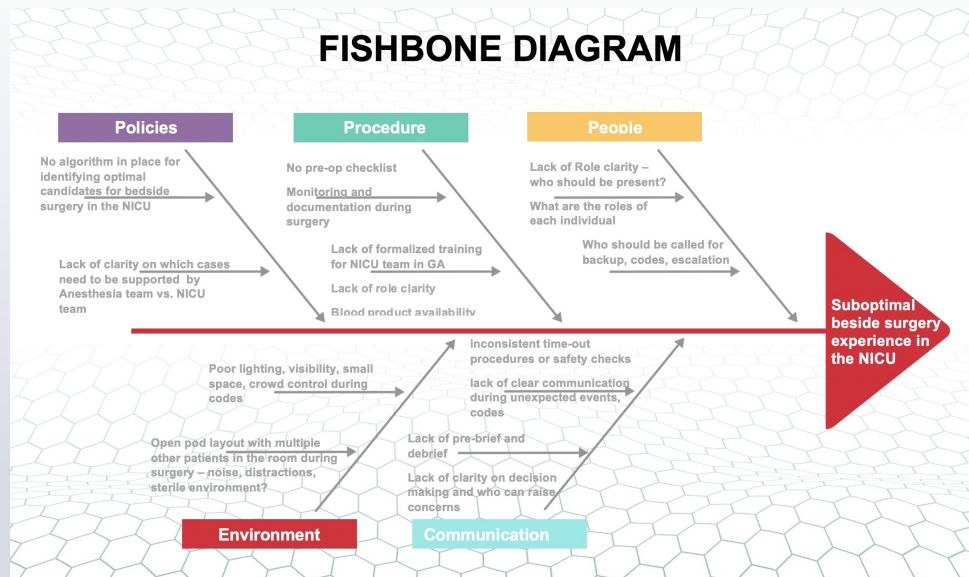


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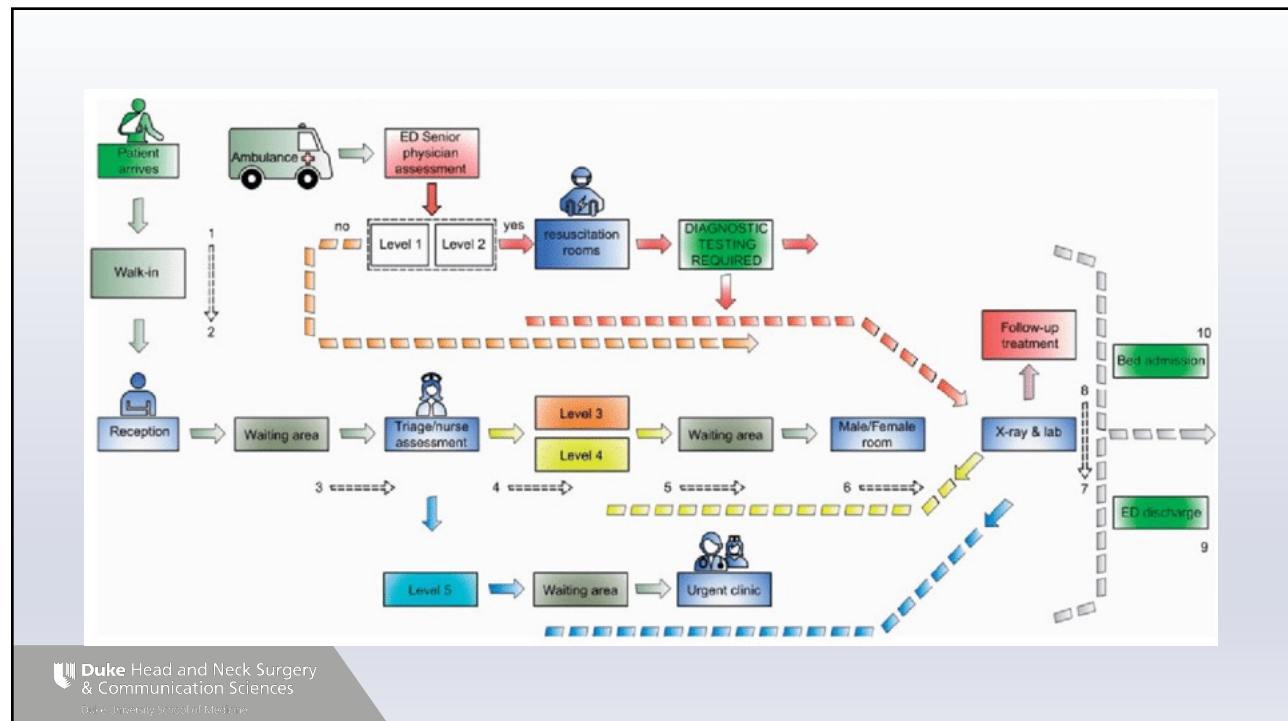
Core quality and safety tools

Process improvement methodology

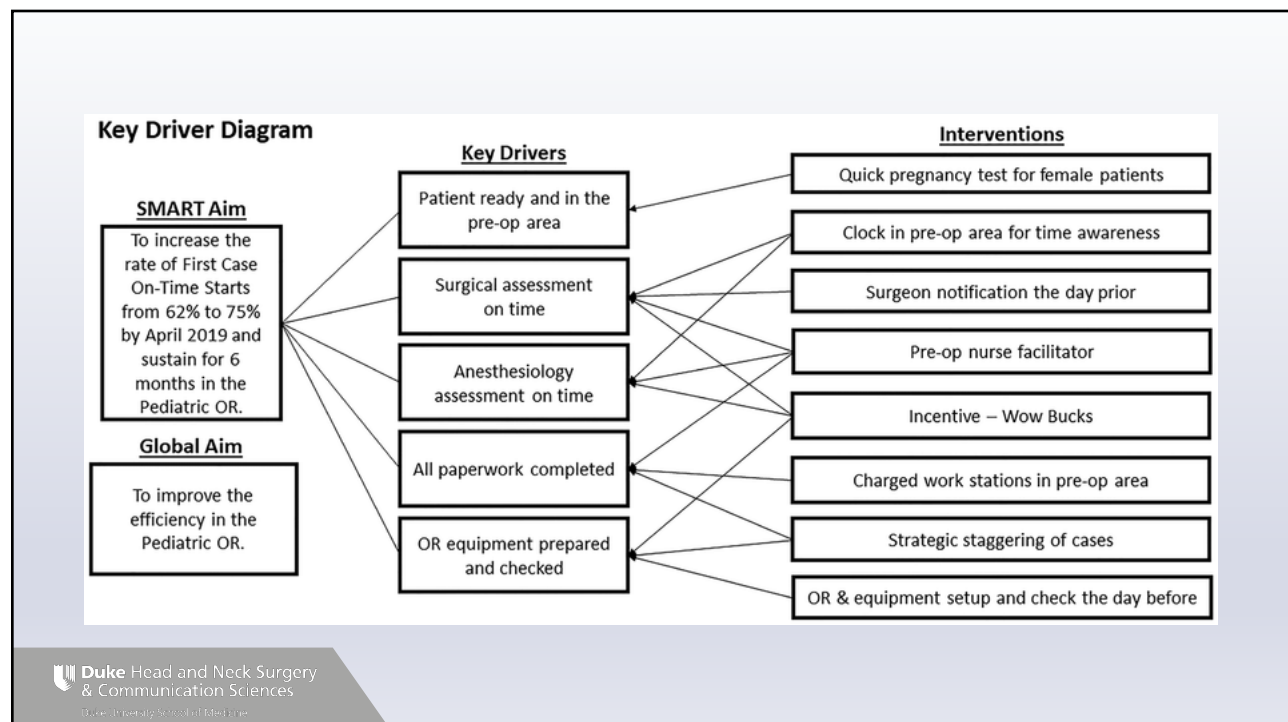
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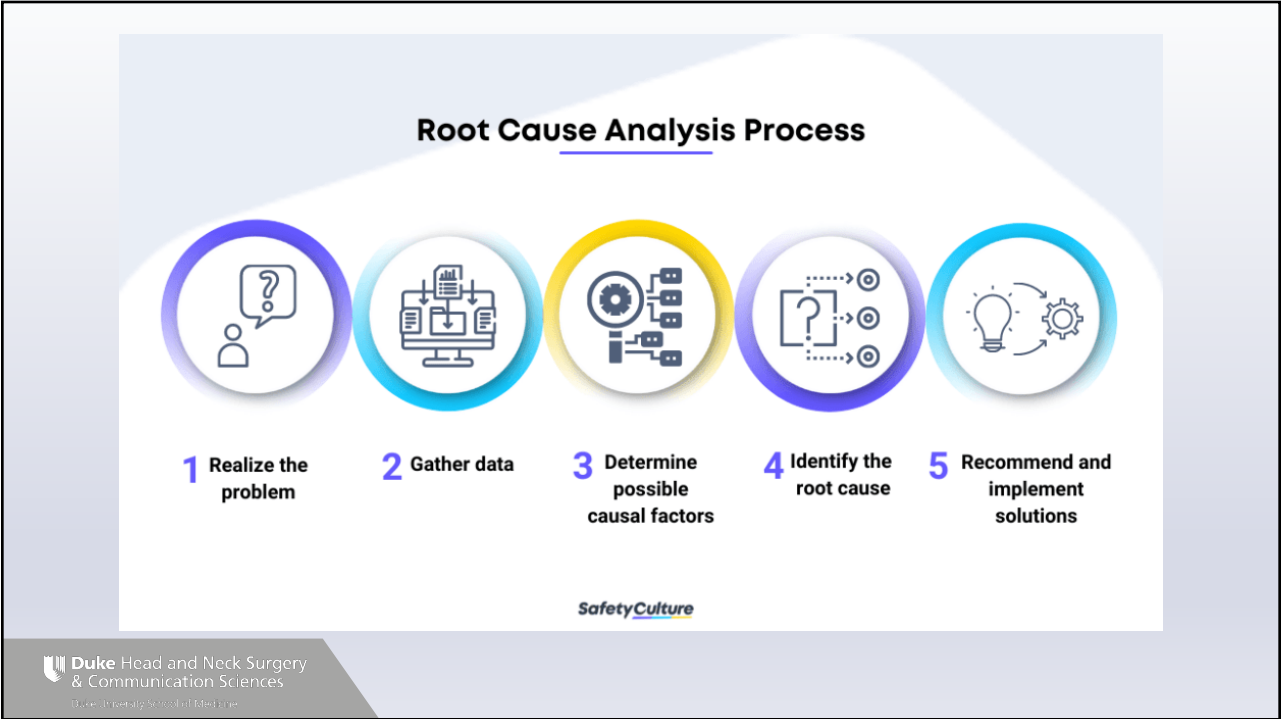
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A3 Problem Solving Sheet		Area	Team	Start Date	Target Completion
Background		Countermeasures			
Current Situation					
Targets / Goals					
Root Causes					
		Implementation Plan			
		Follow Up			

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Learning From Defects

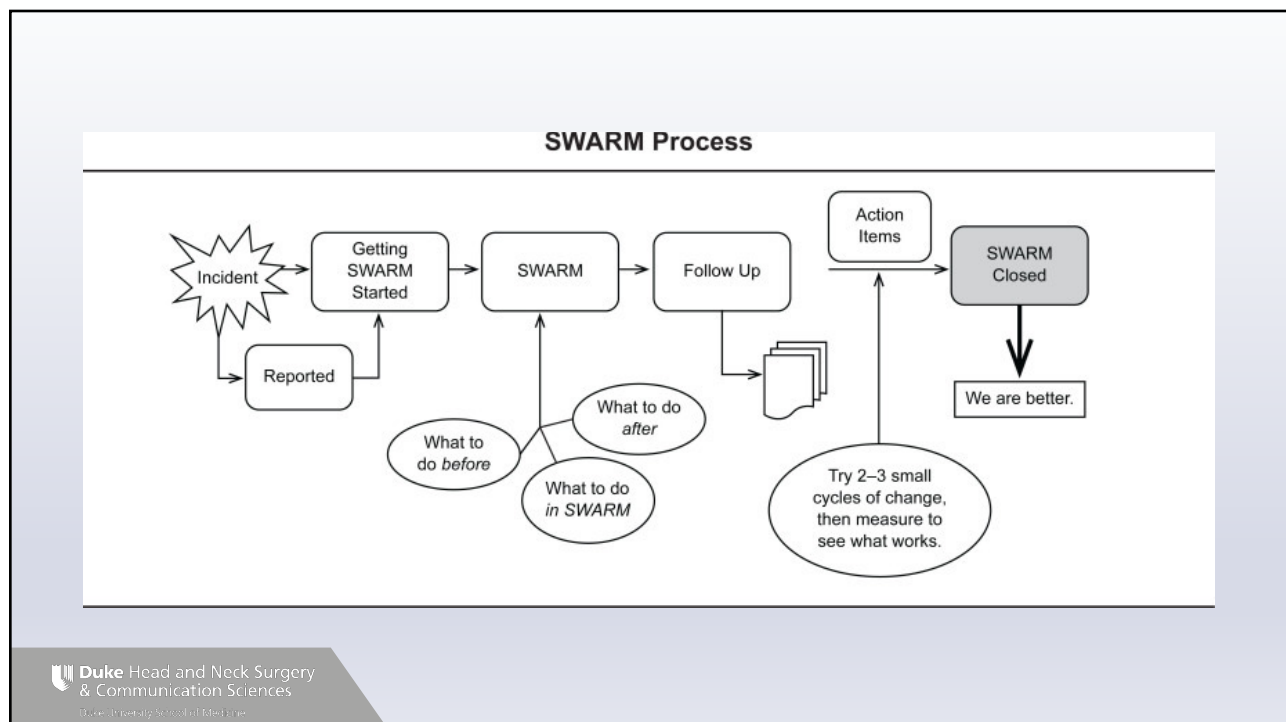
- 1 What happened?
From view of person involved
- 2 Why did it happen?
- 3 How will you reduce the risk of it happening again?
- 4 How will you know the risk is reduced?

JGRO Safety Program for Surgery – Implementation

Learning From Defects 9

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Results and interpretation

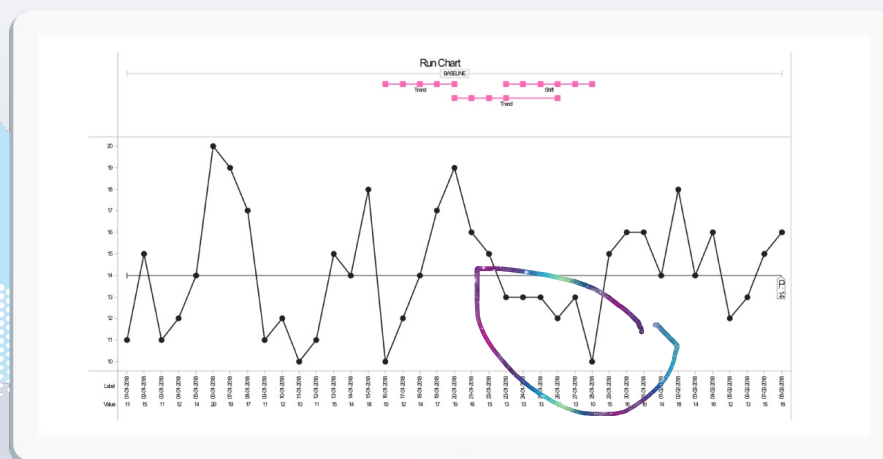
Run chart

Run-control chart: variation [common/special]

Trends

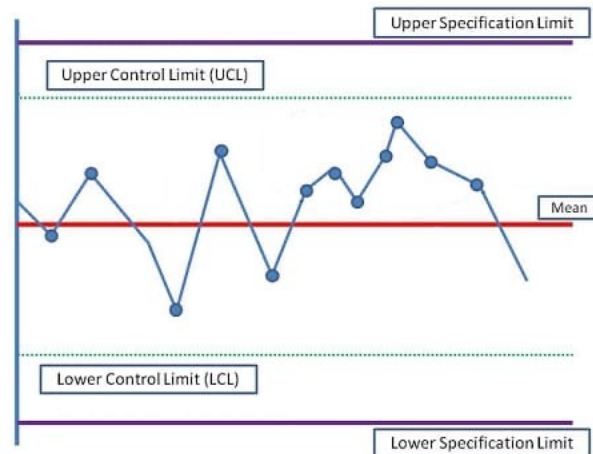
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Run chart: trend



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Run-control chart: common/special variation



Supplement

Clinical Practice Guideline: Tonsillectomy in Children (Update)

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 SAGE

15b. Posttonsillectomy bleeding rate

Clinicians should determine their rate of primary and secondary posttonsillectomy bleeding at least annually.

Recommendation

FY	Tonsil bleed rate (%)	Mean	UCL	LCL	SD	UCL = mean + 3 S.D. LCL = mean - 3 S.D.
2016	2.9	3.7875	6.29972013	1.27527987	0.837406711	
2017	3.4	3.7875	6.29972013	1.27527987	0.837406711	
2018	4.2	3.7875	6.29972013	1.27527987	0.837406711	
2019	3.7	3.7875	6.29972013	1.27527987	0.837406711	
2020	2.6	3.7875	6.29972013	1.27527987	0.837406711	
2021	3.8	3.7875	6.29972013	1.27527987	0.837406711	
2022	5.1	3.7875	6.29972013	1.27527987	0.837406711	
2023	4.6	3.7875	6.29972013	1.27527987	0.837406711	



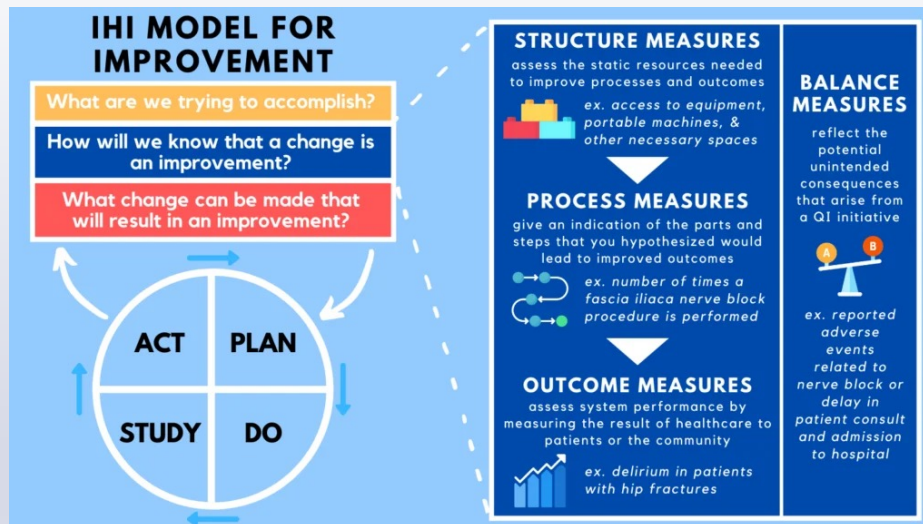
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Results interpretation

Adopt
Abandon
Adapt [balancing measures]

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Balancing measures



Other resources

- Institute for Health Care Improvement (IHI)
 - Open School
- American College of Surgeons (ACS) Quality Framework
 - <https://www.facs.org/quality-programs/quality-framework/>

QUALITY

ACS Quality Framework

The ACS Quality Framework is a comprehensive tool designed to help you and your team plan, conduct, evaluate, and report on quality improvement projects.