Maintaining and sustaining a highly reliable quality improvement strategy

Closing the gap: Structures, processes and outcomes

May 29, 2024

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Today's learning objectives

- Discuss approaches for mining data.
- Understand how to:
  - use a gap analysis/rapid-cycle assessment to identify areas for improvement; and
  - create a strategy to address gaps.

EQIC harm areas

EQIC-provided harm areas:
- CAUTI
- CLABSI
- *c. difficile*
- SSI
- MRSA
- Readmissions
- ADE
- Opioids
- Sepsis
- Falls
- Pressure injury

Questions to answer:
- How do you continue to track these?
- How to interpret the data you do have?

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Public resources

- Care Compare
  - https://www.medicare.gov/care-compare/?providerType=Hospital
  - Data from the inpatient quality reporting program
  - Shows hospital measurement value and how it compares to national benchmarks
  - Ability to compare your hospital with other hospitals to see how you compare
  - Harm area examples: CAUTI, CLABSI, MRSA, SSI, *c. diff, r*eadmissions, etc.

- NHSN HAI Benchmark Report

How to use Care Compare

- Access the website using this link:
  - https://www.medicare.gov/care-compare/?providerType=Hospital
- Enter the location or name of your hospital and select search.
- You can then click the "compare" button next to your hospital and any other hospital you are interested in comparing.
- Inpatient measures can be found under the drop-down menus for:
  - complications and deaths; and
  - unplanned hospital visits.

Saint Joseph Hospital

1375 E 19th Ave
Denver, CO 80218

(303) 812-2000

♡ Save to Favorites

Denver Health & Hospital...

777 Bannock St
Denver, CO 80204

(303) 436-4927

♡ Save to Favorites

HOSPITALS

Overview ⌃

	Saint Joseph Hospital	Denver Health & Hospital...
Distance from Denver, CO	0.9 miles	0.8 miles
Overall star rating	★★★★★	★★★☆☆
Patient survey rating	★★★★☆	★★★☆☆
Hospital type	Acute Care Hospitals	Acute Care Hospitals

Patient survey rating ⌄

Timely & effective care ⌄

Complications & deaths ⌄

Unplanned hospital visits ⌄

Maternal health ⌄

Psychiatric unit services ⌄

Payment & value of care ⌄

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9

Care Compare output examples

Infections

Central line-associated bloodstream infections (CLABSI) in ICUs and select wards ↓ *Lower numbers are better* National benchmark: 1.000	**1.005** No different than national benchmark	**0.130** Better than the national benchmark
Catheter-associated urinary tract infections (CAUTI) in ICUs and select wards ↓ *Lower numbers are better* National benchmark: 1.000	**1.158** No different than national benchmark	**0.378** No different than national benchmark
Surgical site infections (SSI) from colon surgery ↓ *Lower numbers are better* National benchmark: 1.000	**2.130** Worse than the national benchmark	**0.844** No different than national benchmark

Unplanned hospital visits ⌃

Returning to the hospital for unplanned care disrupts patients' lives, increases their risk of harmful events like healthcare-associated infections, and costs more money. Hospitals that give high quali...

Read more

Rate of readmission after discharge from hospital (hospital-wide) National result: 14.6%	**13.9%** No different than the national rate Number of included patients: 477	**14.9%** No different than the national rate Number of included patients: 806

By medical condition

Rate of readmission for chronic obstructive pulmonary disease (COPD) patients National result: 19.3%	**Not available** [1] Number of cases too small	**20.7%** No different than the national rate Number of included patients: 30
Rate of readmission for heart attack patients National result: 14%	**Not available** [1] Number of cases too small	**14.4%** No different than the national rate Number of included patients: 28

Tools to use your own data

National Healthcare Safety Network
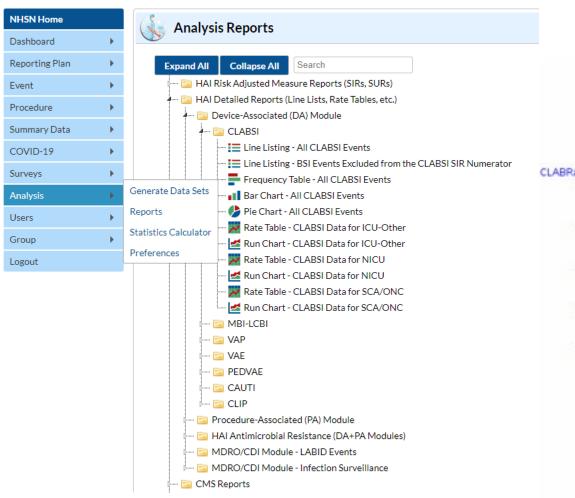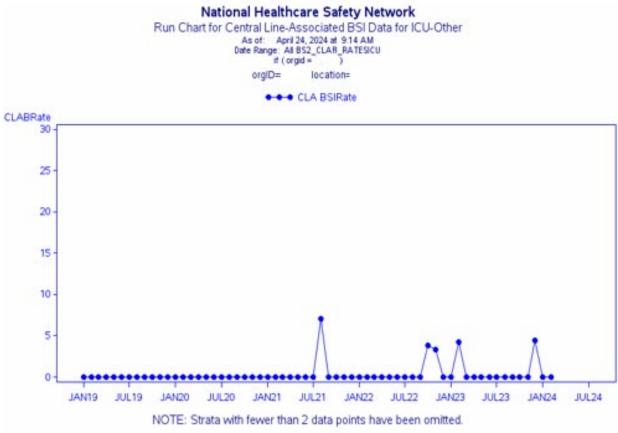
NHSN

- The NHSN system can make run charts and export data directly out of the system.
- NHSN generates run charts to let you view your hospital's rates over time for harm areas such as CAUTI, CLABSI, *c. diff*, MRSA and SSI.
  - Limited to run charts that are specific for each unit you have entered data for. There is no overall run chart for your hospital.
  - No run charts are available for SIR data.
- Can download data directly from NHSN as an Excel file to do your own data analysis.

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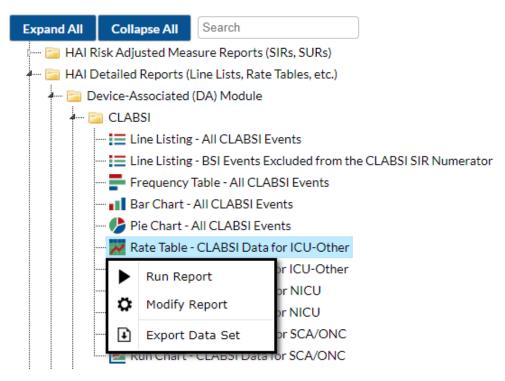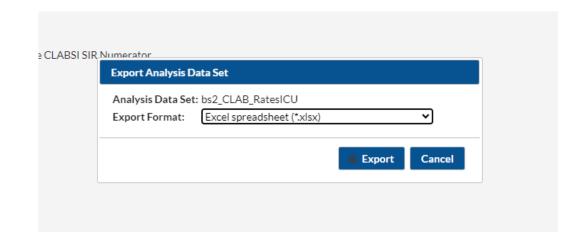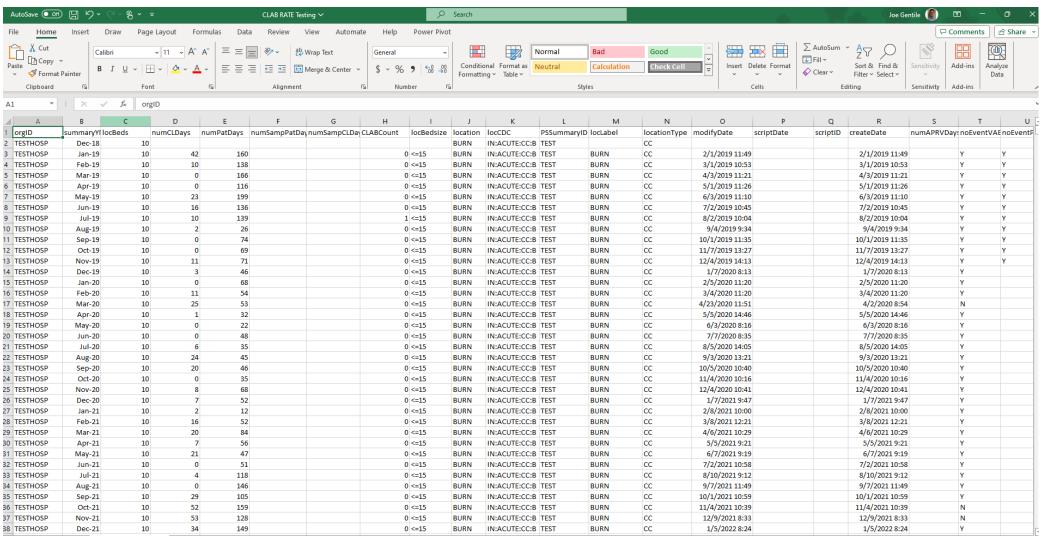EASTERN US QUALITY
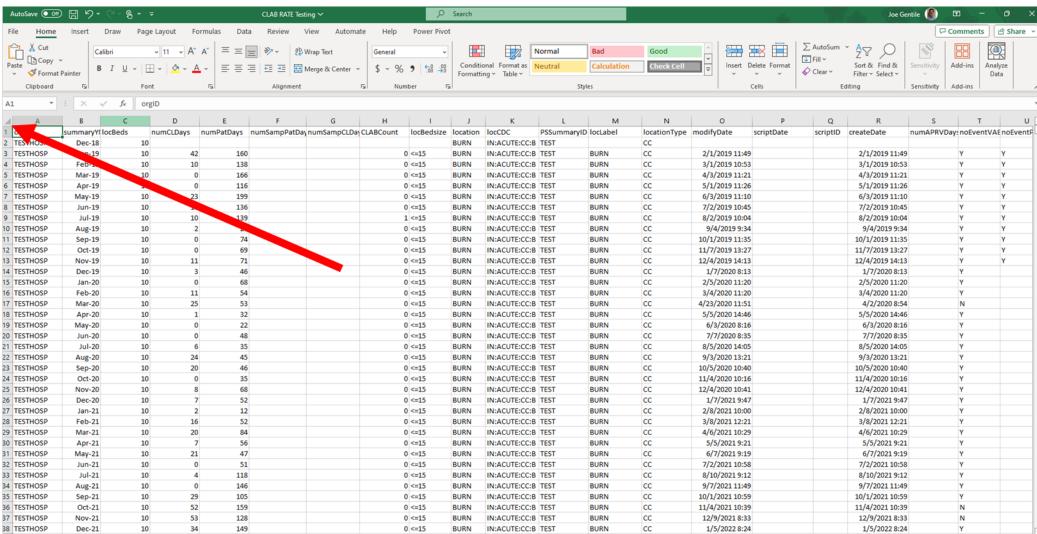IMPROVEMENT COLLABORATIVE

NHSN run charts

Downloading as Excel

Working in Excel

Working in Excel

Working in Excel

Adding a measurement field

Chart creation

Row Labels	Sum of CLABCount	Sum of numCLDays	Sum of Measure
⊞ 2019	340	531102	0.640178346
⊞ 2020	431	494409	0.871747885
⊞ 2021	508	570162	0.890974846
⊞ 2022	486	555040	0.875612568
⊞ 2023	425	548529	0.774799509
⊞ 2024	80	126628	0.631771804
Grand Total	2270	2825870	0.803292437

Chart creation

Run chart by year

Row Labels	Sum of Measure
⊞ 2019	0.640178346
⊞ 2020	0.871747885
⊞ 2021	0.890974846
⊞ 2022	0.875612568
⊞ 2023	0.774799509
⊞ 2024	0.631771804
Grand Total	0.803292437

Sum of Measure

CLABSI rate per 1,000 central line days

Years (summaryYM) ▾ꞮT | Quarters (summaryYM) ▾ | Months (summaryYM) ▾ | summaryYM ▾

Run chart by year

Row Labels	Sum of Measure
⊞ 2019	0.640178346
⊞ 2020	0.871747885
⊞ 2021	0.890974846
⊞ 2022	0.875612568
⊞ 2023	0.774799509
⊞ 2024	0.631771804
Grand Total	0.803292437

Sum of Measure

CLABSI rate per 1,000 central line days

Years (summaryYM) | Quarters (summaryYM) | Months (summaryYM) | summaryYM

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23

Run chart by month

Row Labels	Sum of Measure
2020	
Qtr1	
Jan	0.52554884
Feb	0.519170366
Mar	0.577233895
Qtr2	
Apr	1.574112304
May	1.140560504
Jun	0.97793885
Qtr3	
Jul	1.008318629
Aug	0.788519161
Sep	0.867648438
Qtr4	
Oct	0.820911644
Nov	0.842383262
Dec	0.851452661
2021	
Qtr1	
Jan	0.948572491
Feb	0.762278123
Mar	0.84505852
Qtr2	

CLABSI rate per 1,000 central line days

SPC chart

Average	0.864547809			
Standard Devia	0.129014528			
Upper Confide	1.251591393			
Lower Confide	0.477504225			
Row Labels ▼	Sum of Measure	Sum of Average	Sum of UCL	Sum of LCL
⊟ 2020				
⊟ Qtr1				
⊞ Jan	0.52554884	0.86	1.25	0.48
⊞ Feb	0.519170366	0.86	1.25	0.48
⊞ Mar	0.577233895	0.86	1.25	0.48
⊟ Qtr2				
⊞ Apr	1.574112304	0.86	1.25	0.48
⊞ May	1.140560504	0.86	1.25	0.48
⊞ Jun	0.97793885	0.86	1.25	0.48
⊟ Qtr3				
⊞ Jul	1.008318629	0.86	1.25	0.48
⊞ Aug	0.788519161	0.86	1.25	0.48
⊞ Sep	0.867648438	0.86	1.25	0.48
⊟ Qtr4				
⊞ Oct	0.820911644	0.86	1.25	0.48
⊞ Nov	0.842383262	0.86	1.25	0.48
⊞ Dec	0.851452661	0.86	1.25	0.48
⊟ 2021				
⊟ Qtr1				

Self-collected data

Date	Numerator — Number of observed CLABSI infections	Denominator — Number of central line days
Jan-23	4	4826
Feb-23	3	4799
Mar-23	10	5226
Apr-23	4	4748
May-23	6	5006
Jun-23	10	5000
Jul-23	2	5044
Aug-23	6	4934
Sep-23	7	5200
Oct-23	5	4931
Nov-23	7	5403
Dec-23	7	4881

D5   fx   =B5/C5*1000

	A	B	C	D
1				
2				
3		Numerator	Denominator	Measure
4	Date	Number of observed CLABSI infections	Number of central line days	CLABSI rate per 1,000 central line days
5	Jan-23	4	4826	0.828843763
6	Feb-23	3	4799	0.625130235
7	Mar-23	10	5226	1.913509376
8	Apr-23	4	4748	0.842459983
9	May-23	6	5006	1.198561726
10	Jun-23	10	5000	2
11	Jul-23	2	5044	0.396510706
12	Aug-23	6	4934	1.216051885
13	Sep-23	7	5200	1.346153846
14	Oct-23	5	4931	1.013993105
15	Nov-23	7	5403	1.295576532
16	Dec-23	7	4881	1.43413235

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Self-collected data cont'd

Date	Numerator Number of observed CLABSI infections	Denominator Number of central line days	Measure CLABSI rate per 1,000 central line days
Jan-23	4	4826	0.828843763
Feb-23	3	4799	0.625130235
Mar-23	10	5226	1.913509376
Apr-23	4	4748	0.842459983
May-23	6	5006	1.198561726
Jun-23	10	5000	2
Jul-23	2	5044	0.396510706
Aug-23	6	4934	1.216051885
Sep-23	7	5200	1.346153846
Oct-23	5	4931	1.013993105
Nov-23	7	5403	1.295576532
Dec-23	7	4881	1.43413235

CLABSI rate per 1,000 central line days

Data wrap-up

- What data are currently being tracked at your facility?
- Are there any dashboards available within your facility?
- Is your facility already aligned with any value-based care programs?
- Talk to coworkers about available resources for data and data analysis.

Closing the gap:
Structures, processes and outcomes

Nicole Ford
EQIC project manager

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How do you solve a problem within your system?

Image source

Do these steps look familiar?

Envision the problem within the larger system

Engage collaborative multidisciplinary teams centrally and locally

1 Summarize the evidence

2 Identify local barriers to implementation

3 Measure performance

4 Ensure that all patients receive the interventions

1. Pronovost PJ, Berenholtz SM, Needham DM. Translating evidence into practice: a model for large scale knowledge translation. BMJ. 2008 Oct 6;337:a1714. PMID: 18838424.

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THE PROBLEM

Traditionally, quality improvement efforts are driven by the STEPS in the process rather than by the IMPROVEMENTS themselves.

FIGURE 2.

FOCUS:

FIND	➡	What are we trying to accomplish?
ORGANIZE	➡	How will we know the change is an improvement?
CLARIFY	➡	What are we trying to accomplish?
UNDERSTAND	➡	How will we know the change is an improvement?
SELECT	➡	What changes can we make that will result in an improvement?

FIGURE 3.

Improvement comparison

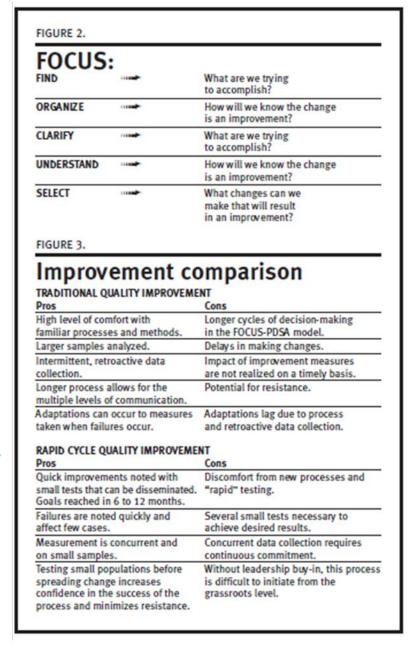**TRADITIONAL QUALITY IMPROVEMENT**

Pros	Cons
High level of comfort with familiar processes and methods.	Longer cycles of decision-making in the FOCUS-PDSA model.
Larger samples analyzed.	Delays in making changes.
Intermittent, retroactive data collection.	Impact of improvement measures are not realized on a timely basis.
Longer process allows for the multiple levels of communication.	Potential for resistance.
Adaptations can occur to measures taken when failures occur.	Adaptations lag due to process and retroactive data collection.

RAPID CYCLE QUALITY IMPROVEMENT

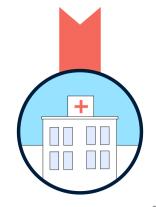| Pros	Cons
Quick improvements noted with small tests that can be disseminated. Goals reached in 6 to 12 months.	Discomfort from new processes and "rapid" testing.
Failures are noted quickly and affect few cases.	Several small tests necessary to achieve desired results.
Measurement is concurrent and on small samples.	Concurrent data collection requires continuous commitment.
Testing small populations before spreading change increases confidence in the success of the process and minimizes resistance.	Without leadership buy-in, this process is difficult to initiate from the grassroots level.

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Identifying *where and why* gaps exist

Examples of gaps in healthcare include:

1. Disparities in healthcare access and outcomes among different populations.
2. Variation in care delivery for a specific disease or treatment.
3. Lack of adherence to clinical guidelines or best practices.
4. Inefficient communication and coordination between healthcare providers.
5. Incomplete documentation and lack of data sharing among healthcare providers.

Gaps in Care are disconnects between patient experience and evidence-based best practices.

Image source

THE SOLUTION:
Shining a light on the space in between

A gap analysis or rapid-cycle assessment is an examination and assessment of your performance for the purpose of identifying the differences between your current state of operation and where you'd like to be.

Gap Analysis

GAP

Current State · Key steps to bridge gap · Desired State

Action Plan

Think of it as a BRIDGE to accelerate your team from point A to point B

Image source

How do we close the GAP?

Image source

The gap assessment:

A powerful tool in strategic planning

Let's walk through the steps!

Step 1: Identify area(s) for improvement

Step 2: Analyze your current state

Step 3: Define your end goal

Step 4: Understand your gap(s)

Step 5: Determine a plan of action

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Step 1: Identify areas for improvement

Rapid-cycle Improvement Program
Sepsis Assessment

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WHAT IS THIS TOOL?

This assessment allows hospitals to identify opportunities for improvement to reduce the risk of a patient developing sepsis. Use this tool to interview unit-based staff and compare current practices with recommended evidence-based best practices.

WHO SHOULD USE THIS TOOL?

Hospital-based quality improvement teams focused on reducing sepsis.

ASSESSMENT PROCESS:

- Review the hospital's internal policies and protocols.
- Review electronic medical records for selected patients to evaluate the presence of documented assessments and interventions.
- Complete the assessment with unit-based staff from multiple hospital areas to ensure that unit-to-unit variation is accounted for in any hospital-wide action plans developed as a result of the assessment.
- Review responses with your EQIC project manager for additional guidance and next steps.

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Review internal policies, protocols and processes

EVIDENCE-BASED PRACTICE	PRACTICE IN PLACE?	NOTES
ORGANIZATIONAL STRUCTURE AND CULTURE		
An interdisciplinary team or committee focused on sepsis prevention meets regularly.	○ Yes ○ No	
This team reports to the hospital quality improvement committee or board of directors.	○ Yes ○ No	
The hospital has identified an executive sponsor.	○ Yes ○ No	
There are designated unit-based champions across the hospital.	○ Yes ○ No	
The hospital has a performance improvement program in place.	○ Yes ○ No	
Policies/protocols have been developed and updated with current guidelines/evidence-based recommendations.	○ Yes ○ No	
New treatments, equipment designed to assist with treatment and prevention are frequently evaluated.	○ Yes ○ No	
Patient stories are shared with frontline staff and board members.	○ Yes ○ No	
DATA COLLECTION AND REPORTING		
Rates are tracked regularly.	○ Yes ○ No	
Rates are delineated by unit location.	○ Yes ○ No	
The hospital uses a standardized reporting mechanism (i.e., dashboard) to track incidence and outcomes.	○ Yes ○ No	
Data are shared with clinicians, frontline staff and key stakeholders.	○ Yes ○ No	
STAFF EDUCATION		
Staff that receive education and training on sepsis prevention strategies include (check all that apply):	☐ Providers ☐ Frontline staff ☐ Clinical support staff ☐ Transport staff ☐ Environmental staff	

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Review EMR to evaluate select patient documentation and interventions

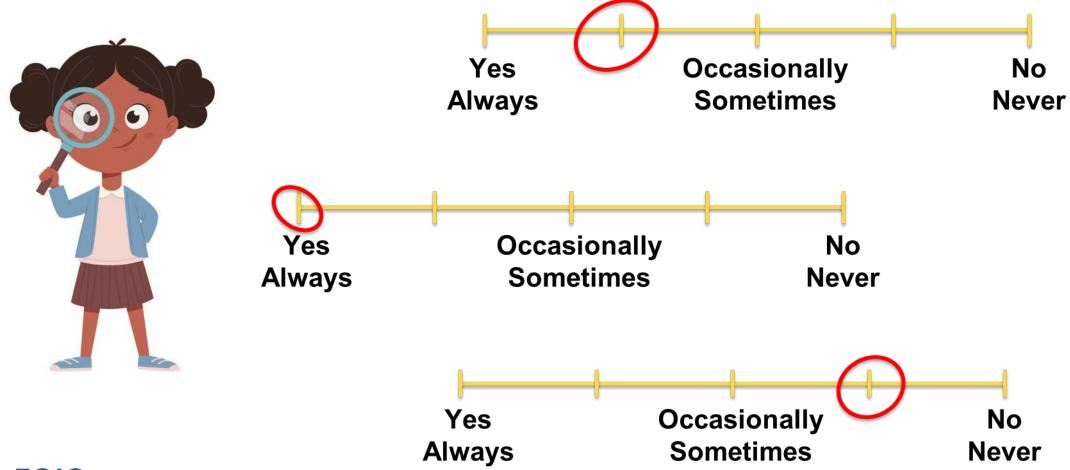| EVIDENCE-BASED PRACTICE	PRACTICE IN PLACE?	NOTES
STAFF EDUCATION (CONTINUED)		
Staff education about sepsis prevention and treatment is provided:	○ At orientation ○ Annually ○ Other; describe: _____	
A sepsis educator or champion is available to staff at all times for questions and real-time education.	○ Yes ○ No	
A patient and family advisory council or another committee with patient representation is involved in sepsis education.	○ Yes ○ No	
EARLY IDENTIFICATION AND TIMELY TREATMENT		
A sepsis screening tool (i.e., Systemic Inflammatory Response Syndrome, National Early Warning Score or Modified Early Warning System) is used.	○ Yes ○ No	
All patients suspected of having or presenting signs of sepsis are screened.	○ Yes ○ No	
An early alert warning system is utilized in: • ED; • ICU; and/or • Med/Surg unit.	○ Yes ○ No ○ Yes ○ No ○ Yes ○ No	
Code Sepsis or Sepsis Rapid Response Team is activated when sepsis is suspected and/or a patient demonstrates signs of imminent clinical deterioration in: • ED and/or • inpatient units.	○ Yes ○ No ○ Yes ○ No	
SEPSIS CARE BUNDLE IMPLEMENTATION AND COMPLIANCE		
The Hour-1 bundle is implemented upon sepsis/septic shock recognition.	○ Yes ○ No	

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Interview staff to assess knowledge and understanding of best practices

Drill down – right to the unit level!

Step 2: Analyze your current state

Now it's time to determine your starting line for improvement. This step answers the question, *"Where are we now?"*

- Gather stakeholders to review findings and garner consensus.
- Discuss identified gaps, opportunities and contributing factors – *be specific and detailed!*
- Reflect on cross-cutting themes to inform priorities for ACTION.

Analyze your current state

🔍 There are numerous tools, methodologies, and internal/external analysis frameworks you can use to assess your current state *(like SWOT Analysis, McKinsey 7-S, etc.).*

These **do not** replace your gap analysis!

WHO is involved in the PROCESS?

Medical Staff– Frontline/Leadership

C-Suite Leadership

Quality, Safety, & Risk Management

Unit-Level Staff/– Directors/Managers

IT/Clinical Informatics/ Technical Experts

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Step 3: Define your end goal

After understanding where you currently stand, it's time to define quantifiable goals to strive for. This step answers the question, *"Where do we want to be?"*

1. What are the top two or three findings that are most important for us to address in the short term? In the long term?
2. What are our strengths and where do we have the greatest opportunities for improvement?
3. What are our goals? Are they measurable and achievable?
4. What is our timeframe? Is it realistic and feasible?

Step 4: Understand your gaps

You've analyzed your current state and defined your future state. Now, compare the two to understand the gap you're trying to close. This step answers thew question, *"What is the extent of our gap(s)?"*

❑ *Systematically examine* each gap, identify factors and assess barriers toward best practice implementation.

❑ *Gauge the impact* each factor contributes to your performance *(i.e. organization-wide, unit-specific).*
❑ *Map factors* to what they will look like once your future state is achieved.

Assessing how your organization is performing *on the road to high reliability* is an important step to help create a *robust, prioritized action plan.*

5 Principles of
High Reliability Organizations[1]

01 High reliability organizations are sensitive to operations.

02 High reliability organizations are reluctant to accept "simple" explanations for problems.

03 High reliability organizations have a preoccupation with failure.

04 High reliability organizations rons defer to expertise.

05 High reliability organizations are resilient. This trait could also be called relentlessness.

[1] Gamble, Molly. "5 Traits of High Reliability Organizations: How to Hardwire Each in Your Organization." Becker's Hospital Review, 29 Apr. 2013, medicine.arizona.edu/sites/default/files/5_traits_of_highly_reliable_organizations.pdf.

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Step 5: Determine a plan of ACTION

Now it's time to determine a plan of action to bridge the gap. This step answers the question: *"How will we get from point A to point B?"*

☐ Review focus areas for improvement, prioritize action steps and determine a timeline for completion.

☐ Discuss change management tools and techniques to achieve stated objectives.

☐ Solicit feedback from stakeholders to ensure buy-in, build momentum and accelerate change.

Process
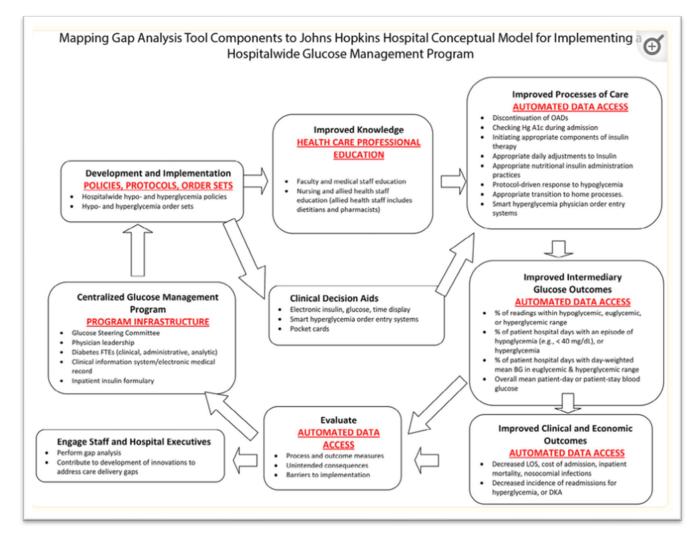Method or strategy

Performance
Short-term initiative/project

Outcome
End goal

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Johns Hopkins gap analysis tool:
Inpatient diabetes care in ACTION

The team conducted a gap analysis and addressed the following areas for improvement:

- program infrastructure;
- protocols, policies and order sets;
- patient and healthcare professional education; and
- automated data access.

Mapping Gap Analysis Tool Components to Johns Hopkins Hospital Conceptual Model for Implementing a Hospitalwide Glucose Management Program

*Gaps were defined as those instances in which local resources, infrastructure or processes demonstrated a variance against the current national evidence base or institutionally defined best practices.

Golden SH, Hager D, Gould LJ, Mathioudakis N, Pronovost PJ. A Gap Analysis Needs Assessment Tool to Drive a Care Delivery and Research Agenda for Integration of Care and Sharing of Best Practices Across a Health System. Jt Comm J Qual Patient Saf. 2017 Jan;43(1):18-28. doi: 10.1016/j.jcjq.2016.10.004. Epub 2016 Oct 13. PMID: 28334581; PMCID: PMC6214354. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6214354/#SD1

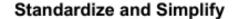# Final thought: Design your system with *reliability* in mind!

1. Segmentation
2. Visualization
3. Standardization/simplification
4. Back-up planning

Your ACTION PLAN: Creating and *sustaining* reliable processes, requires thoughtful planning and execution!

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Source: IHI Patient Safety Essentials Toolkit: Developing Reliable Processes
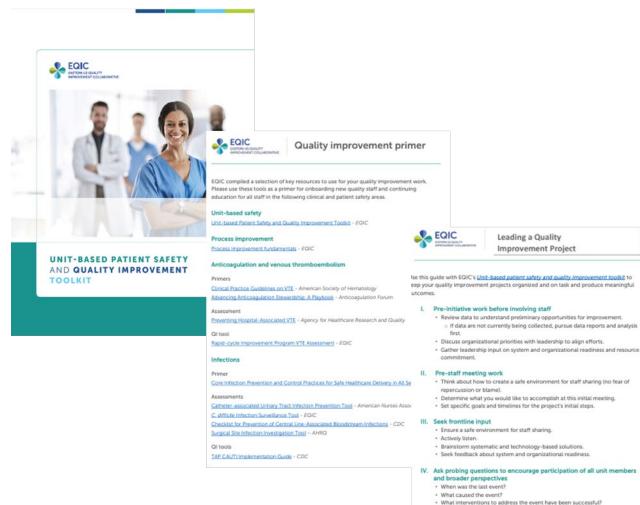
Image Source

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. 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

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. 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.

Remember: There is no "one way" to solve a problem; different people *will solve it* differently!

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51

EQIC Unit-Based Patient Safety and Quality Improvement Toolkit and MORE!

- Intro to UBS and culture of quality

- Planning your QI project

- Getting started: How to improve

- Data collection and reporting

- Maintaining momentum and sustaining change

- **Tools and guides for success**