WELCOME!

Ground Rules

- Silence cell phones and put away laptops
- Check email during breaks
- Be on time
- Actively participate
- Communicate professionally
- This training is collapsed from 2.5 days to 2 days. It will go 9am to 4pm both days.

These binders are yours to keep!

Feel free to write in them.

Introductions

Lean Six Sigma Bridge Program

How to Run an Improvement Project

California Correctional Health Care Services
Quality Management

Rev. 10/22

Course Outline

- Overview
- Define and Organize
- Measure
- Analyze
- Improve
- Control
- Resources

Overview

A tale of two companies

OLD WEST, LTD.	FUTURES, CO.
• Always putting out fires	• Sets up systems to quickly identify and improve workplace problems
• The culture promotes siloes – "Just deal with your own problems."	• Project teams are interdisciplinary and cross functional
• Training is the answer to all problems	• Improvements efforts are customer focused
• Staffing is frequently identified as a barrier to doing improvement work	• Provides ongoing employee professional development

Is your institution more like Old West, Ltd. or Futures, Co.?

The "Old West" approach leads to…

- Culture of workarounds
- Person-dependent activities
- Employee burnout, low morale, and high turnover
- Poor coordination leading to miscommunication, rework, and/or duplicative work
- Siloes and monuments

QUIZ

WIIFM What's in it for me?

- Gain improvement skills for any subject-matter, any discipline
- Access to a step-by-step guide to run improvement projects
- Solve problems using data and information
  - Increases the likelihood of fixing the problem the first time!

1. What's in it for CCHCS and CDCR?
2. What keeps our organization from being like Futures, Co.?
3. What are we doing about it?

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Cost of Poor Quality

Every $1 spent on implementing efficient processes

saves $10 on developing systems to catch and rework errors

saves $100 on having to repair damage that reach customers

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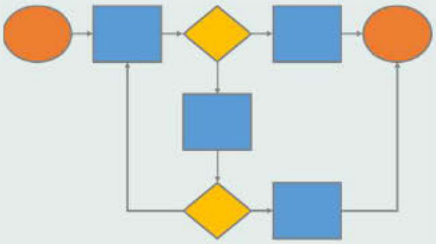
Focus on process

Process



At least 80% of improvement opportunities are here!

Services, outputs, products

Customer value can be maximized when we focus on processes

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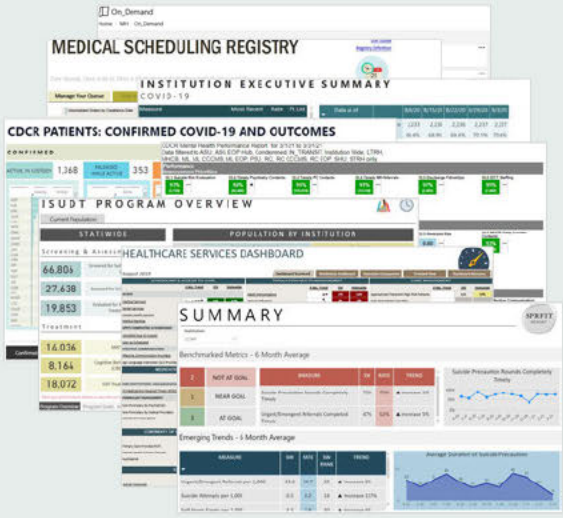
CCHCS QM System

The quality management system supports the health care delivery system

- System surveillance – Dashboard and operational reports and tools
- Patient care tools – Patient registries and patient profiles



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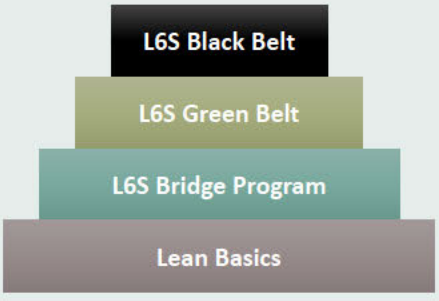
How the QM system supports CCHCS's mission

- Implementation of a nationally recognized improvement models
  - **CCHCS has the largest L6S program in the nation!**
  - The L6S Bridge Program is built on these fundamentals!
- Building process improvement capacity statewide
  - QM System innovations and advancements in technology
  - Professional development programs – developing expertise from within
- Empowering staff to continuously improve and share their knowledge and expertise with others

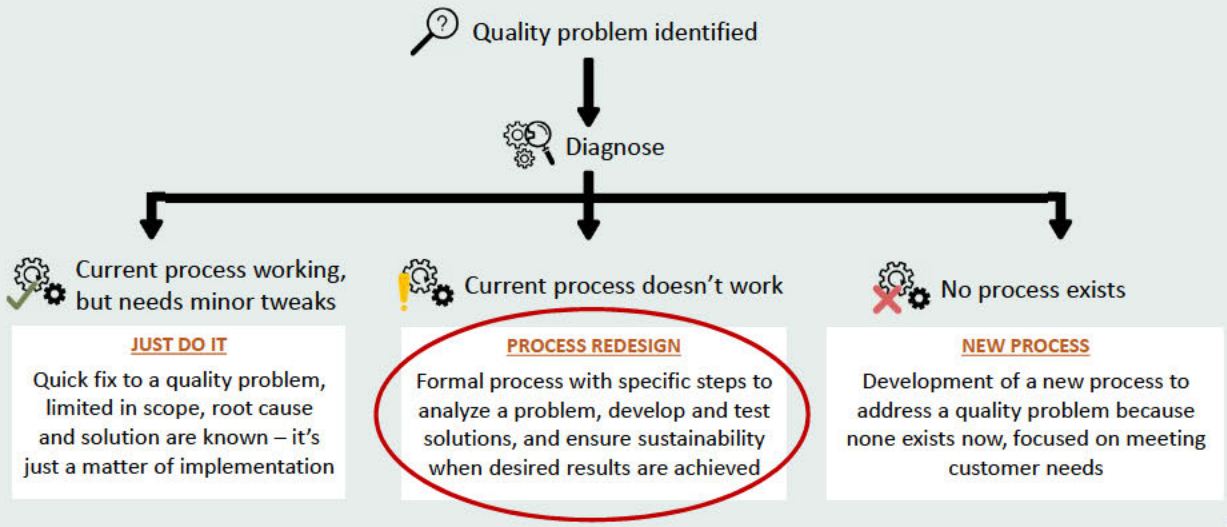
Becoming an improvement expert

L6S BRIDGE PROGRAM

- An improvement approach anyone can use
- Guides process redesign
- Builds process improvement muscles



Improvement approaches



Selecting projects for process redesign

- Data is available and accessible – it's measurable
- It matters to your institution and impacts patients and/or safety
- The scope of the project is well defined and manageable
- You don't know the root causes to the problem
- There is no known solution

This course and tool kit compliments your Performance Improvement Work Plan and subcommittee improvement priorities!

Do you have any projects in mind that might fit this criteria?

What are some pain points in your work processes?

DMAIC

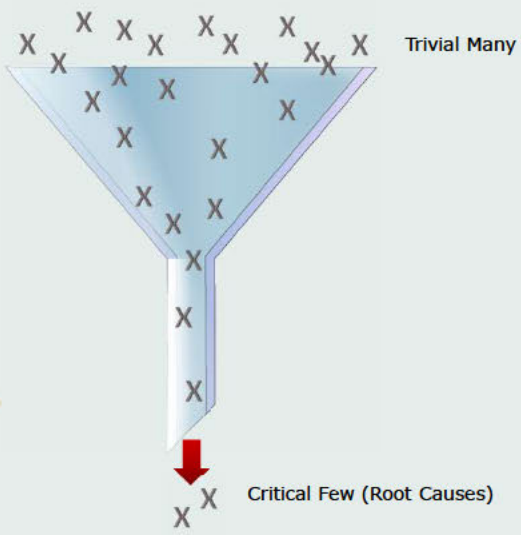
A standardized and formal process with specific steps to analyze a problem, develop and test improvements, and ensure sustainability when results are achieved.

Get to the root of the problem

All possible guesses at what's going wrong in our process...

Often we stop our improvement work here

The few things that we actually need to fix



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Process improvement requires engagement

LOCAL RESOURCES

Work with your local L6S staff and regional support to ensure project success.

PROJECT TEAM

Work with your team through an improvement project.

TOOLS

Keep your process improvement skills sharp by learning the LS III toolkit and teach it to others.

STAKEHOLDERS

Develop, monitor, and manage relationships with project stakeholders.

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While healthcare systems and processes may never be perfect, they can always be improved.

DMAIC projects = results

- Increased patient access to durable medical equipment from 29% to 82% (CCWF)

- Reduced Local Operating Procedure processing timelines from 168 days to 31 days (CAC)

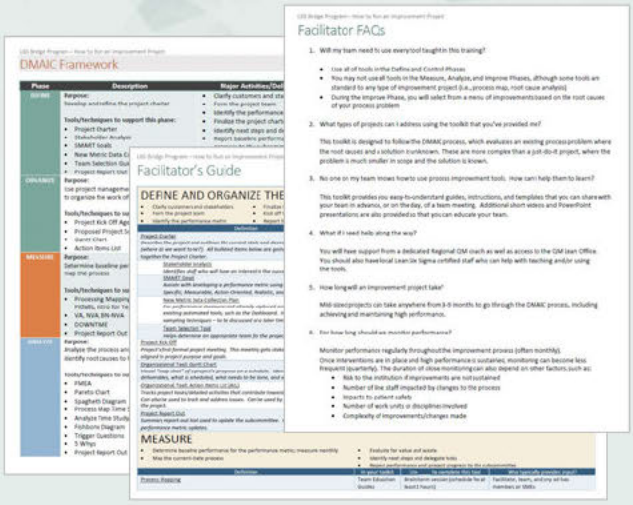
- Reduced PAS/MAR processing timelines from 240 days to 16 days (HQ Nursing Services)

- Reduced pharmacy stock-outs (missing medications) by 87% (SOL)

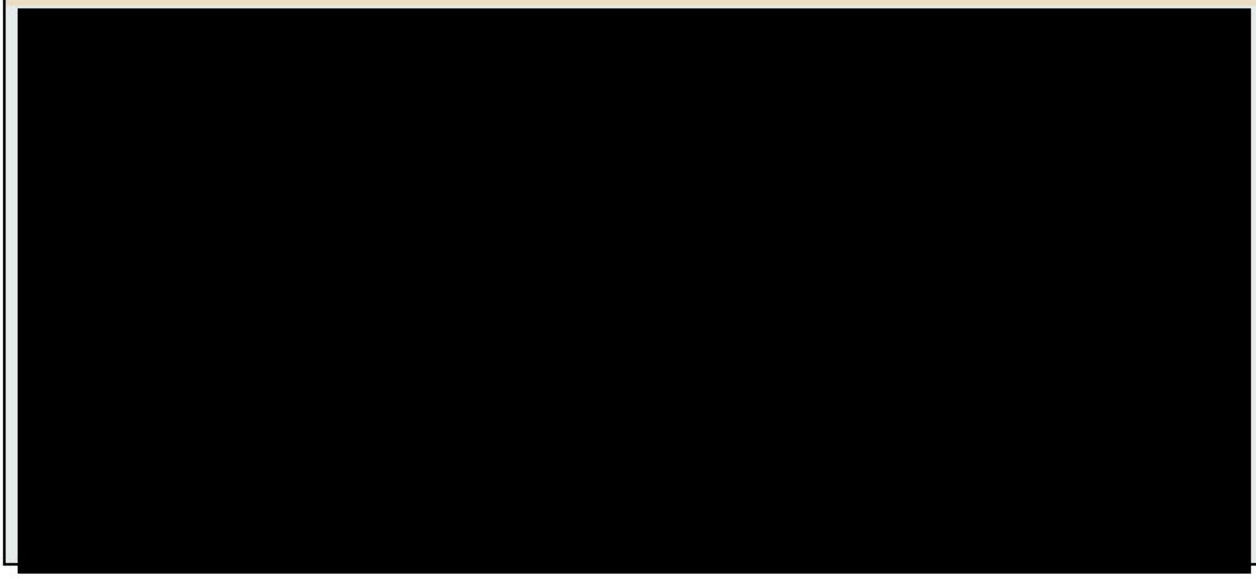
- The Crisis Intervention Team initiative resulted in 2,122 fewer MHCB rescissions over 12-months – a savings of over 175,596 staff hours and a net cost savings of nearly $13 million (Mental Health, Medical, and Custody Statewide)

FACILITATOR TOOLS

- DMAIC Framework
- Facilitator's Guide
- Facilitator FAQs



QMLO: L6S Bridge Program Resources



Define and Organize

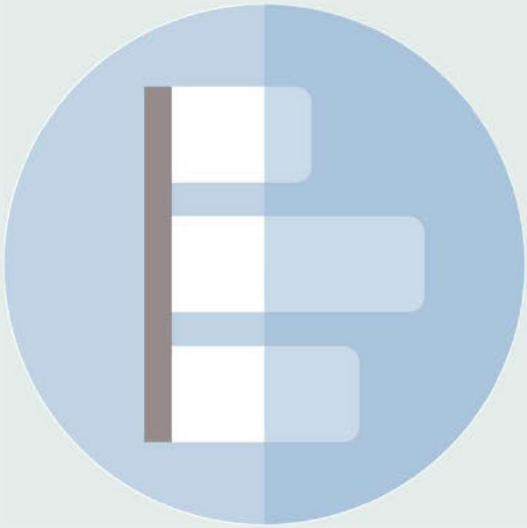
Rev. 10/22

DMAIC

Topics in the Define Phase

- Elements of a project charter
- Tools to get organized
- Subcommittee (CCHCS) or Executive (CDCR) Reporting

The Project Charter

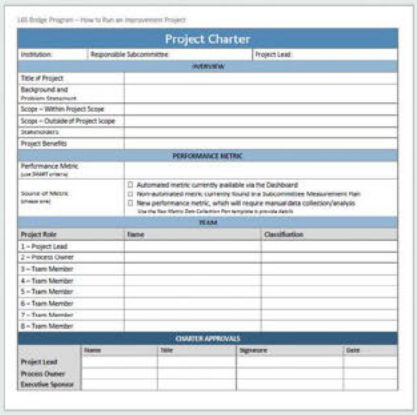


What's your experience with project charters?

1. What's the purpose of a project charter?
2. What are some risks of moving forward without one?

PROJECT CHARTER

- Project basics
- Background and problem statement
- Scope (in and out)
- Stakeholders
  - Process Owners
  - Sponsors
  - Subcommittee
- Project benefits
- Performance metric
- Team members



LHS Bridge Program – How to Run an Improvement Project

Project Charter

Institution	Responsible Subcommittee	Project Lead

OVERVIEW	
Title of Project	
Background and Problem Statement	
Scope – Within Project Scope	
Scope – Outside of Project Scope	
Stakeholders	
Project Benefits	

PERFORMANCE METRIC	
Performance Metric (use SMART criteria)	
Source of Metric (choose one)	☐ Automated metric currently available via the Dashboard ☐ Non-automated metric currently found in a Subcommittee Measurement Plan ☐ New performance metric, which will require manual data collection/analysis Use the New Metric Data Collection Plan template to provide details

TEAM		
Project Role	Name	Classification
1 – Project Lead		
2 – Process Owner		
3 – Team Member		
4 – Team Member		
5 – Team Member		
6 – Team Member		
7 – Team Member		
8 – Team Member		

CHARTER APPROVALS				
	Name	Title	Signature	Date
Project Lead				
Process Owner				
Executive Sponsor				

Project charter elements

Background and Problem Statement

- Explain why this process is important to your institution
- Describe the problem and the “pain” that is felt as a result
- Include data that shows that you have a problem

Before writing the problem statement… know your customers

- Most products/processes have more than one customer group for which they are accountable:
  - Primary customers – the end users or recipients of the product or process
  - Secondary customers – those who place constraints on how we perform those processes or have an interest in the product or process
- Customers feel the "pain" when processes go wrong
- Updated processes maximize value for the primary customer and operating within the constraints of other customers

Who are the customers?

1. Finding an institution to endorse a new inmate
2. Traveling advance request
3. STAT lab order
4. **Hiring a new employee**

TABLE EXERCISE 1: Identify customers

- Use the scenario to complete the exercise
- Identify which individuals or groups are your primary and secondary customers

Basic steps in this process for people less familiar with hiring

- Program hiring manager completes application screening and sends the list of screened applications to the personnel liaison
- C&P analyst reviews screening results to identify applicants who met the minimum screening threshold
- C&P analyst sends screened "in" applications to the Selection Services Unit (SSU) analyst
- C&P analyst determines the eligibility type of the applicant
- SSU analyst reviews each application to determine if the applicant meets minimum qualifications per the classification specifications
- C&P analyst reviews the results from SSU to compile the list of applicants who are eligible for an interview
- C&P analyst sends the list of applicants eligible for an interview to the personnel liaison

What is value?

Recall: Updated processes focus on providing <u>value</u> for the primary customer

What is value?

- Value is ALWAYS defined by the customer
- If we have a different view of value from our customer, we risk:
  - Not delivering the service, product, or outcome that the customer wants
  - Wasting resources on actions that customers do not care about



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What do these customers value?

1. Clinician who ordered a STAT lab
2. A Sergeant who wants to know why she wasn't eligible for a Captain position
3. Employee who submits a travel reimbursement request

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Write the problem statement

Once you understand who your customers are and what they value, write the problem statement

- Use a narrative format – tell a story
- Why is this process important to the institution, to your staff, or to the patients?
- What is the problem that you're facing?
  - If possible, include data to demonstrate the problem
- Will someone from outside of your institution understand the context of the problem based on what you've written?

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EXAMPLE 1: Problem statement

Before:

Improve ESP Dashboard scores in Availability of Medical Equipment

RESOURCE MANAGEMENT	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
Specialty On-Site/Telemedicine	84%	84%	84%	88%	80%	80%	79%	80%
Availability of Medical Equipment	64%	70%	70%	68%	66%	66%	73%	67%
Same Day	66%	94%	75%	68%	59%	61%	75%	61%
Expedited 5 Calendar Days	57%	53%	58%	57%	40%	41%	54%	38%
High Priority 14 Calendar Days	52%	58%	58%	70%	74%	69%	69%	74%
Routine 90 Calendar Days	82%	77%	86%	76%	91%	92%	94%	96%

After:

In 2019, ESP had consistently low performance of all categories surrounding availability of medical equipment. The evaluation and replacement of lost or broken wheelchairs and walkers for patients with mobility impairment at ESP takes an average of 31 days from the time of the patient's request is generated to the time the replacement accommodation is issued. This delay puts the patient at risk of falls and other injuries which invariably leads to time consuming and costly investigations, committee meetings, and grievances. This project aims to identify the source of these delays and reduce the turnaround time.

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EXAMPLE 2: Problem statement

Before:

According to California Penal code 2602, if a psychiatrist determines that an inmate patient should be treated with psychiatric medication, but the inmate does not consent, the inmate may be involuntarily treated with the medication. Treatment may be given on either a nonemergency basis as provided in subdivision, or on an emergency or interim basis as provided in subdivision.

An administrative law judge determines by clear and convincing evidence that the inmate has a mental illness or disorder, that as a result of that illness the inmate is gravely disabled and lacks the capacity to consent to or refuse treatment with psychiatric medications or is a danger to self or others if not medicated, that there is no less intrusive alternative to involuntary medication, and that the medication is in the inmate's best medical interest. Failure of the department to provide timely or adequate notice pursuant to this section shall be excused only upon a showing of good cause and the absence of prejudice to the inmate. In making this determination, the administrative law judge may consider factors, including, but not limited to, the ability of the inmate's counsel to adequately prepare the case and to confer with the inmate, the continuity of care, and, if applicable, the need for protection of the inmate or institutional staff that would be compromised by a procedural default.

The statewide order entry process for PC 2602 medications and orders is variable and inconsistent. Therefore, patient care is being affected due to the lack of correctly identified PC 2602 medications, PC 2602 medication orders that do not provide backup medication orders and/or instructions, which are clearly delineated for Nursing and Custody staff, who enforce the psychiatric orders for PC 2602 patients through involuntary medication administration, highlighted by the deaths of two patients.

After:

The statewide order entry process for PC 2602 (psychotropic) medications is variable and inconsistent. Patient care is being affected because PC 2602 medications are not correctly identified in the patient chart and/or PC 2602 medication orders do not provide backup medication orders and instructions, which must be clearly stated for the Nursing staff who will administer the medications. It also impacts Custody staff who must ensure safety for the staff and patients.

EXAMPLE 3: Problem statement

Before:

Implement PAR levels in the medical clinic to reduce the amount of out of stock items.

After:

Health care clinics at Elsewhere State Prison are often out of stock or missing necessary medical equipment and supplies. This creates a problem for Care Team members since workarounds must be used to meet immediate needs and to avoid delays in providing direct patient care and completing encounters. Urgent requests and orders are made on a daily basis, which drive costly unplanned purchases.

What data would be helpful for this scenario?

Project charter elements

Scope

- The scope is very important in keeping the project manageable
- In scope – what process are you working on?
  - If the process is complex and you are only working on a portion of it, identify the start and end points of that portion of the process
- Out of scope – are there programs, processes, or elements linked to the problematic process that you will not address as part of the project?
  - Examples: regulations, policies, forms, data systems, etc.

Refine the Scope of Work

SCENARIO:

Elsewhere State Prison has been performing poorly on all Chart Audit Tools (CAT) for the past year. They are struggling with treatment planning, 5-day follow-ups, mental health assessments, and use of force documentation.

PROPOSED SCOPE STATEMENT:

Improve all documentation that is audited using the CAT audit.

Project charter elements

Stakeholders

- Discuss who will be directly impacted by changes to this process
- Include those who may be interested in changes to this process
  - Includes process owner, responsible subcommittee, and project sponsors
- Conduct a stakeholder analysis

Project Benefits

- What are the expected benefits if you achieve your goals?

Internal stakeholders

Includes, but is not limited to:

- Process owner(s)
- Sponsor(s)
- Responsible subcommittee
- Team members
- Staff who work in the process

External stakeholders

Stakeholders outside of CDCR/CCHCS who may be interested in or impacted by the project may need to be considered

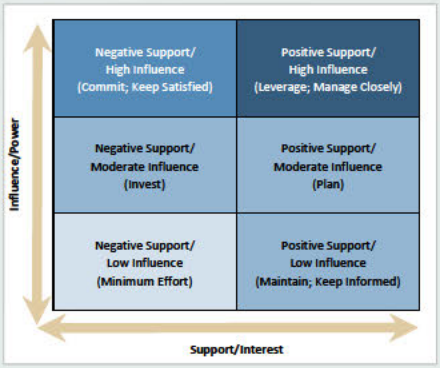
- Auditing organizations (e.g., OIG)
- Board of Pharmacy, Board of Nursing, etc.
- Unions
- Health care partners/service providers

Stakeholders

Why is it important to conduct a stakeholder analysis?

STAKEHOLDER ANALYSIS

- Identifies stakeholders with power to influence your work and their level of support for the project
- Guidance on how to work with these stakeholders so that your project can move forward
- Tip: Use this tool to identify project team members



Check out the video!

TABLE EXERCISE 2:
Conduct a stakeholder analysis

- Use the scenario to complete the exercise
- Identify stakeholders for the project
- Map stakeholders on the grid

Project charter elements

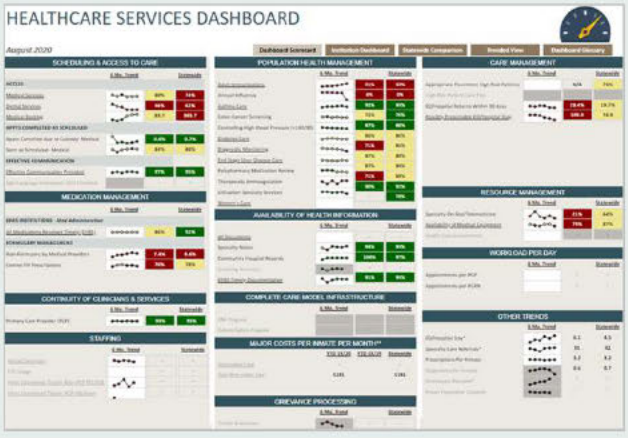
Performance Metric

- Measures what you are trying to achieve and usually falls into one of these categories: quality (effectiveness/appropriateness, efficiency), time, or cost
- It must be aligned with the stated problem
- The most common metrics referenced our system come from the Dashboard and subcommittee measurement plans
- If you need to create a new metric, apply the SMART criteria

What's practical?

- Data can come from many sources
- Automated: HCS Dashboard, registries, MH performance indicators, SPRFIT Report, eHCIR Reporting Registry, SOMS, COMPSTATS, AQR, etc.
- Manual: Sampling, data collection tools, etc.
  - Caution! These data sources tend to be labor-intensive, have inter-rater reliability issues, and unsustainable for ongoing performance monitoring

Health Care Services Dashboard



Dashboard glossary specifications

- The Dashboard Glossary provides specifications for every metric
- Determine if what you want to measure is aligned with the spec, and if it's not:
  - Should you bring the metric into alignment with the Dashboard?
  - Should you manually collect and analyze data?

Domain	Scheduling and Access to Care
Measure	PCP Urgent Referrals 1 Calendar Day
Institution Type	**EHRS**
Definition	Percentage of urgent PCP referrals completed originating from an RN face-to-face triage appointment that are seen within 1 calendar day of referral.
Denominator	All 7362 Medical Urgent/Emergent Follow Up orders with a compliance date within the reporting month. Excludes all orders that were voided at any time OR cancelled/discontinued before the compliance date.
Numerator	All orders from the denominator completed within 1 calendar day by a PCP. Orders or appointments were considered completed if either of the following was demonstrated: 1. The order had an associated appointment that was checked out before the order's end date. 2. The order itself was marked as completed before the end date.

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What about metrics with low denominators?

- Low denominator metrics tend to represent the highest risk patients in the state
  - E.g., patients on anticoagulants, Clozapine, or returning from the hospital
- Look at a longer period of time to increase the amount of data available for evaluation
  - Rather than analyzing a single month of data, use 3-6 months instead

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Common measurement issues

1. I need to work on XYZ metric but the Dashboard data is three months behind
2. I don't have control over what HQ does so how can I measure the process when they also have a role in the overall performance?
3. I don't have access to automated data in my department or division
4. **We can't control refusals so I don't want to include those records in my data**

SMART CRITERIA

- Specific
- Measurable
- Action-oriented
- Realistic
- Time-limited

DISCUSSION

Are the problem and performance metric aligned?

	Problem Statement	Performance Metric
1	10% of boxed lunches each week are routed back to food services because the contents are damaged and cannot be eaten by patients.	By December 31, 2023, less than 2% of boxed lunches each week will be routed back to food services.
2	Pharmacy throws out an average of 80 expired medications per month.	By December 31, 2023, the pharmacy will waste less than $200 in expired medications per month.
3	25% of submitted CDCR Form 844s have errors on them, which can contribute to errors in the BIS training database.	By December 31, 2023, all staff will be trained on how to properly complete an IST sheet.
4	Overtime is on the rise for HR staff – each person uses an average of 45 minutes of overtime daily.	By December 31, 2023, total HR overtime will not exceed 30 hours per month.

TABLE EXERCISE 3:
Develop a SMART performance measure

- Use the scenario to complete the exercise
- Remember, baseline eligibility verification takes on average 10 days to complete
- Develop a performance measure that:
  - Addresses the stated problem
  - Meets SMART criteria

What information do you need when manually collecting data for measurement purposes?

NEW METRIC DATA COLLECTION PLAN

Explain how you will capture and analyze data for a new metric

- What is the performance metric?
- What is in the numerator and denominator?
- Where will the data come from?
- What is the sampling methodology?
- How is the data calculated?
- Who will collect and report the data?

New Metric Data Collection Plan

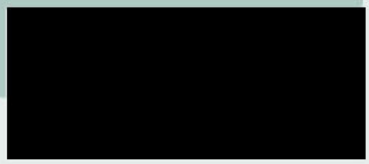
Project Title	
Performance Metric	
Denominator *Note anyexclusions*	
Numerator	
Data Source(s)	
Describe the sampling methodology *For continuous data, sample a minimum of 30 records* *For discrete data, sample a minimum of 100 records*	☐ Sampling not needed – all records are included ☐ Random sampling – random selection of records ☐ Systematic sampling – sampling every n^{th} item (every 4^{th}, every 10^{th}, etc.) ☐ Other sampling method – please describe:
Describe how performance is calculated	
Who is responsible for collecting data? How frequently?	
Who is responsible for analyzing/reporting the data? How frequently?	
Comments	

Proper sampling techniques

- Sampling is not needed if you can obtain and evaluate all records
- Common sampling techniques
  - Random sampling
  - Systematic sampling – every n^{th} item (every 4^{th}, every 10^{th}, etc.)
- Proper sample sizes
  - Continuous data (e.g., weight) – minimum of 30 records
  - Discrete data (e.g., yes or no) – minimum of 100 records

We'll explore this further in the Measure Phase

None of us is as smart as all of us.



Project charter elements

Team members

- Staff who are knowledgeable about the process
- Provide expertise and will help design and test solutions

Ownership and sponsorship

- Project lead – Facilitates the project
- Process owner – Responsible for overseeing and maintaining the improvements once the project is complete
- Executive sponsor – Uses their position/authority to remove barriers, make quick and effective decisions, and influence executive buy-in on a project

Roles on an improvement project

Depending on the project, you may have one or more roles:

- Executive sponsor
- Process owner
- Project lead
- Team member
- Ad-hoc (as needed) team members
- Process Subject-Matter Expert (SME)
  - Regular team member –*or*– Ad-Hoc
- Data or process improvement SME (e.g., QMSU, Green or Black Belt)

TABLE EXERCISE 4: Project team roles

What should we expect from each team role?

1. Executive Sponsor
2. Process Owner
3. Project Lead (aka Facilitator)
4. Team Member and Ad Hoc Members
5. Data Subject Matter Expert (SME)
6. Improvement SME (GB/BB)

TEAM SELECTION GUIDE

- Knowledge of the process or topic at hand
- Has time to actively participate
- Willing to actively participate
- Open to exploring and testing ideas
- Supports improvement work
- Multidisciplinary
- Team size <10

Team Selection Guide

Your team will be crucial in providing information that will facilitate the completion of major deliverables associated with an improvement project.

• Project Charter • Process Map • SIPOC/VOC Analysis • Value Analysis • Spaghetti Diagram • Process Map Time Analysis	• Failure Modes and Effects Analysis • Fishbone Diagram and 5 Whys • Identifying Root Causes • Improvement Planning, Testing, and Implementation

• Move the team from one phase to the next • Help the team identify root causes and solutions to address the problem • Hand off the project to the process owner

You want the right people on your team; otherwise, your project will not be as robust as it could be. The wrong team members – for example, adding a team member just because "s/he has time to attend meetings" puts your project at risk for failure.

Generally, team members should have the following:

- Knowledge of the process or topic at hand
- Protected time to actively participate
- Willingness to actively participate
- Openness about exploring and testing ideas
- Supportive mindset about improvement work
- Multidisciplinary representation

Ask questions when putting together your team in order to anticipate and mitigate possible barriers or challenges for project facilitation. These questions can include:

1. What is the diversity background of the team? (i.e., classification, role, etc.)
2. Where is the team physically located?
3. What special resources does the team need and lack?
4. How are team members assigned to the project?
   - Volunteered or "volun-told"?
   - Full-time or part-time on the project?
   - Standing member or ad hoc?
5. Do any team members have accommodation needs?
6. How will the project approach affect the makeup of the team? E.g., JDI, DMAIC
7. Is the team small enough to be flexible, but large enough to make significant progress?
   - Less than 10 members is ideal.

Expectations of team members

- Contribute work hours every week to the project
- Attend project team meetings
- Participate with data collection, problem analysis, and intervention design and testing
- Communicate to others about the project, especially peers
- Present to stakeholders as needed

Project team members

TABLE EXERCISE 5: Project team members

- Use the scenario to complete the exercise
- Propose project team members

Pitfalls in the Define Phase

- Poorly defined and/or unreasonable scope
- Choosing a performance measure that is not aligned with the problem
- Excluding line staff from the project team
- Not representing all disciplines involved in the process
- Not identifying a specific role/classification to be the process owner
- Not including the process owner throughout the project
- Not protecting the time of the team to work on the project

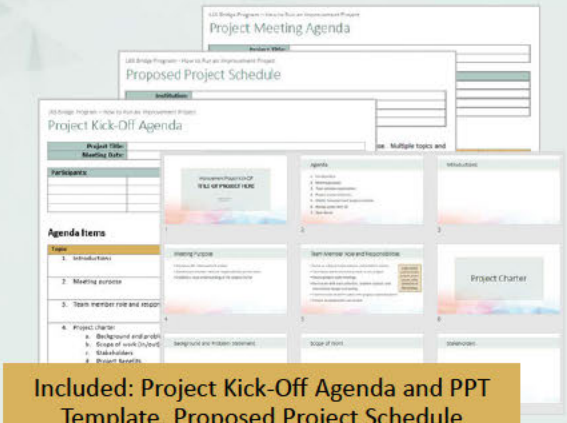
Tools to help team stay organized

When a project gets started, it's helpful to have a formal project kick-off.

How can a project kick-off help the team?

PROJECT KICK-OFF

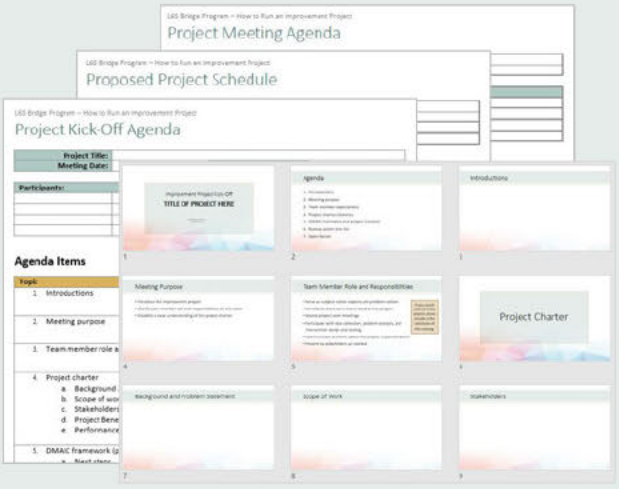
- Formal beginning of a project
- Convene the project for the first time
- Present the project charter
  - Align the team's understanding of project purpose and goals
  - Clarify the role of members through the improvement process



Included: Project Kick-Off Agenda and PPT Template, Proposed Project Schedule Template, General Project Meeting Template

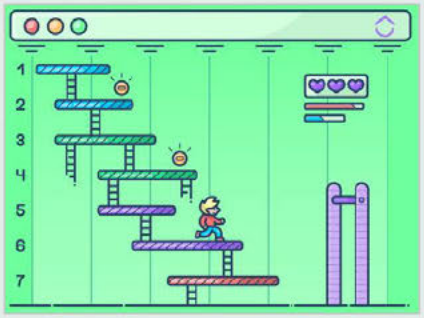
EXERCISE 6: Project kick-off tools

Demo project kick-off tools and templates



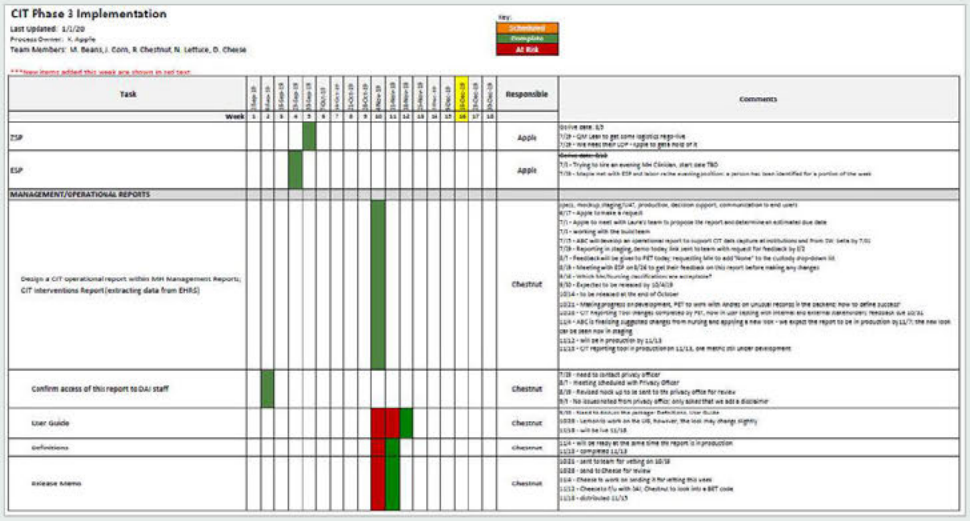
GANTT CHART

- Visualize a project's progress on a schedule
  - Improves transparency
- Identify key milestones and deliverables
  - Major tasks and the time they take
- Higher-level view of the project
  - Can be used to manage detailed tasks (an alternative to the action item list)



Check out the video!

EXAMPLE: Gantt chart



CIT Phase 3 Implementation

Last updated: 1/1/20
Process Owner: K. Apple
Team Members: M. Beans, J. Corn, R Chestnut, N. Lettuce, D. Cheese

Key: Scheduled / Incomplete / At Risk

***New items added this week are shown in red text

Task	Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	Responsible	Comments
ESP																				Apple	Go-live date: 6/3 7/19 – GM Lean to get some logistics regarding 7/19 – Are exec their UDP – Apple to get a hold of it
ESP																				Apple	7/5 – Trying to hire an evening MH Clinician, start date TBD 7/19 – Maybe met with ESP and labor excise evening position; a person has been identified for a portion of the week
MANAGEMENT/OPERATIONAL REPORTS																					
Design a CIT operational report within MH Management Reports; CIT interventions Report (extracting data from EHRS)																				Chestnut	spec, mockup, staging/UAT, production, decision support, communication to end users 8/17 – Apple to make a request 7/1 – Apple to meet with Laurie's team to propose the report and determine an estimated due date 7/1 – working with the build team 7/15 – ABC will develop an operational report to support CIT data capture at institutions and from Dir. beta by 7/31 7/19 – Reporting in staging, demo today, link sent to team with request for feedback by 8/3 8/1 – Feedback will be given to PET today; requesting title to add "Name" to the custody drop-down list. 8/18 – Meeting with ESP on 8/26 to get their feedback on this report before making any changes 8/16 – Vehicle bio/nursing classifications are anonymous* 9/30 – Expected to be released by 10/4/19 10/14 – to be released at the end of October 10/21 – Making progress on development, PET to work with Andres on unusual records in the backend; how to define success? 10/28 – CIT reporting: Two changes completed by PET, now in user testing with internal and external stakeholders; feedback due 10/31 11/4 – ABC is finalizing suggested changes from nursing and applying a new look – we expect the report to be in production by 11/7; the new look can be seen now in staging 11/12 – will be in production by 11/13 11/15 – CIT reporting tool in production on 11/13, one metric still under development
Confirm access of this report to DAI staff																				Chestnut	7/19 – need to contact privacy officer 8/7 – meeting scheduled with Privacy Officer 8/28 – Revised mock up to be sent to the privacy office for review 9/5 – No issues noted from privacy office; only asked that we add a disclaimer
User Guide																				Chestnut	9/30 – Need to finalize the package: Definitions, User Guide 10/28 – Certainly work on the UG, however, the look may change slightly 11/18 – will be live 11/18
Definitions																				Chestnut	11/4 – will be ready at the same time the report is in production 11/12 – completed 11/12
Release Memo																				Chestnut	10/21 – sent to team for vetting on 10/18 10/28 – send to Cheese for review 11/4 – Cheese to work on sending it for vetting this week 11/12 – Cheese to fix with DAI; Chestnut to look into a BIT code 11/18 – distributed 11/15

EXERCISE 7: Gantt chart in action

Demo the functionalities of the Gantt chart

ACTION ITEM LIST

- Tasks that come from meetings, conversations, and emails
- Detailed activities that contribute towards a milestone or deliverable
- A useful prompt at meetings to remind people of what they have done or need to do
- Can also be used to track and address issues

Check out the video!

EXAMPLE: Action item list

ESP Crisis Intervention Team

[redacted]

Task #	Task	Responsible	Date Added	Due Date	Status	Notes
1	Finalize project charter content	[redacted]	1/3/2020	1/7/2020	Completed	This will include speaking with team members about upcoming responsibilites/commitments
2	Get sign-offs for project charter		1/3/2020	1/10/2020	Completed	Signoffs from Champion, CEO, and Executive Sponsor
3	Notify team members of Team Kickoff Date		1/10/2020	1/13/2020	Completed	
4	Develop agenda for Team Kickoff		1/10/2020	1/13/2020	In Process	
5	Host Team Kickoff		1/10/2020	1/17/2020	Not Started	[redacted] ll help co-host this meeting
6	Develop Team Charter		1/10/2020	1/17/2020	Not Started	[redacted] ll facilitate discussion
7	Email Team Charter to entire team		1/10/2020	1/20/2020	Not Started	CC: Champion, CEO, and ES
8	Complete Stakeholder Analysis		1/17/2020	1/22/2020	Not Started	1 hour meeting
9	Send Outlook invite for stakeholder analysis meeting		1/17/2020	1/17/2020	Completed	[redacted] place on 1/22/2020
10	Check Issue Log		1/17/2020	1/24/2020	In Process	[redacted] responsible for this tool throughout project; Check every Friday

EXERCISE 8: Action Item List in action

Demo the functionalities of the Action Item List

Gantt Chart or Action Items List

QUIZ

Storing and sharing project materials

- Identify a shared space where project materials will be stored
  - Physical
  - Electronic
- Needs to be easily accessible by the project team

1. What are some pitfalls that you have experienced with storing and sharing project materials?
2. Often we track projects and related materials via email – is this a good idea?

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Best practices for organizing electronic materials

- Use a standardized folder structure
- Use a standardized naming convention for files
  - EXAMPLE 01: Title YYYYMMDD v# >> Med Admin Process Map 20200116 v1
  - EXAMPLE 02: YYYYMMDD Title v# >> 20200116 Med Admin Process Map v1
- Only keep the most current version in the folder
  - Use a "previous" folder to store older versions of documents

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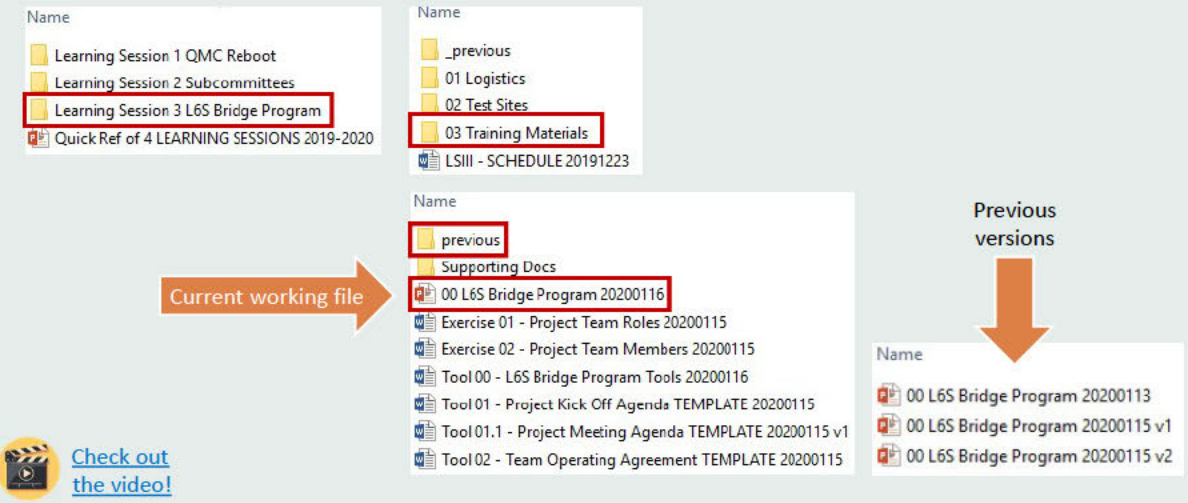
EXAMPLE: Organized folders and files



Check out the video!

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REPORTING TO THE SUBCOMMITTEE/ EXECUTIVE MANAGEMENT

- Provide project updates monthly using the available report-out template
- The QMC or subcommittee is responsible for intervening if little or no progress is made, or if performance is slipping
- The committee can use the Improvement Project Decision-Making Algorithm to determine if intervention is necessary

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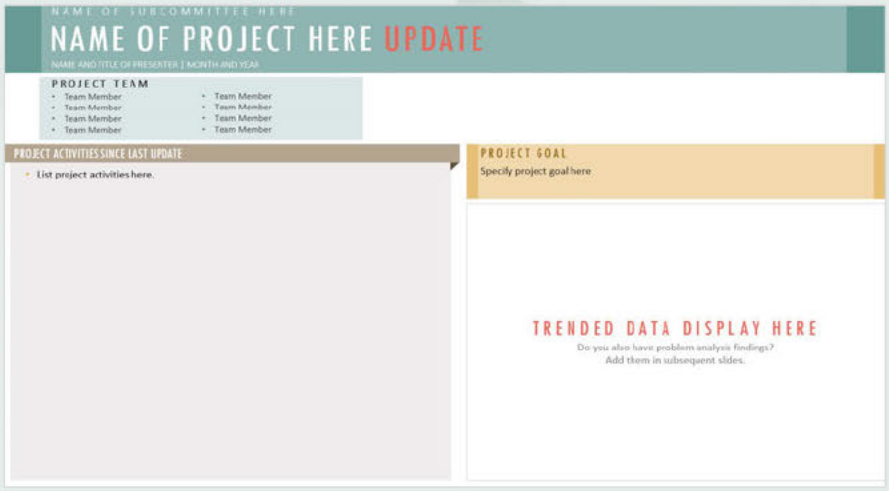
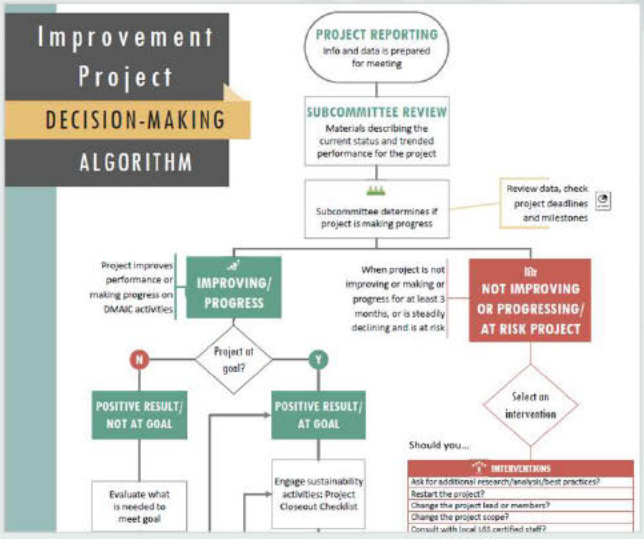
SUBCOMMITTEE PROJECT UPDATE



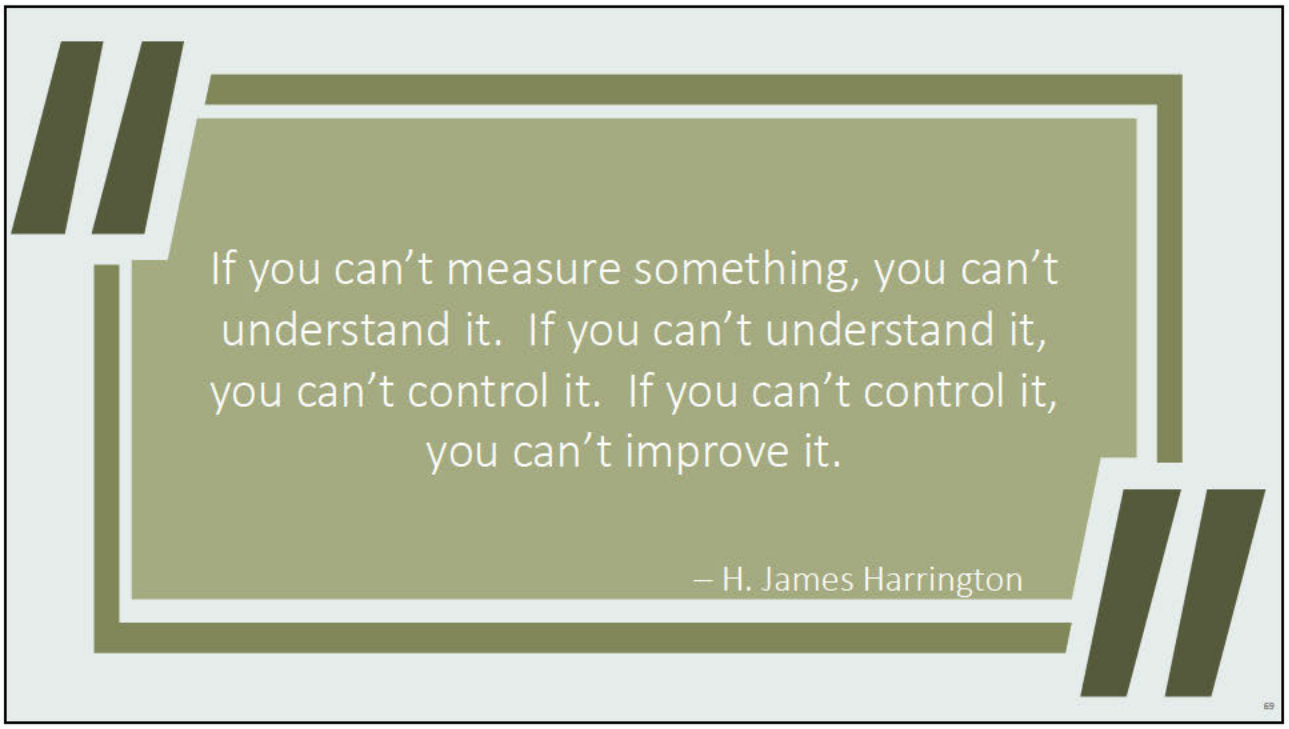
DECISION-MAKING ALGORITHM



Trouble with moving the project along?

Pitfalls in Organizing Our Improvement Work

- Not designating someone to organize/coordinate the project
- Not using a document to track progress
- Not meeting deadlines and commitments
- No version control
- Not elevating or pulling in experts when you need help


If you can't measure something, you can't understand it. If you can't understand it, you can't control it. If you can't control it, you can't improve it.
– H. James Harrington

Measure

Rev. 10/22

DMAIC

Topics in the Measure Phase

Numbers – "data"

People – observation, experience, knowledge, feedback, interpretation, etc.

- Continuous vs. Discrete Data
- Variation
- Process Mapping
- Value: VA, NVA, BN-NVA
- Waste: DOWNTIME
- Fishbone Diagram
  - Trigger Questions
  - 5 Whys
- Subcommittee Reporting

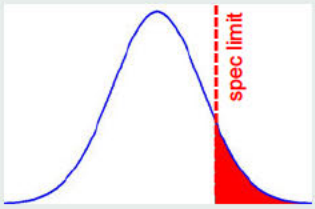
Two forms of data

Type	Description	Example
Continuous Record level Dashboard data, registry and operational tools data	Can be measured on a continuum or scale, such as time or weight	• If the 5 day follow-up timeframe was not met, by how many days late were we? *# Days* • How long did it take to transport the patient from the hospital to the institution? *# Minutes*
Discrete Most Dashboard data	Can be counted (in whole numbers) or fall into distinct categories	• Did the patient see the PCP within 5 days for the follow-up appointment? *Y/N* • Did the supervisor review the form? *Y/N* • How often does an inmate have a competing ducat? *# of inmates with competing ducats*

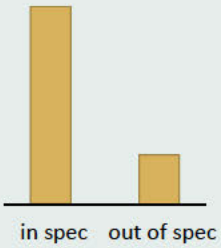
EXERCISE 9: Continuous or discrete?

1. Patient weight	
2. Whether the compliance timeframe was met	
3. Percent volume of concentrated orange juice	
4. Time it takes to schedule a specialty appointment	
5. Percent of SRASHE form fields completed correctly	
6. Classifying beds as outpatient or inpatient	

Continuous data vs. discrete data



vs.



- Continuous data has a numeric value for each data point
  - E.g., 1 day, 5 days, 8 days, 24 days
- Tells us the extent to which a value is in or out of compliance

- Discrete data is classified into categories
  - E.g., yes or no, or low, medium, high
- Provides the volume of data points that are in and out of spec

The type of data dictates sample sizes

- You will need to use a sample if you cannot obtain and evaluate all data
- Proper sample sizes
  - Continuous data – minimum of 30 records
  - Discrete data – minimum of 100 records

Data mean/average

The mean/average is the sum of all data points in a sample divided by the number of data points in that sample




$$\frac{27\text{ lbs} + 49\text{ lbs} + 15\text{ lbs} + 26\text{ lbs}}{4} = \frac{117}{4} = \text{Average } 29\text{ lbs}$$

Working with averages

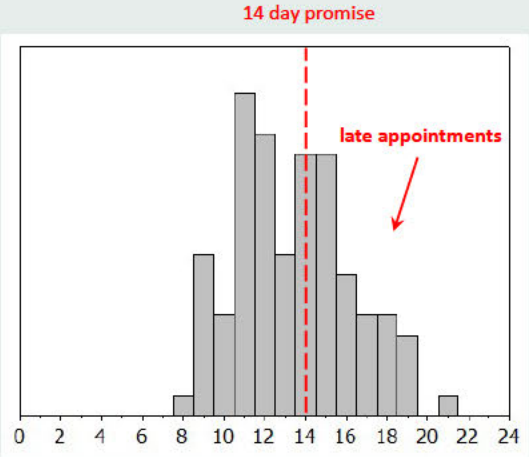
Working with averages

- Do averages tell the whole story?
- By policy, patients with High Priority Specialty Referrals must be seen within 14 days of the date of referral
- Reviewing the previous 12 months of data on average referral times:
  - On average, patients are seen within 13.2 days – sound good?

Month	Average Days to Appointment
Jan-19	13.5
Feb-19	12.8
Mar-19	12.9
Apr-19	13.2
May-19	12.4
Jun-19	13.8
Jul-19	13.3
Aug-19	13.6
Sep-19	12.9
Oct-19	13.4
Nov-19	12.6
Dec-19	13.7

What about variation in the data?

- When we look at variation in the data, we see more of the story
- Even though "on average" we meet the required time, in reality almost 40% of our appointments are late
- We need to understand the variation, not just the average performance



Looking at variation is important

- Customers never experience the average – they feel the variation of each transaction!
  - If you were standing with one foot in a fire and the other in a bucket of ice, on average you're comfortable
  - The customer feels the extremes (the fire and the ice)
- Problem analysis requires that you look beyond averages to variations in data that can tell a more complete story and lead to better informed decisions

Report drilldowns are a good place to start

Evaluating variation using data

Often, compliance starts with discrete data	We can use record-level data to evaluate and understand variation
1. Number and percent compliance with return from HLOC follow-up	
2. Number and percent of ad seg mental health screenings completed	
3. Number and percent of MHCB 30-day readmissions	
4. Sign Language Interpreter Provided	

What if automated reports/tools don't align with your performance measure?

Pitfalls with Measurement

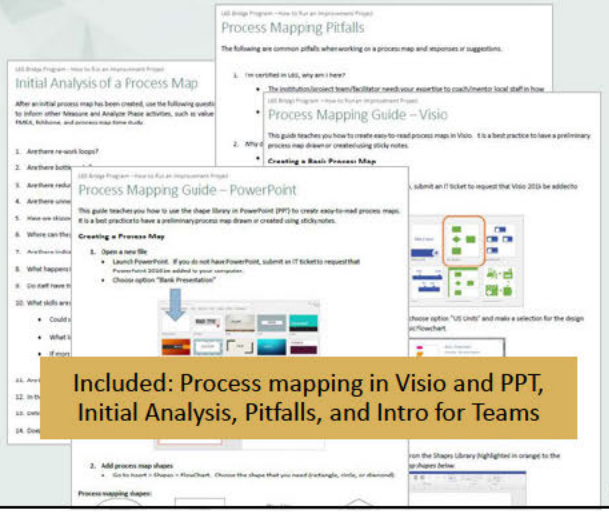
- Selecting a performance measure that does not align with the problem
- Manually collecting data when automated data sources are available
- Not considering modifications to methodology when appropriate

Gathering information from those who know the process

PROCESS MAPPING

Process mapping is a critical step in the DMAIC process and the following tools can help you complete this step

- Gemba Walk
- Process mapping guide for Visio
- Process mapping guide for PPT
- Initial analysis of a process map
- Process mapping pitfalls
- Process mapping intro for teams PPT



Included: Process mapping in Visio and PPT, Initial Analysis, Pitfalls, and Intro for Teams

Process mapping

- What is a Gemba Walk?
  - Walking the entire process and documenting observations along the way
- What is a process map?
  - A diagram showing the flow of a process to understand how it works
  - It helps to make the invisible, visible – an easy way to spot problems in a process
- Why would we map a process?
  - Serves as the basis for understanding, measuring, and analyzing process problems
  - You can't fix what you don't know – 80%+ of improvement opportunities are found in the process

Gemba Walk

- Identify participants
- Be the product or the patient
- Walk the entire process
- Observe only – don't correct
- Ask questions to understand
- Identify value-added activities
- Identify what subtracts value

Gemba Walk – Sample Questions

- What task are you doing now?
- Is there a standard process for completing this task?
- Are you encountering problems while completing this task?
- What causes the problem?
- How can you fix the problem?
- Who do you contact if you need any help resolving the problem?

EXERCISE 10: Gemba Walk

- Complete a visualization exercise on the steps you take to get to work

Process maps

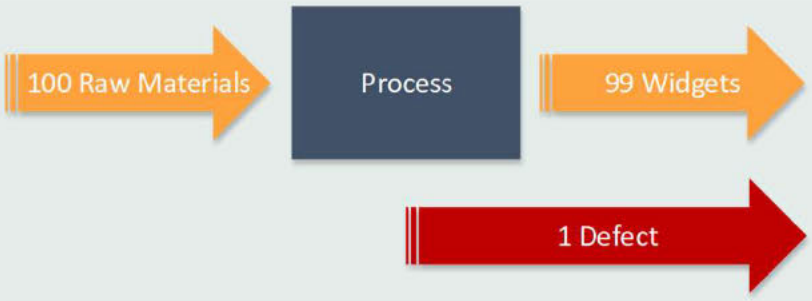
QUIZ

Process mapping

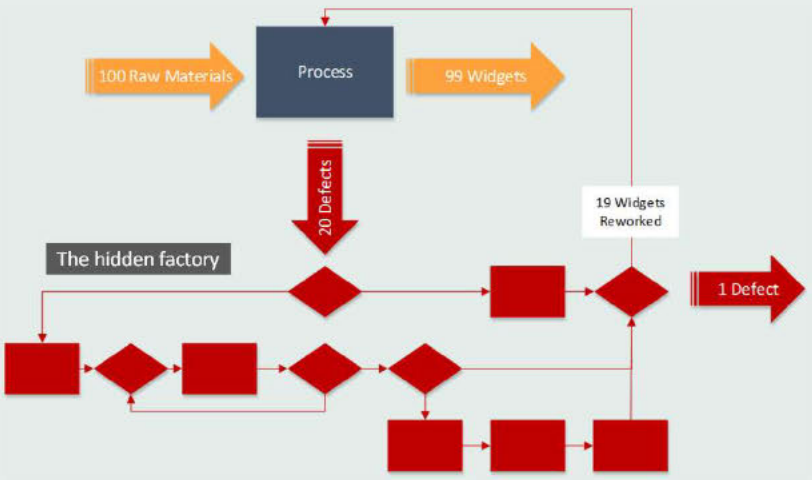
We use the expertise of staff to work through the "three versions of a process"

- **What we think is happening**
  - Policy, procedure, LOP, informal knowledge transfer
- **What is actually happening**
  - Current-state of the process, as practiced or observed
- **What could be happening**
  - Desired future-state

What we think is happening



What's actually happening



Process mapping steps

1. Assemble the team
   - Project team
   - Ad hoc members/SMEs
2. Define the scope
3. Map the process

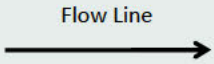
It's critical to include people who know the process – they either work in it regularly or are responsible for its daily operation

Clarify the scope of the process

- Clarify the process or the portion of the process under evaluation
- Determine the start and end points
  - This helps to prevent scope creep
- Determine the level of detail to be represented
- The Process Map goes from left to right

Caution! Don't focus on exceptions and errors in the process or try to fix the process while you are creating the current-state/initial process map.

Process mapping shapes



Oval
- Indicates the start and end of a process
- For large/complex processes, clarifies the portion of the process that is being evaluated
- Helps prevent scope creep

Rectangle
- Succinctly describes what activity occurs in this step
- Uses noun-verb combinations
- Uses clear, simple language

Flow Line
- Visual cue showing progress from one step to another, such as:
  - "Send to manager"
  - "Drop off with OT"

Diamond
- Represents a single decision to be made
- Mostly binary (e.g., yes/no or approve/disapprove)
- The answer that stops the process is placed at the bottom of the diamond

Ovals in a process map

What people, supplies, or information do you need to create a process map?

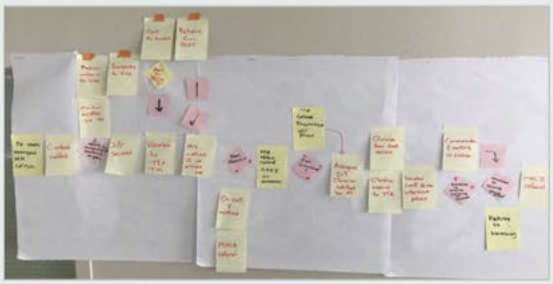
EXERCISE 10.25: Create a process map

- Create a process map for getting coffee for your instructors
- Start with the beginning and end points to ensure scope accuracy
- Consider a visualized Gemba Walk

Kahoot!

EXERCISE 10.5: Create a process map

- Use the scenario to complete this exercise
- Start with the beginning and end points to ensure scope accuracy
- Consider a visualized Gemba Walk



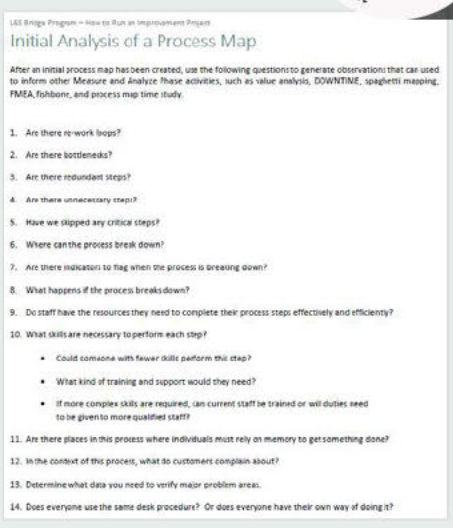
Check for completeness

- Are all of the steps within the stated scope shown on the process map?
- Does the map reflect how the process actually works?
- Is there enough detail in the process map steps for meaningful discussion?
- Did everyone get a chance to provide their input?
- Of which steps are you not 100% certain? Who can you ask for clarification?
- Did you identify other stakeholders who need to provide input?

Questions to help the team reflect on the initial process

- Are there re-work loops?
- Are there bottlenecks?
- Are there redundant steps?
- Which steps cause the most problems?

Find "Initial Analysis of a Process Map" in your toolkit



L&S Bridge Program – How to Run an Improvement Project

Initial Analysis of a Process Map

After an initial process map has been created, use the following questions to generate observations that can used to inform other Measure and Analyze Phase activities, such as value analysis, DOWNTIME, spaghetti mapping, FMEA, fishbone, and process map time study.

1. Are there re-work loops?
2. Are there bottlenecks?
3. Are there redundant steps?
4. Are there unnecessary steps?
5. Have we skipped any critical steps?
6. Where can the process break down?
7. Are there indicators to flag when the process is breaking down?
8. What happens if the process breaks down?
9. Do staff have the resources they need to complete their process steps effectively and efficiently?
10. What skills are necessary to perform each step?
    - Could someone with fewer skills perform this step?
    - What kind of training and support would they need?
    - If more complex skills are required, can current staff be trained or will duties need to be given to more qualified staff?
11. Are there places in this process where individuals must rely on memory to get something done?
12. In the context of this process, what do customers complain about?
13. Determine what data you need to verify major problem areas.
14. Does everyone use the same desk procedure? Or does everyone have their own way of doing it?

What are some challenges with process mapping?

Once your initial process map is complete, consider using these techniques/tools with the team…

Value-added activities

In order for a process step to be considered value-added (VA), it must satisfy ALL three of the following criteria:

1. There is transformation, change, or needed information gained as a result of the activity
2. Activity directly contributes to something the customer wants
3. It is done right the first time

Non-value-added activities

- All processes will have some non-valued-added (NVA) activities
- Some NVAs may be important and required, such as regulatory, legal, or accounting requirements – we call them business-necessary NVA (BN-NVA)
- We won't be able to eliminate all NVAs, but we want to minimize the unnecessary ones

EXERCISE 11: VA, NVA, BN-NVA

Value-added (VA) | Non-value-added (NVA) | Business necessary non-value-added (BN-NVA)

1. Fixing a mistake so that you can continue processing	
2. Waiting for the patient to arrive at the clinic	
3. Regulation requires verification that the organization documented their report correctly	
4. Providing direct patient care	
5. Batching travel reimbursement requests to be processed at the end of the month	
6. Resident is in class for high school diploma	

EXERCISE 12: Identify value in a process

- Using your process map, identify VA, NVA, and BN-NVA activities
- Each step may only have one identifier

Value-added (VA) | Non-value-added (NVA) | Business necessary non-value-added (BN-NVA)

What is waste?

Anything other than the minimum amount of resources, systems, paperwork, transactions, space and time that are absolutely essential and adds value to a product or service.

Identification and elimination of waste is key

THE 8 WASTES

D

DEFECTS
Efforts caused by rework, scrap, and incorrect information.

O

OVERPRODUCTION
Production that is more than needed or before it is needed.

W

WAITING
Wasted time waiting for the next step in a process.

N

NON-UTILIZED TALENT
Underutilizing talents, skills, & knowledge.

T

TRANSPORTATION
Unnecessary movements of products & materials.

I

INVENTORY
Excess products and materials not being processed.

M

MOTION
Unnecessary movements by people (e.g., walking).

E

EXTRA-PROCESSING
More work or higher quality than is required by the customer.

EXERCISE 13: Identify waste

TABLE EXERCISE 14: Identify waste in a process

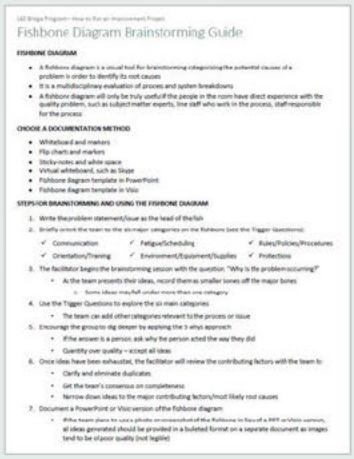
- Use the previously created process map to identify wastes
- Each step can have multiple types of waste

Three tools that work together for brainstorming

Fishbone Diagram	A visual way to organize ideas when brainstorming
Trigger questions	A set of questions to help the team explore all possibilities
5 whys	A method for challenging ideas and digging deeper to get to potential root causes

FISHBONE DIAGRAM

- A fishbone diagram is a visual tool for brainstorming and categorizing the potential causes of a problem in order to identify its root causes
- It is a multidisciplinary evaluation of process and system breakdowns
- A fishbone diagram will only be truly useful if the people in the room have direct experience with the process and the quality problem
  - Subject matter experts, line staff who work in the process, staff responsible for the process



Fishbone Diagram Brainstorming Guide

FISHBONE DIAGRAM

- A fishbone diagram is a visual tool for brainstorming categorizing the potential causes of a problem in order to identify its root causes
- It is a multidisciplinary evaluation of process and system breakdowns
- A fishbone diagram will only be truly useful if the people in the room have direct experience with the quality problem, such as subject matter experts, line staff who work in the process, staff responsible for the process

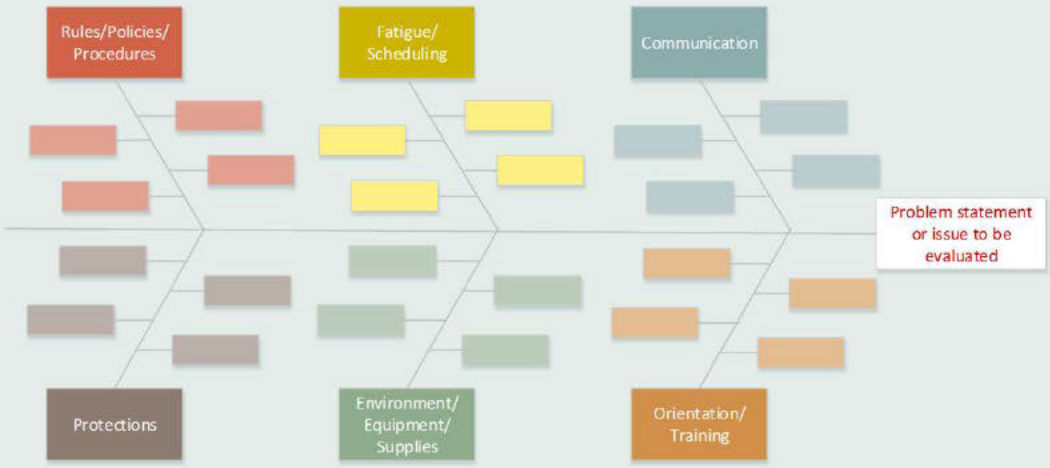
CHOOSE A DOCUMENTATION METHOD

- Whiteboard and markers
- Flip charts and markers
- Sticky notes and white space
- Virtual whiteboard, such as Skype
- Fishbone diagram template in PowerPoint
- Fishbone diagram template in Visio

STEPS FOR BRAINSTORMING AND USING THE FISHBONE DIAGRAM

1. Write the problem statement/issue as the head of the fish
2. Briefly orient the team to the six major categories on the fishbone (see the Trigger Questions):
   - ✓ Communication ✓ Fatigue/Scheduling ✓ Rules/Policies/Procedures
   - ✓ Orientation/Training ✓ Environment/Equipment/Supplies ✓ Protections
3. The facilitator begins the brainstorming session with the question: "Why is the problem occurring?"
   - As the team presents their ideas, record them as smaller bones off the major bones
     - Some ideas may/will similar more than one category
4. Use the Trigger Questions to explore the six main categories
   - The team can add other categories relevant to the process or issue
5. Encourage the group to dig deeper by applying the 5 whys approach
   - If the answer is a person, ask why the person acted the way they did
   - Quantity over quality – accept all ideas
6. Once ideas have been exhausted, the facilitator will review the contributing factors with the team to:
   - Clarify and eliminate duplicates
   - Get the team's consensus on completeness
   - Narrow down ideas to the major contributing factors/most likely root causes
7. Document a PowerPoint or Visio version of the fishbone diagram
   - If the team plans to use a photo or screenshot of the fishbone in Excel or a PPT or Visio version, all ideas generated should be provided in a bulleted format on a separate document as images tend to be of poor quality (not legible)

Fishbone diagram



Preparation

Choose a documentation method:

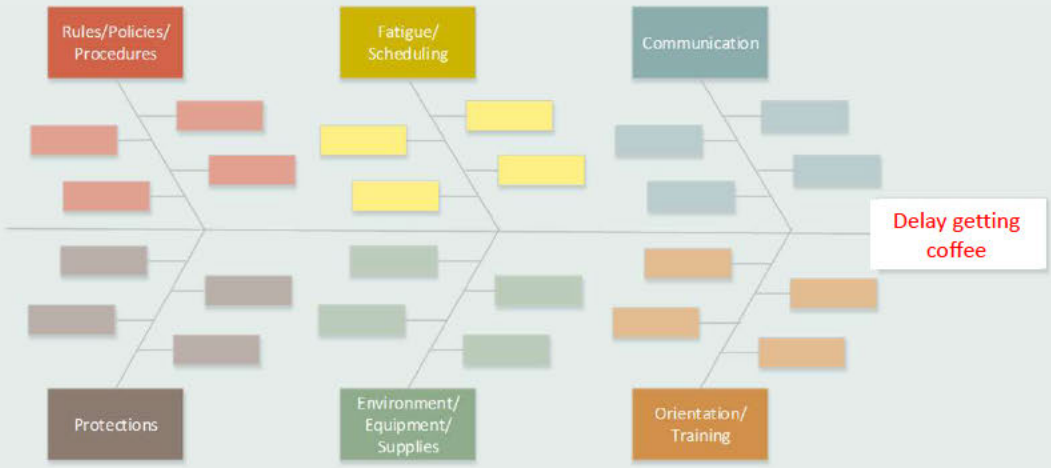
- Whiteboard and markers
- Flip charts and markers
- Sticky-notes and white space
- Virtual whiteboard, such as Skype

Effective for draft/ informal documentation

- Fishbone diagram template in PowerPoint
- Fishbone diagram template in Visio

Use to formally document the fishbone

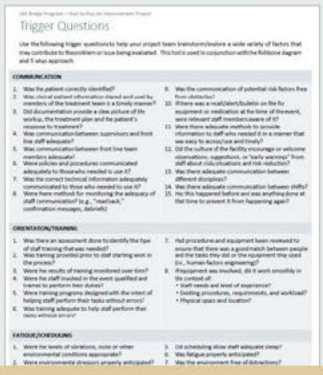
Fishbone diagram—Let's try one!



TRIGGER QUESTIONS

Six common categories are explored during brainstorming:

- Communication
- Orientation/training
- Fatigue/scheduling
- Environment/equipment/supplies
- Rules/policies/procedures
- Protections



Trigger Questions

Use the following trigger questions to help your project team brainstorm/explore a wide variety of factors that may contribute to the problem or issue being evaluated. This tool is used in conjunction with the fishbone diagram and 5 whys approach.

COMMUNICATION

1. Was the patient correctly identified?
2. Was clinical patient information shared and used by members of the treatment team in a timely manner?
3. Did documentation provide a clear picture of the workup, the treatment plan and the patient's response to treatment?
4. Was communication between supervisors and front line staff adequate?
5. Was communication between front line team members adequate?
6. Were policies and procedures communicated adequately to those who needed to use it?
7. Was the correct technical information adequately communicated to those who needed to use it?
8. Were there methods for monitoring the adequacy of staff communication? (e.g., "read back," confirmation messages, debriefs)
8. Was the communication of potential risk factors free from obstruction?
10. If there was a recall/alert/bulletin on file for equipment or medication at the time of the event, were relevant staff members aware of it?
11. Were there adequate methods to provide information to staff who needed it in a manner that was easy to access/use and timely?
12. Did the culture of the facility encourage or welcome observations, suggestions, or "early warnings" from staff about risk situations and risk reduction?
13. Was there adequate communication between different disciplines?
14. Was there adequate communication between shifts?
15. Has this happened before and was anything done at that time to prevent it from happening again?

ORIENTATION/TRAINING

1. Was there an assessment done to identify the type of staff training that was needed?
2. Was training provided prior to staff starting work in the process?
3. Were the results of training monitored over time?
4. Were the staff involved in the event qualified and trained to perform their duties?
5. Were training programs designed with the intent of helping staff perform their tasks without errors?
6. Was training adequate to help staff perform their tasks without errors?
7. Had procedures and equipment been reviewed to ensure that there was a good match between people and the tasks they did or the equipment they used (i.e., human-factors engineering)?
8. If equipment was involved, did it work smoothly in the context of:
   - Staff needs and level of experience?
   - Existing procedures, requirements, and workload?
   - Physical space and location?

FATIGUE/SCHEDULING

1. Were the levels of vibrations, noise or other environmental conditions appropriate?
2. Were environmental stressors properly anticipated?
3. Did scheduling allow staff adequate sleep?
6. Was fatigue properly anticipated?
7. Was the environment free of distractions?

The team can add additional categories relevant to the process or issue

Trigger questions

- **Communication** – How information flows between people, across disciplines, etc.
- **Orientation/training** – The adequacy of training, frequency of delivery, verification of competence
- **Fatigue/scheduling** – Our ability to optimize staff resources to prevent fatigue and burnout
- **Environment/equipment/supplies** – Whether we have a space that is conducive to productivity and performance, or if needed equipment and supplies are readily available and properly maintained
- **Rules/policies/procedures** – Documents that provide direction are up to date and reflect current best practices, they are known and used by staff in their day to day work
- **Protections** – We have systems in place to protect us from making mistakes

Start brainstorming

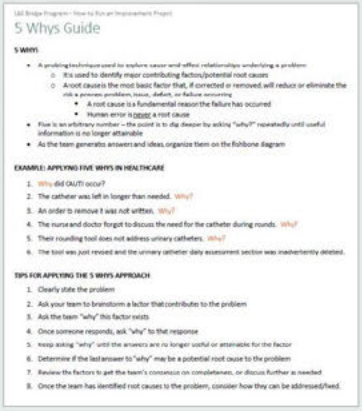
- Start the brainstorming session with the question:

  "WHY IS THE PROBLEM OCCURRING?"

- As the team presents their ideas, record them as smaller bones off the major bones
  - Some ideas may fall under more than one category
- Use the trigger questions to explore the six main categories
- Encourage the group to dig deeper by applying the 5 whys approach

5 WHYS

- A technique used to explore cause-and-effect relationships underlying a problem
  - To identify major contributing factors/potential root causes
- Five is an arbitrary number – the point is to dig deeper by asking "why?" repeatedly until useful information is no longer attainable
- As the team generates answers and ideas, organize them on the fishbone diagram



5 Whys Guide

5 WHYS

- A problem-solving technique used to explore cause-and-effect relationships underlying a problem
  - It is used to identify major contributing factors/potential root causes
  - A root cause is the most basic factor that, if corrected or removed, will reduce or eliminate the risk a process problem, issue, defect, or failure occurring
    - A root cause is a fundamental reason the failure has occurred
    - Human error is never a root cause
- Five is an arbitrary number – the point is to dig deeper by asking "why?" repeatedly until useful information is no longer attainable
- As the team generates answers and ideas, organize them on the fishbone diagram

EXAMPLE: APPLYING FIVE WHYS IN HEALTHCARE

1. Why did CAUTI occur?
2. The catheter was left in longer than needed. Why?
3. An order to remove it was not written. Why?
4. The nurse and doctor forgot to discuss the need for the catheter during rounds. Why?
5. Their rounding tool does not address urinary catheters. Why?
6. The tool was just revised and the urinary catheter daily assessment section was inadvertently deleted.

TIPS FOR APPLYING THE 5 WHYS APPROACH

1. Clearly state the problem
2. Ask your team to brainstorm a factor that contributes to the problem
3. Ask the team "why" this factor exists
4. Once someone responds, ask "why" to that response
5. Keep asking "why" until the answers are no longer useful or attainable for the factor
6. Determine if the last answer to "why" may be a potential root cause to the problem
7. Review the factors to get the team's consensus on completeness, or discuss further as needed
8. Once the team has identified root causes to the problem, consider how they can be addressed/fixed.

EXAMPLE: Applying five whys in healthcare

1. Why did CAUTI (Catheter-associated Urinary Tract Infection) occur?
2. The catheter was left in longer than needed. Why?
3. An order to remove it was not written. Why?
4. The nurse and doctor forgot to discuss the need for the catheter during rounds. Why?
5. Their rounding tool does not address urinary catheters. Why?
6. The tool was just revised and the urinary catheter daily assessment section was inadvertently deleted.

Things people might say during a fishbone diagramming session…

1. It's [redacted] fault that the medication didn't get to the patient.
2. Mental health didn't notify custody fast enough.
3. The patients are really difficult.
4. **The policy is confusing.**

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Most likely root causes

- Once the team agrees that the fishbone diagram is complete, ask members to select the most likely root causes
  - Can use multi-voting to help your team hone in on the likely root causes
- Highlight the most likely root causes on the fishbone diagram

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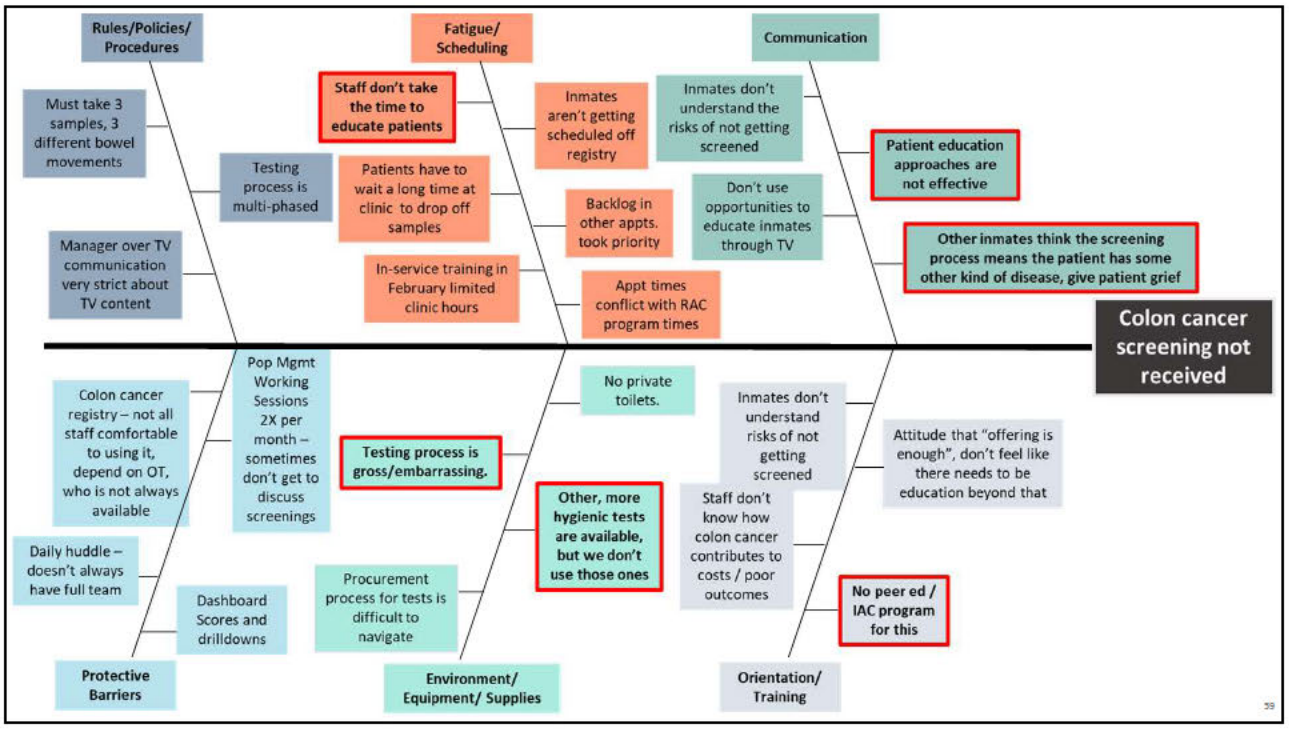

Troubleshooting a brainstorming session

1. The group is stuck on factors outside of our control, like staffing levels
2. Critical players are not in the room for the brainstorming session
3. One person keeps dominating the conversation
4. **The group can't agree on the likely root causes**

REPORTING TO THE SUBCOMMITTEE/ EXECUTIVE MANAGEMENT

- Provide project updates monthly using the available report-out template
- The QMC or subcommittee is responsible for intervening if little or no progress is made, or if performance is slipping
- The committee can use the Improvement Project Decision-Making Algorithm to determine if intervention is necessary

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Pitfalls with Gathering Information

- Only relying on policy to create a process map
- Putting the positive/desired outcome/goal as the head of the fish in a fishbone diagram
- Not asking WHY
- Not identify all possible factors that contribute to a problem
- Not getting input/feedback from all perspectives, especially line staff

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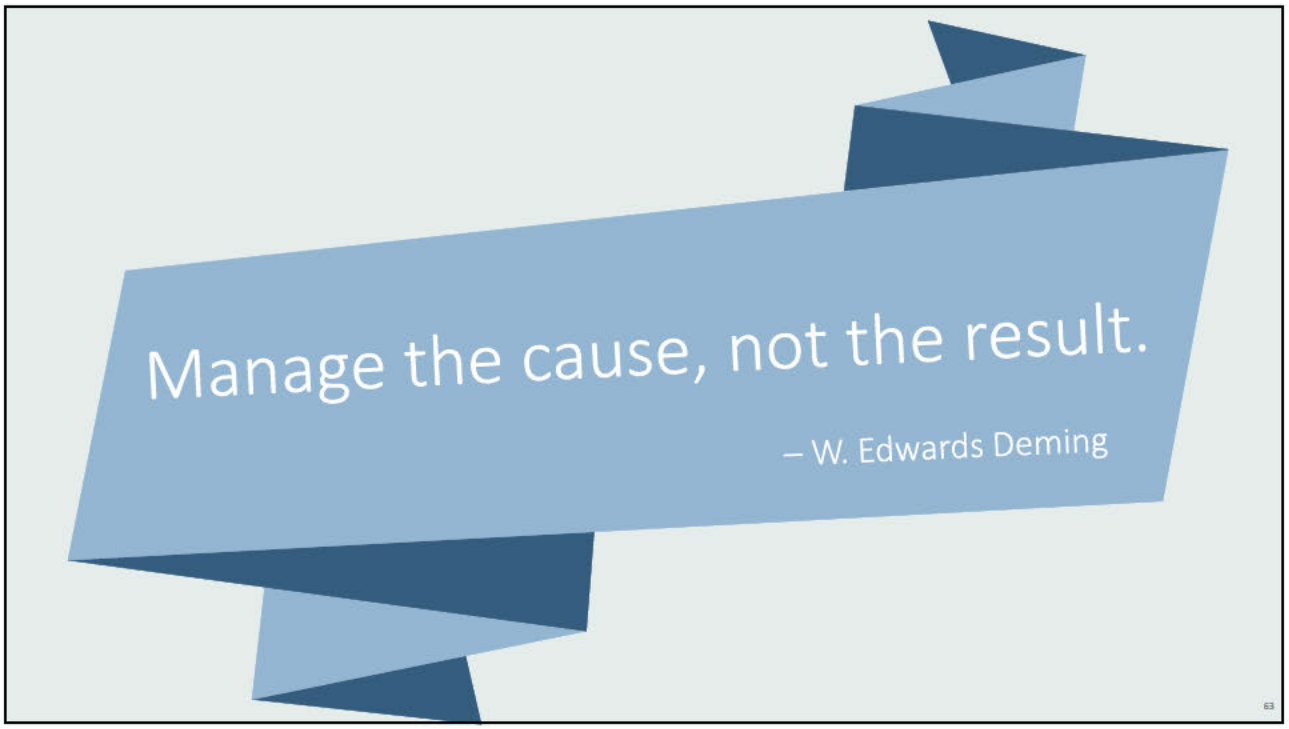
Manage the cause, not the result.
– W. Edwards Deming
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Analyze

Rev. 10/22

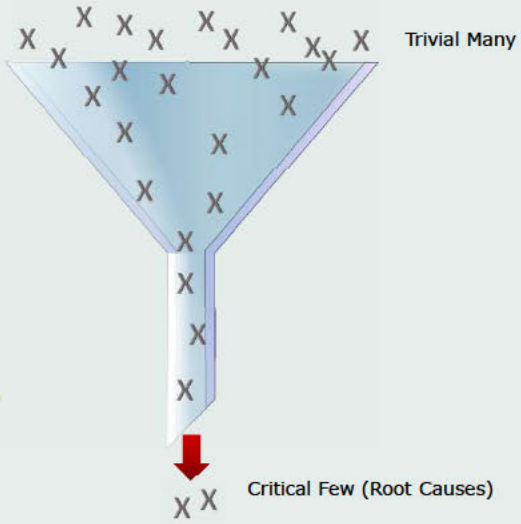
DMAIC

Recall from earlier…get to the root of the problem

All possible guesses at what's going wrong in our process…

Often we stop our improvement work here

The few things that we actually need to fix



Topics in the Analyze Phase

- Failure Modes and Effects Analysis (FMEA)
- Pareto Chart
- Spaghetti Map
- Process Map Time Study
- Subcommittee Reporting

What's your experience with using the Analyze Phase tools?

- Failure Modes and Effects Analysis (FMEA)
- Pareto Chart
- Spaghetti Map
- Process Map Time Study

5

Failure Modes and Effects Analysis (FMEA)

Profile of the FMEA	
Individual or team?	Team plus additional Subject Matter Experts
Timeframe	2-3 hours to complete
Relies on info. from	Staff experienced in the process

Included: FMEA Template, Guide for project leads, Guide for Teams, and FMEA Intro for Teams

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Failure Modes and Effects Analysis (FMEA)

- A systemic, proactive way to evaluate and prioritize the potential failures of a process in order to prevent those failures from occurring
  - Failure modes are the ways in which a process can fail
  - Effects are the ways that these failures can lead to waste, defects or harmful outcomes
  - FMEA is designed to identify, prioritize and limit these failure modes
- FMEA can be used for entirely new processes
- Unlike other L6S tools, FMEA is used during two phases: Analyze and Improve

Why do you think that is?

What is the impact when failures occur in CCHCS and CDCR processes?

FMEA definitions

Failure Mode

- The manner in which a service or process can fail to meet specification
- Usually associated with a defect or nonconformance

Failure Effect

- Impact if failure mode is not eliminated or mitigated
- Could be an internal effect or effect on the ultimate customer

Cause

- A design, manufacturing, or service deficiency that results in a failure mode
- Causes are sources of variability associated with root causes

FMEA risk ratings

What is the potential impact to the patient/process?

1	SEVERITY (SEV)	10
Negligible (not at all)		Catastrophic

How frequently could this failure occur?

1	OCCURRENCE (OCC)	10
<1 in 1,500,000		>1 in 2

What is the likelihood that the defect will be detected before the failure effect is realized?

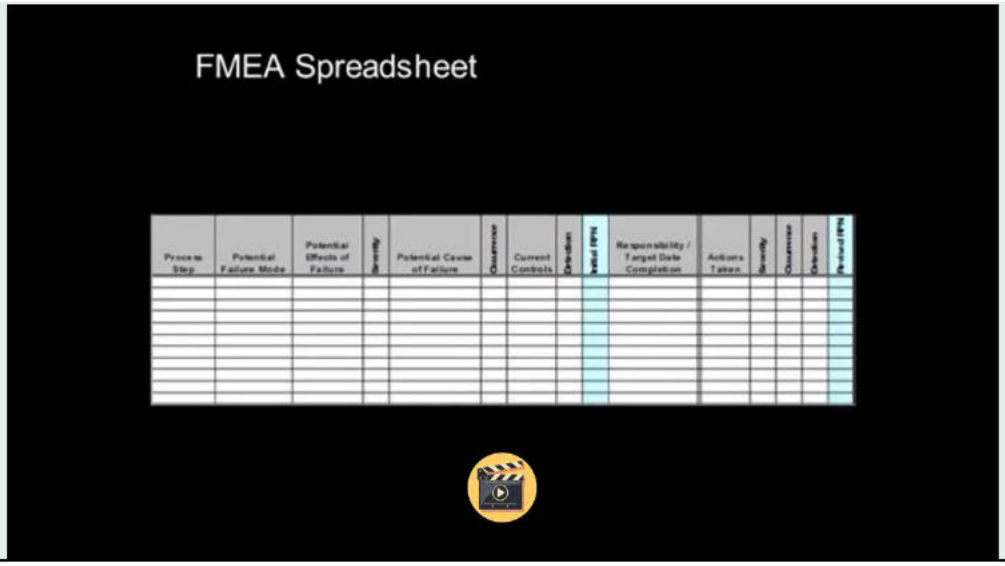
1	DETECTABILITY (DET)	10
Detected 99.5% of the time		Detected <80% of the time

FMEA risk priority number (RPN)

- RPN = SEV x OCC x DET
- A calculation that allows failure modes to be prioritized by overall risk level
- The highest priority failure modes should be addressed first

Step #	Process Map - Activity	Key Process Input	Potential Failure Mode	Potential Failure Effects	SEV	Potential Causes	OCC	Current Controls	DET	RPN
9	Detailed Process Map - Discuss Findings in a Bi-Weekly SW HCIRC Meeting	HCIRC members	Needed discipline not in attendance	Delays completion of checklist	9	Other priorities	5	Prioritize RCA activities, weekly RCA check in	1	45
10	Detailed Process Map - Discuss Findings in a Bi-Weekly SW HCIRC Meeting	HCIRC schedule	Scheduling conflicts	Delays completion of checklist	9	Other priorities	5	Establish a regular meeting schedule, weekly RCA check in	1	45
2	Detailed Process Map - RCA Report Assigned to a Reviewer	Schedules	Assignments get backed up	Stacked assignments	2	Limited pool of reviewers and protected time	5	Backups for HCIRC members, expand the pool, RCA weekly check ins	2	20

FMEA walkthrough



Steps to conduct an FMEA

1. Review the process
2. Brainstorm potential failure modes for a process step
3. List potential effects of the failure mode
4. Assign a Severity score
5. Determine potential causes of the failure mode
6. Assign an Occurrence score
7. Identify current controls that would detect the problem before it occurs
8. Assign a Detection score
9. Calculate the RPN

FMEA results and steps to reduce risk

1. Sort by RPN to identify the highest risk failure modes
2. Determine actions to eliminate or reduce the likelihood of the failure
3. After taking action, re-assess and re-assign severity, occurrence, and detection rankings
4. Sort by RPN again to identify and address any remaining failure modes with a high RPN

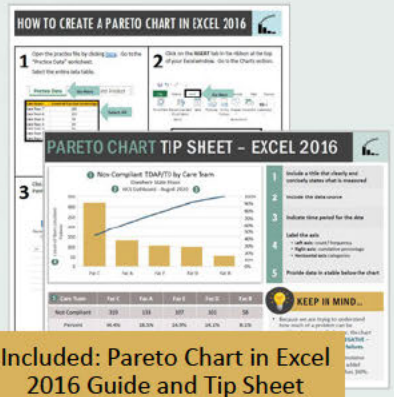
FMEA

EXERCISE 15: Practice with FMEA

Use the scenario to complete this exercise

PARETO CHART

- Analysis that quantifies how frequently a particular factor appears in a quality problem
- Pareto Principle: 20% of the causes drive 80% of the effects (80-20 rule)
- Used to identify the factors that disproportionately drive a quality problem
  - Helps us design interventions with the most impact
- Multi-level Pareto charts can help you dig deeper into the data



Included: Pareto Chart in Excel 2016 Guide and Tip Sheet

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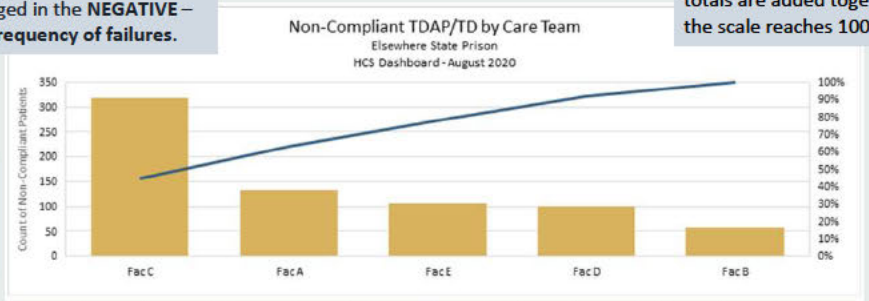
Characteristics of a Pareto chart

Because we are trying to understand how much of a problem can be attributed to a specific factor, the chart should be arranged in the **NEGATIVE** – we look at the **frequency of failures.**

The line graph shows the cumulative percentage as bar totals are added together until the scale reaches 100%.



Count / frequency data in bar graph format, arranged highest to lowest

Axis on right side shows percentage, 0% to 100%

Care Team	Fac C	Fac A	Fac E	Fac D	Fac B
Not Compliant	319	133	107	101	58
Percent	44.4%	18.5%	14.9%	14.1%	8.1%
Cumulative %	44.4%	63.0%	77.9%	91.9%	100.0%

A table shows chart data

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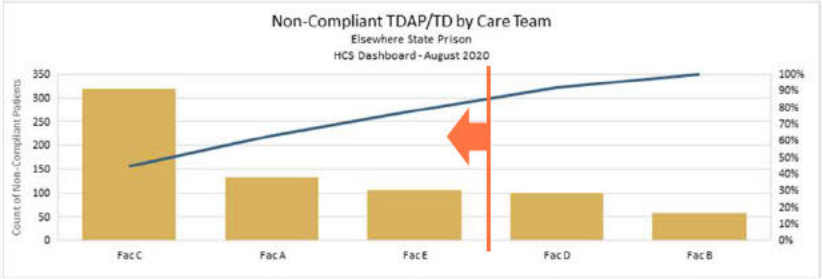
Analyze a Pareto chart



Care Team	Fac C	Fac A	Fac E	Fac D	Fac B
Not Compliant	319	133	107	101	58
Percent	44.4%	18.5%	14.9%	14.1%	8.1%
Cumulative %	44.4%	63.0%	77.9%	91.9%	100.0%

1. Check the percentage line. About where does the 80% mark fall?
2. Consider focusing on factors to the left of that point. In this case, the project team might work with Care Teams C, A, and E to examine and improve compliance with TDAP/TD, getting ideas for improvements from Care Teams D or B.
3. If you're not seeing disproportionate drivers, you may need to try another set of factors.
4. You may also consider doing a 2nd level Pareto chart on the highest frequency factor.

Report drilldowns are a good place to start

Determine the best factors to explore for each problem statement

Problem Statements

1. Patient acceptance of the annual flu vaccine is very low
2. Inmates eligible for a COVID-19 test are not being tested within 7 days prior to transfer out
3. Inmate endorsed to the wrong institution (high risk patient sent to PBSP)
4. High risk/complex care transfer patients are not being seen timely upon arrival

Potential Factors

A. Reason for refusal
B. Watch/shift
C. Provider
D. Clinical risk level
E. T.A.B.E score
F. Yard
G. Care team
H. Discipline
I. Security level

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Examples of factors

- Location / health care setting
- Care team
- Provider / staff person*
- Dental priority code
- MH level of care
- Custody / security level
- Clinical risk level
- Procedure
- Diagnosis
- Classification
- Discipline
- Equipment / supply type
- Order type
- Medication type
- Medication administration type or time
- Specialty type
- Appointment type
- Appeal type
- Watch / shift
- Day of the week
- Month / season
- Reason for medication refusal
- Reason for appointment cancellation
- Reason for incomplete documentation

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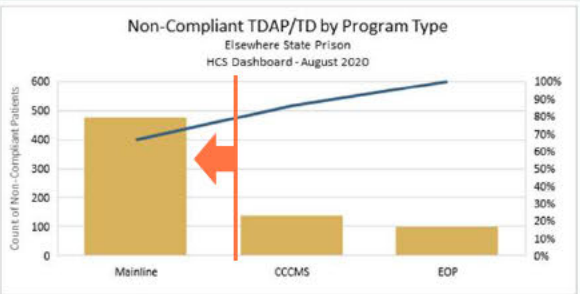
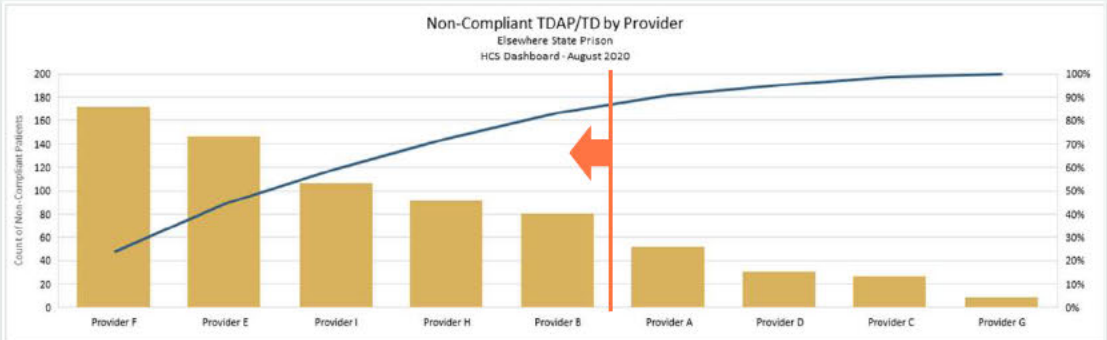
EXAMPLE: Pareto chart by program type



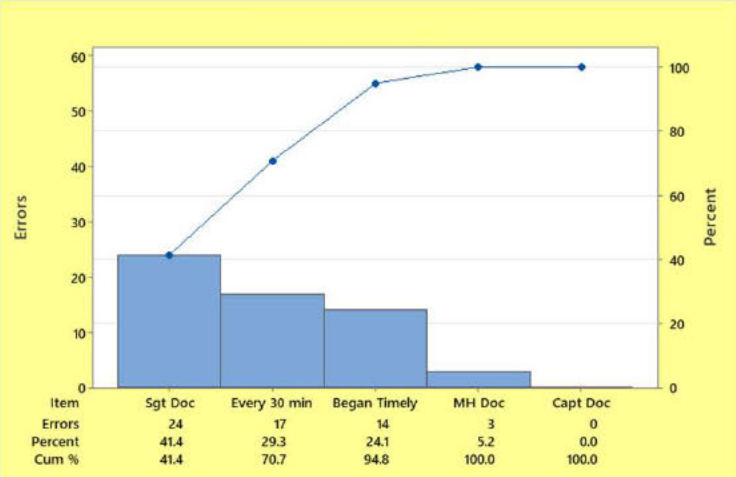
Care Team	Mainline	CCCMS	EOP
Not Compliant	478	138	102
Percent	66.6%	19.2%	14.2%
Cumulative %	66.6%	85.8%	100.0%

EXAMPLE: Pareto chart by provider



Care Team	Provider F	Provider E	Provider I	Provider H	Provider B	Provider A	Provider D	Provider C	Provider G
Not Compliant	172	147	107	92	81	52	31	27	9
Percent	24.0%	20.5%	14.9%	12.8%	11.3%	7.2%	4.3%	3.8%	1.3%
Cumulative %	24.0%	44.4%	59.3%	72.1%	83.4%	90.7%	95.0%	98.7%	100.0%

EXAMPLE: Missed Wellness Checks



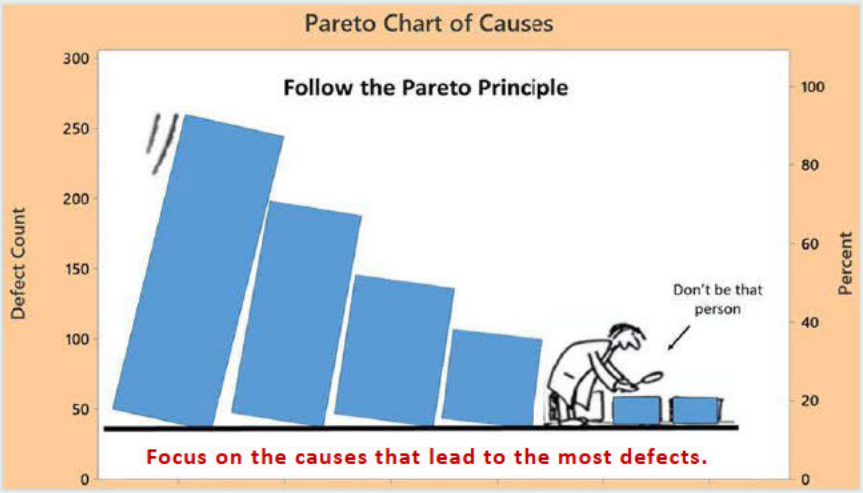
A Pareto looking at item most missed on Form 7497.

What do you see?

EXAMPLE: Custody delays during medical emergency

August 1, 2021 through January 31, 2022

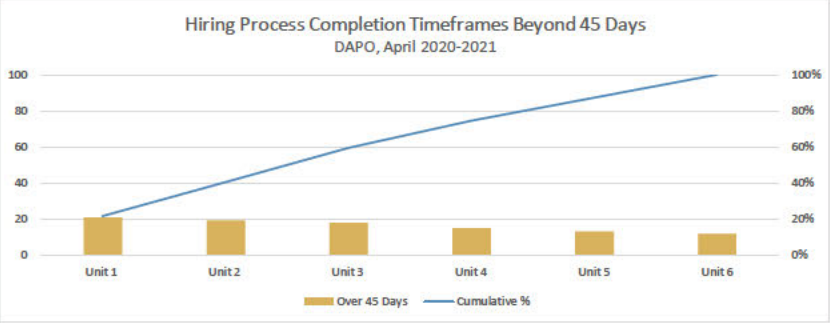
Look before you leap



Common sources for Pareto analysis data

- Performance reports such as Dashboards and drilldowns, MH Performance Report, SPRFIT Report and drill downs
- Registries and other automated operational tools
- Chart audits and other audits
- Paper-based logs or tracking systems
- SOMS, BIS, other management databases

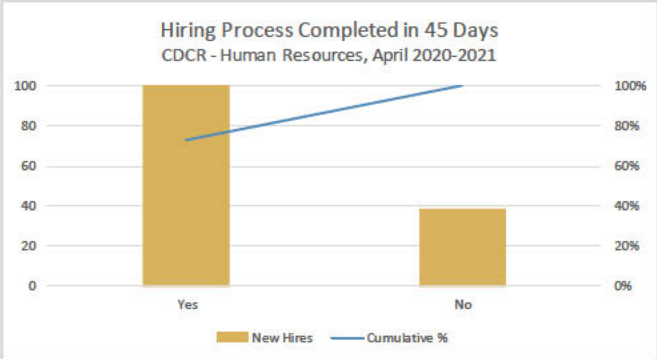
TABLE EXERCISE 16: Analyze Pareto charts



Organization	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
Over 45 Days	21	19	18	15	13	12
Percent	21%	19%	18%	15%	13%	12%
Cumulative %	21%	41%	59%	74%	88%	100%

1. What do you think about a chart that looks like the above (flat Pareto?)
2. What do you recommend that this team do?

TABLE EXERCISE 16: Analyze Pareto charts



Completed in 45 Days	Yes	No
New Hires	105	39
Percent	73%	27%
Cumulative %	73%	100%

1. Is this a Pareto?
2. What's the problem?
3. What would you recommend?

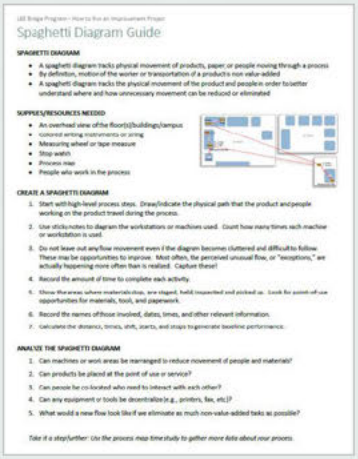
TABLE EXERCISE 16: Analyze Pareto charts

Reasons	Eligibility Verification	Screen Applications	Formal Offer	Certification List	Interviews	Tentative Offer	Post Ad
# of Times	86	62	49	18	14	12	7
Percent	35%	25%	20%	7%	6%	5%	3%
Cumulative %	35%	60%	79%	87%	92%	97%	100%

1. What are the main drivers for delayed hiring?
2. What would you recommend as a next step?

SPAGHETTI DIAGRAM

- A spaghetti diagram tracks the physical movement of products and people to better understand where and how unnecessary movement can be reduced or eliminated
- By definition, motion of the worker or transportation of a product or document is non-value-added



Spaghetti Diagram Guide

SPAGHETTI DIAGRAM

- A spaghetti diagram tracks physical movement of products, paper, or people moving through a process
- By definition, motion of the worker or transportation of a products non value-added
- A spaghetti diagram tracks the physical movement of the product and people in order to better understand where and how unnecessary movement can be reduced or eliminated

SUPPLIES/RESOURCES NEEDED

- An overhead view of the floor(s)/buildings/campus
- Colored writing instruments or string
- Measuring wheel or tape measure
- Stop watch
- Process map
- People who work in the process

CREATE A SPAGHETTI DIAGRAM

1. Start with high-level process steps. Draw/indicate the physical path that the product and people working on the product travel during the process.
2. Use sticky notes to diagram the workstations or machines used. Count how many times each machine or workstation is used.
3. Do not leave out any flow movement even if the diagram becomes cluttered and difficult to follow. These may be opportunities to improve. Most often, the perceived unusual flow, or "exceptions," are actually happening more often than is realized. Capture these!
4. Record the amount of time to complete each activity.
5. Show the areas where materials stop, are staged, held/inspected and picked up. Look for point-of-use opportunities for materials, tools, and paperwork.
6. Record the names of those involved, dates, times, and other relevant information.
7. Calculate the distance, times, shift, starts, and stops to generate baseline performance.

ANALYZE THE SPAGHETTI DIAGRAM

1. Can machines or work areas be rearranged to reduce movement of people and materials?
2. Can products be placed at the point of use or service?
3. Can people be co-located who need to interact with each other?
4. Can any equipment or tools be decentralize (e.g., printers, fax, etc.)?
5. What would a new flow look like if we eliminate as much non-value-added tasks as possible?

Take it a step further: Use the process map time study to gather more data about your process.

Creating a spaghetti diagram

- Obtain or draw an overhead view of the floor(s)/buildings/campus
- Draw/indicate the physical path
- Record the amount of time of each activity
- Show where materials stop, are staged, held, inspected, and picked up
- Record other relevant information
- Calculate the distance and time to provide baseline performance

EXAMPLE: Post-MHCB follow-up checks

EXAMPLE: CIT and patient movement to inpatient

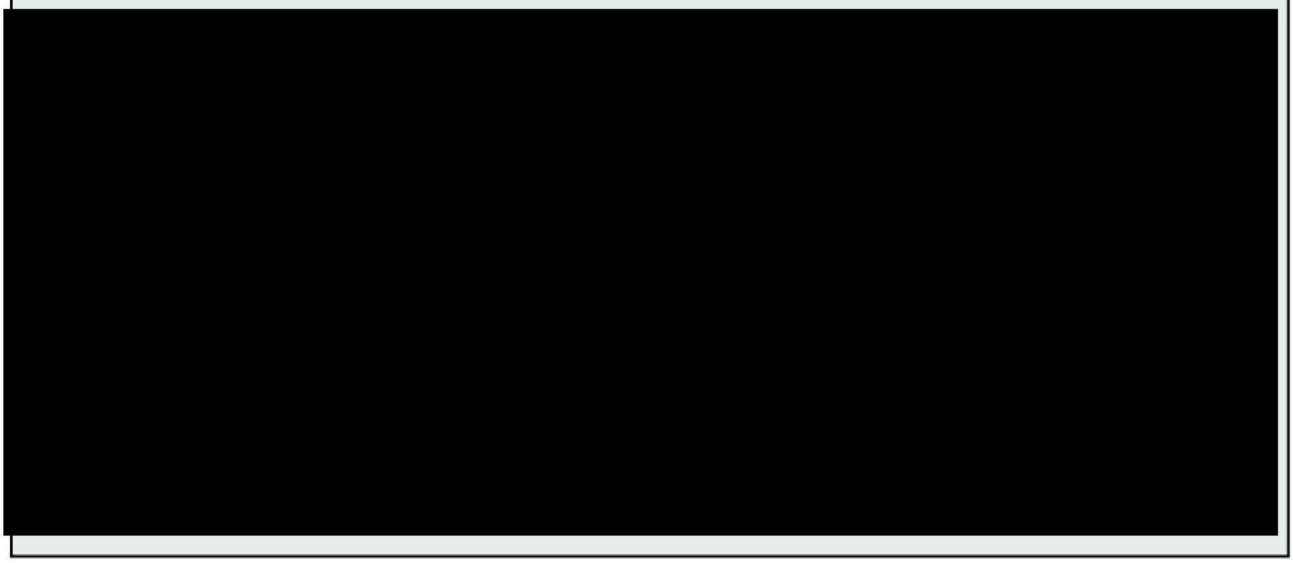


TABLE EXERCISE 17:
Create a spaghetti diagram

- Review the process described in the prompt
- Create a spaghetti diagram
- Analyze the diagram

Spaghetti Diagram Example

Analyze the spaghetti diagram

- Where are the bottlenecks?
- Where do you have transportation and/or movement waste?
- Can machines or work areas be rearranged to reduce movement of people and materials?
- Can products be placed at the point of use/service?
- Can people be co-located who need to interact with each other?
- Can any equipment or tools be de-centralized (e.g., printers, fax, etc.)?
- What would a new flow look like if we eliminate as much non-value-added tasks as possible?

PROCESS MAP TIME STUDY

- Evaluate the time it takes to complete each step in the process
  - Use historical data with time stamps, or
  - Collect data using the tool

Process Map Time Study

Project Title Here

Process Step # and Process Step Name Here

Item #	Date/Time In	Date/Time Out	Description of Item	Elapsed Time (minutes)
1.1	6/20/19 13:11	6/22/19 9:00	Scanned barcode	6.25
1.2				0.00
1.3				0.00
1.4				0.00
1.5				0.00
1.6				0.00
1.7				0.00
1.8				0.00

« INSERT ROWS ABOVE TO ADD RECORDS »

Median Elapsed Time (min)	0.00

- Document median times on the process map
- Determine which process steps are consuming the most time
- Tip: convert findings into a Pareto chart to visually display results

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Where would your team want to focus first?

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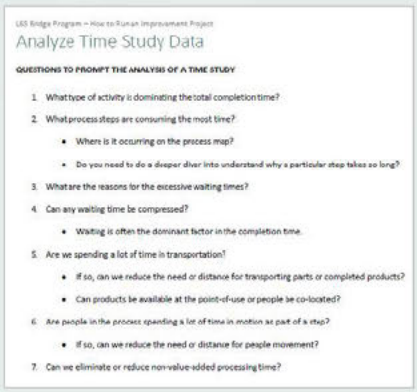
ANALYZE TIME STUDY DATA

Prompts to help the team analyze the results of a time study

- What type of activity is dominating the total completion time?
- Where is it occurring on the process map?
- Can the waiting time be compressed?
- Can we eliminate or reduce non-value-added processing time?



LSS Bridge Program – How to Run an Improvement Project

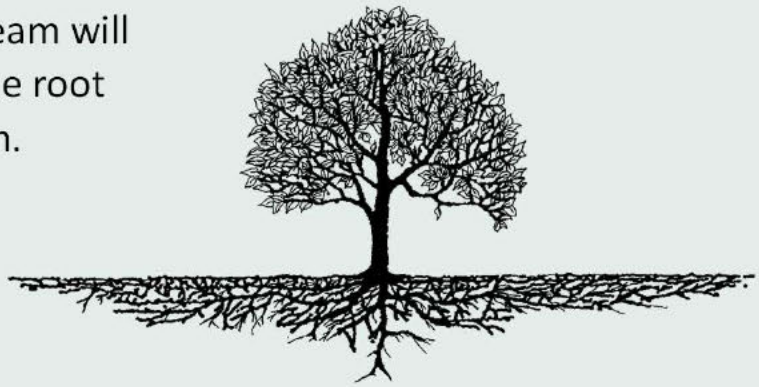
Analyze Time Study Data

QUESTIONS TO PROMPT THE ANALYSIS OF A TIME STUDY

1. What type of activity is dominating the total completion time?
2. What process steps are consuming the most time?
   - Where is it occurring on the process map?
   - Do you need to do a deeper dive into understand why a particular step takes so long?
3. What are the reasons for the excessive waiting times?
4. Can any waiting time be compressed?
   - Waiting is often the dominant factor in the completion time.
5. Are we spending a lot of time in transportation?
   - If so, can we reduce the need or distance for transporting parts or completed products?
   - Can products be available at the point-of-use or people be co-located?
6. Are people in the process spending a lot of time in motion as part of a step?
   - If so, can we reduce the need or distance for people movement?
7. Can we eliminate or reduce non-value-added processing time?

Bottlenecks, pain points, oh my!

Towards the end of *the analyze* phase activities the team will need to hone in on the root causes to the problem.



Identify root causes

- The team will need to use findings from activities in the measure and analyze phases to identify root causes to the problem
- A root cause must meet the criteria described in the box on the right

Root Cause Criteria

If you eliminated or fixed this cause, the quality problem 1) is much less likely to occur or 2) it would not exist.

- Human error is not a root cause
- Quality problems often have multiple root causes

Identify root causes

Getting to root causes

REPORTING TO THE SUBCOMMITTEE/ EXECUTIVE MANAGEMENT

- Provide project updates monthly using the available report-out template
- The QMC or subcommittee is responsible for intervening if little or no progress is made, or if performance is slipping
- The committee can use the Improvement Project Decision-Making Algorithm to determine if intervention is necessary

Pitfalls in the Analyze Phase

- Missing potential failure modes/risks in a process
- Not identify all possible factors that contribute to a problem or are relevant to a problem
- Not using relevant data to analyze the problem
- Not using data to back up conclusions or decisions

If you always do what you always did, you'll always get what you always got.

Improve

Rev. 10/22

"Life is like riding a bicycle. To keep your balance, you must keep moving."

– Albert Einstein

DMAIC

Topics in the Improve Phase

- Hierarchy of actions
- Sustainability
- Flow of work
- Parallel processing
- Standard work
- 5S and visual management
- PDCA
- Subcommittee reporting

Improvement is great, but change is hard

We want to improve, but we also know that change is hard!

Let's demonstrate with something fairly simple…

HIERARCHY OF ACTIONS

- Select and design strong and sustainable interventions
- A combination of interventions is the most effective approach

LEI Bridge Program – How to Run an Improvement Project

Hierarchy of Actions

Use the hierarchy of actions as a guide to identifying and designing interventions for process improvement. A combination of several interventions is the most effective approach.

	Hierarchy of Actions	Example
Less	Architectural/physical plant changes, mistake-proofing	Replace revolving doors at the main patient entrance into the building with powered sliding or swinging doors to reduce patient falls.
Strong Actions	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 adapters and peripheral devices for medical equipment and use fittings that can only be connected the correct way.
	Simplify process, eliminate steps	Remove unnecessary/non-valued-added steps in a process.
	Standardization equipment or process, 5S and visual management	Standardize the make and model of glucometers used throughout the institution. Use barcoding for medication administration.
correctly	Tangible involvement by leadership	Participate in unit patient safety evaluations and interact with staff; support the RCA process; ensure staffing and workload are balanced.

Weaker	Strength of intervention	Stronger

Greater	Reliance on humans to perform correctly	Lesser

Person-dependent interventions are hard to sustain!

Strong actions

- Architectural/physical plant changes, mistake-proofing — Top Choice
- New devices with usability testing
- Engineering control (forcing function)
- Simplify process, eliminate steps
- Standardize on equipment or process, 5S and visual management
- Tangible involvement by leadership

EXERCISE 19: Is it mistake-proofing?

- Defects occur only when the process allows them to occur
- We are able to detect errors immediately

Description	Mistake Proofed?
1. The electric kettle automatically turns off if idle for 30-minutes.	
2. Replenish supplies on a schedule.	
3. Put a sticker on the medication bottle warning that children should not handle.	
4. Feeding tube and IV tubes now have different attachments that can never be mixed up.	
5. Put up a sign to remind restaurant patrons not to throw away the re-usable plastic trays.	

Intermediate actions

- Redundancy
- Decrease in workload
- Software enhancements, modifications
- Eliminate/reduce distractions
- Education using simulation-based training, with periodic refresher sessions and observations
- Checklist/cognitive aids
- Standardize communications tools

Weak (on their own) actions

- Double checks, self-inspection, earlier inspections
- Warnings
- New procedure, memorandum, or policy
- Training

By themselves, these actions are weak. Make them stronger by combining them with intermediate and/or strong actions.

EXAMPLE: HDSP – Improve Immunization Process

Strong	Redesigned the process and implemented visual management
Intermediate	Standardized communication (patient education on immunization benefits)
Weak	Training on the new process and updated the LOP

1. What are examples of "person-dependent" solutions you have seen implemented?
2. Why do these interventions often fail?

EXERCISE 20: Hierarchy of actions

Determine where each intervention fits in the hierarchy of actions

Why is sustainability important when we are working on process improvements?

Focus on sustainability

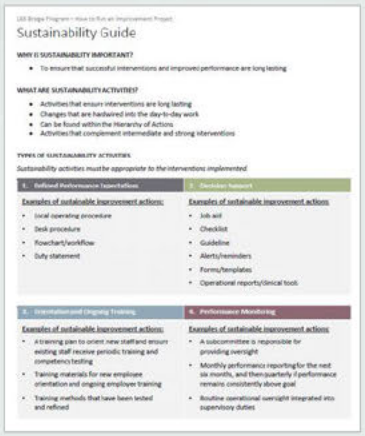
What are sustainability activities?

- Activities that ensure interventions are long lasting
- Changes that are hardwired into the day-to-day work
- They can be found within the hierarchy of actions
- They complement intermediate and strong interventions

SUSTAINABILITY GUIDE

Sustainability actions complement intermediate and strong interventions

- Defined performance expectations
- Decision support
- Orientation and ongoing training
- Performance monitoring



Sustainability Guide

WHY IS SUSTAINABILITY IMPORTANT?

- To ensure that successful interventions and improved performance are long lasting

WHAT ARE SUSTAINABILITY ACTIVITIES?

- Activities that ensure interventions are long lasting
- Changes that are hardwired into the day-to-day work
- Can be found within the Hierarchy of Actions
- Activities that complement intermediate and strong interventions

TYPES OF SUSTAINABILITY ACTIVITIES

Sustainability activities must be appropriate to the interventions implemented.

1. Defined Performance Expectations	2. Decision Support
Examples of sustainable improvement actions: • Local operating procedure • Desk procedure • Flowchart/workflow • Duty statement	Examples of sustainable improvement actions • Job aid • Checklist • Guideline • Alerts/reminders • Forms/templates • Operational reports/clinical tools
3. Orientation and Ongoing Training	**4. Performance Monitoring**
Examples of sustainable improvement actions: • A training plan to orient new staff and ensure existing staff receive periodic training and competency testing • Training materials for new employee orientation and ongoing employee training • Training methods that have been tested and refined	Examples of sustainable improvement actions: • A subcommittee is responsible for providing oversight • Monthly performance reporting for the next six months, and then quarterly if performance remains consistently above goal • Routine operational oversight integrated into supervisory duties

Are we good at this?

EXERCISE 21: Developing a change package

1. Determine the strength of this set of interventions per the Hierarchy of Actions.
2. Determine which activities are sustainability actions.

ESP is performing poorly in delivering durable medical equipment (DME) to patients per ordered timeframes. After conducting the measure and analysis phases, the institution proposed the following improvements:

Description of Activities	Strength?	Sustainability Action?
1. The DME supply room will be moved from the warehouse (which is far away) to an empty space next to the central clinic		
2. The new closet is going to be organized and maintained using the 5S method with posters on the wall showing inventory and par levels		
3. BIS fields will be updated to improve DME procurement		
4. Staff will be notified via email about the new location of the closet		
5. Staff will be given training on this change		
6. The Resource Management Subcommittee will monitor performance monthly		

What happens if interventions do not address the root causes?

Interventions must address root causes

Problem	Root Cause	Proposed Intervention
65% of patients returning from the hospital are not seen by a PCP within 5 days	Care teams are not discussing patients who returned from the hospital during their daily huddles	Audit the attendance of daily huddles
30% of patients on PC2602 medications who need a back up medication order do not have one on file in the EHRS	The EHRS does not require consideration of a backup medication order for PC2602 medications	Modify logic in the EHRS such that all PC2602 medication orders will require providers to indicate whether a backup order is needed, and if so, to create one

Pitfalls in Choosing Interventions

- Not getting input/insight from line staff and middle management when developing interventions
- Choosing the path of least resistance
- Only choosing weak interventions – relying on training and/or auditing
- Adding staff resources as the primary solution
- Not creating a fully encompassing change package

Most utilized interventions

Design a better future-state process

Using information acquired during the measure and analyze phases, consider improvements to the current-state process, such as:

- Eliminate and/or minimize non-value-added steps, rework, and other wastes
- Improve the flow of work
- Implement parallel processing

Improve the flow of work

- Batch and queue vs. single-piece flow
- Work cells
  - Co-location of people in the process
- Flexibility via a multi-skilled workforce
  - Develop cross-functional skillsets for staff
- Assigned workloads vs. round-robin
  - If all staff can do the job, then the entire team can share a single queue

SIMULATION: Batch and Queue

- **Batch simulation set up**
  - Select a timekeeper
  - Person at the beginning of the line has a set of sticky notes
  - Everyone has a pen
- **When the timer starts**
  1. Person #1 signs their name on the 1st sticky note, then signs their name on the 2nd sticky note, and continues until 5 sticky notes have been signed
  2. Pass ALL 5 sticky notes to person #2, who will sign each of the sticky notes
  3. Pass ALL 5 sticky notes to person #3, who will sign each of the sticky notes
  4. Repeat for all players on the team, including the timekeeper
  5. Stop time when the last person signs the last sticky note in the batch
  6. Report your team's time to the facilitator

SIMULATION: Single-Piece Flow

- **Single-piece flow set up**
  - Select a timekeeper
  - Person at the beginning of the line has a new set of sticky notes
  - Everyone has a pen
- **When the timer starts**
  1. Person #1 signs their name on the 1st sticky note, then immediately passes it to the next person, and continues until 5 sticky notes have been signed and passed along
  2. All other players, including the timekeeper, will sign their name on the sticky note as soon as they receive it, then immediately pass it to the next person in line for signature
  3. Stop time when the last person signs the last sticky note
  4. Report your team's time to the facilitator

1. How did you do?
2. Which process flow is more efficient?
3. What challenges did you experience?
4. Should we rush out and change everything to single-piece flow?

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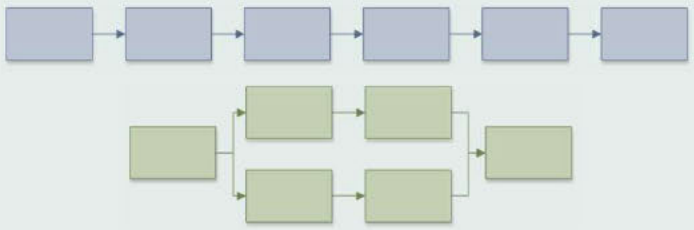
Parallel processing

- If there are steps that can be executed independently (i.e., one step does not require the other step to be completed before it can begin) then those steps should be processed in parallel
- From the process map, determine which steps are independent and arrange the work to process in parallel



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Standard work

- Determining the best way to perform a particular task, and then assuring that the task is always performed that same (best) way
- It answers the 5W+1H of a process – the who, what, when, where, why, and how
- Created by a cross-functional team
- Intended for key tasks that directly impact quality, time, cost, or customer experience
- Integrates existing standards of practice

What types of standard work have you seen used at CDCR/CCHCS?

Examples of standard work

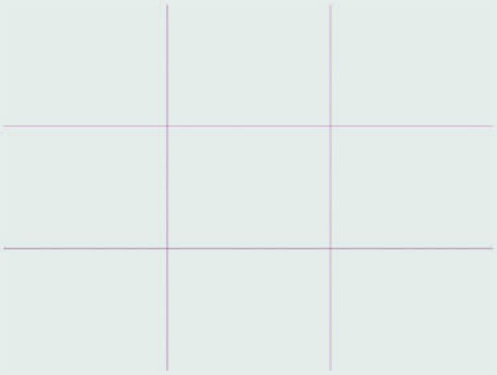
- Formal written procedure such as an LOP or desk procedure
- Care guidelines and protocols
- Documented workflow or process map
- Checklists and job aides
- Visual cues and resources

EXERCISE 23: The standard fish – round 1

- New statewide policy
- Let's implement!

EXERCISE 23: The standard fish – round 2

Use your 3 x 3 grid.



STANDARD WORK

Standardize how work is performed

1. Determine where standard work is needed
2. Assemble a cross-functional team
3. Create standard work procedures
4. Implement standard work
5. Enforce standard work
6. Update and improve standard work

Standard Work Guide

STANDARD WORK

- Determining the best way to perform a particular task, and then assuring that the task is always performed that same (best) way
  - Reduces variation in how work is done
- It answers the 5W+1H of a process – the who, what, when, where, why, and how
- Created by a cross-functional team
  - Determines the best way to develop, communicate and apply standard work for each situation
- Intended for key tasks that directly impact quality, time, cost, or customer experience
- Any existing standards of practice should be integrated into the standard work

EXAMPLES OF STANDARD WORK

- Written procedure such as an LCP or desk procedure
- Care guidelines and protocols
- Documented workflow or process map
- Desk procedures, checklists, job aides
- Visual cues and resources

APPROACH TO STANDARD WORK

1. Determine where standard work is needed, which is usually where the process demonstrates:
   - Excessive variation in results
   - Frequent delays
   - Unacceptable defect rates
   - Confusion about roles and responsibilities
   - General frustration for the staff
2. Assemble a cross-functional team
   - In addition to the project team you may bring in additional staff who work in the process
3. Create standard work procedures – a general approach is to:
   - List the value-added actions that need to occur to complete the task
   - Arrange the sequence of actions, the personnel involved, and the locations of work to minimize waste while performing the necessary actions
   - Document the step-by-step procedure for the standard work
   - Test the standard work first: refine as needed, then plan to implement broadly
4. Implement standard work
   - Communicate EARLY to all staff who will be affected by the new standard work
   - Develop and execute a training program
   - Use visual management wherever possible to guide and reinforce the standard work
5. Enforce standard work
   - Kept as simple as possible
   - Periodic quick audits/checks
   - Audit results should be used to focus on where adherence to standard work can be improved
6. Update and improve standard work
   - Use existing forums to monitor the process and identify opportunities to update and/or improve standard work

Cognitive Workspace

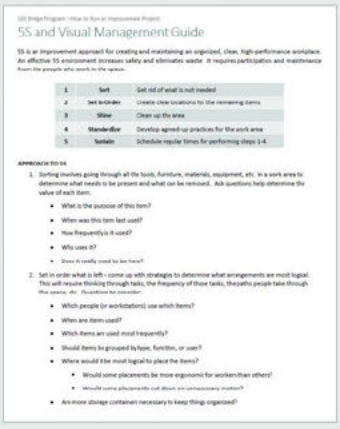
1. Think of your top 15 favorite books or films in order of preference
2. Don't write it down! Hold it all in your head!

Visual management

- Visual management is a concept that emphasizes putting critical information at the point of use/service/need
  - Creates a clean, organized work environment
  - Provides visual cues to assist in performing tasks
  - Provides clear signs when problems arise
  - Makes information readily available where it is needed
- 5S and visual management be used in the physical and digital world

5S AND VISUAL MANAGEMENT

1	**Sort**	Get rid of what is not needed
2	**Set in Order**	Create clear locations for the remaining items
3	**Shine**	Clean up the area
4	**Standardize**	Develop agreed-upon practices for the work area
5	**Sustain**	Schedule regular times for performing steps 1-4



5S and Visual Management Guide

5S is an improvement approach for creating and maintaining an organized, clean, high-performance workplace. An effective 5S environment increases safety and eliminates waste. It requires participation and maintenance from the people who work in the space.

1	Sort	Get rid of what is not needed
2	Set in Order	Create clear locations for the remaining items
3	Shine	Clean up the area
4	Standardize	Develop agreed-upon practices for the work area
5	Sustain	Schedule regular times for performing steps 1-4

APPROACH TO 5S

1. Sorting involves going through all the tools, furniture, materials, equipment, etc. in a work area to determine what needs to be present and what can be removed. Ask questions help determine the value of each item:
   - What is the purpose of this item?
   - When was this item last used?
   - How frequently is it used?
   - Who uses it?
   - Does it really need to be here?
2. Set in order what is left – come up with strategies to determine what arrangements are most logical. This will require thinking through tasks, the frequency of those tasks, the paths people take through the space, etc. Questions to consider:
   - Which people (or workstations) use which items?
   - When are items used?
   - Which items are used most frequently?
   - Should items be grouped by type, function, or user?
   - Where would it be most logical to place the items?
     - Would some placements be more ergonomic for workers than others?
     - Would some placements cut down on unnecessary motion?
   - Are more storage containers necessary to keep things organized?

5S

Office supply ordering process

[redacted]

What did this office do to improve their supply ordering process?

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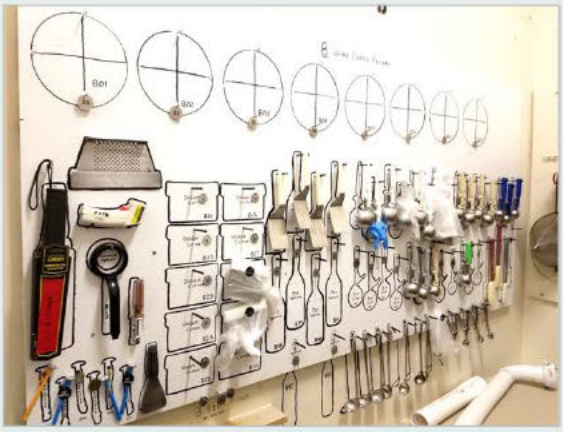
EXAMPLE: Shadow boards for tools



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EXAMPLE: Dental tool cabinet

Kanban systems

- Kanban systems offer the efficiencies of just-in-time inventory control
- 5S can be applied in a 2-bin Kanban system
  - Common in pharmacy, clinic supply rooms, and other storage areas
- A simple, visual inventory system
- The bins are stacked one behind the other
- As the front bin empties, a visual cue indicates a need to order more inventory (e.g., moving the bin to a designated location, re-order cards)

EXAMPLE: RJD Med Carts

Pre-Medication Cart

- 27 carts prepped originally
- Cart prep was completed over a span of a couple of weeks prior to go-live and included:
  - Creating Kanban cards
  - Dividers
  - Pulling medications
- 9 months after go-live, ASU implemented Kanban
- Adjusted PAR levels up and down and have not had any out of stock issues

EXAMPLE: RJD Med Carts

Post-Medication Cart

August 2020 – All 29 medication carts have been converted to the Kanban system

"I didn't expect a paper system with visual aids to be more efficient and accurate than the computer. I was pleasantly surprised at how well the system works and how quickly staff adjusted to it."

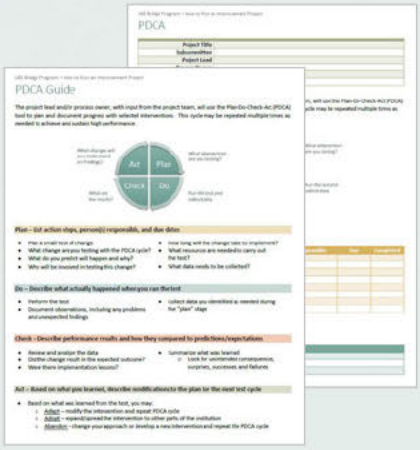
- RJ Donovan Pharmacy Tech

So you have some improvement actions in mind, now what?

- Think about how you want to test and rollout the improvements:
  - Do you expect the improvement to be institution-wide?
  - Should it be tested on a small scale before full implementation?
  - Does it make sense to test the change in a unit or a yard?
- Use the PDCA tool to help you organize and test interventions
  - Use the PDCA to document the results of any tests and next steps
  - You may test changes several times before you are ready for widespread rollout

PDCA

- **Plan** – Define the intervention/change to be tested
- **Do** – Test the change and describe what happened
- **Check** – Evaluate performance of the test against predictions/expectations
- **Act** – Determine if you will adapt, adopt, or abandon the intervention
- Repeat the cycle as many times as needed



PDCA results

Plan	Do	Check	Act

Changing behavior is hard!

What are some pitfalls when a project team moves into the improvement phase?

REPORTING TO THE SUBCOMMITTEE/ EXECUTIVE MANAGEMENT

- Provide project updates monthly using the available report-out template
- The QMC or subcommittee is responsible for intervening if little or no progress is made, or if performance is slipping
- The committee can use the Improvement Project Decision-Making Algorithm to determine if intervention is necessary

Control

Rev. 10/22

DMAIC

Topics in the Control Phase

- Complete the project work
- Control plan
- Project close-out checklist
- Subcommittee reporting

When is the project complete?

In the control phase, the team cannot disband because the project is not yet complete!

When is the project complete?

1. All improvement activities have been completed/implemented
2. There is a formal handoff to the process owner

Complete the project work

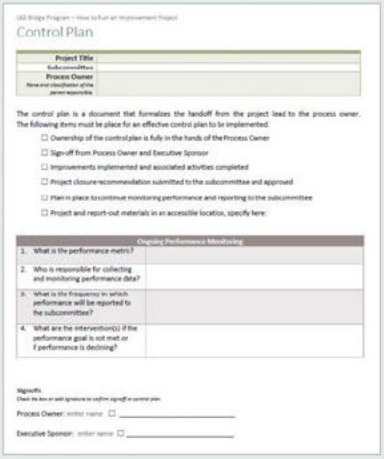
- Update the process map to reflect adopted changes
- Update and approve modifications to LOPs and/or local policies
- Finalize and share tools, checklists, workflows, job aides
- Update/complete and share training materials with impacted staff

Important! Continue providing updates to the subcommittee until the project is recommended and approved for close-out.

What improvement activities are the hardest to close the loop on – that take the longest to complete?

CONTROL PLAN

- The control plan is a document that formalizes the handoff from the project lead to the process owner
- Involve the process owner in developing the control plan



Control Plan

Project Title	
Subcommittee	
Process Owner Name and title/function of the person responsible	

The control plan is a document that formalizes the handoff from the project lead to the process owner. The following items must be place for an effective control plan to be implemented:

- ☐ Ownership of the control plan is fully in the hands of the Process Owner
- ☐ Sign-off from Process Owner and Executive Sponsor
- ☐ Improvements implemented and associated activities completed
- ☐ Project closure recommendation submitted to the subcommittee and approved
- ☐ Plan in place to continue monitoring performance and reporting to the subcommittee
- ☐ Project and report-out materials in an accessible location, specify here:

Ongoing Performance Monitoring	
1. What is the performance metric?	
2. Who is responsible for collecting and monitoring performance data?	
3. What is the frequency in which performance will be reported to the subcommittee?	
4. What are the intervention(s) if the performance goal is not met or if performance is declining?	

Signoffs

Check the box or add signature to confirm signoff on control plan

Process Owner: enter name ☐ _____

Executive Sponsor: enter name ☐ _____

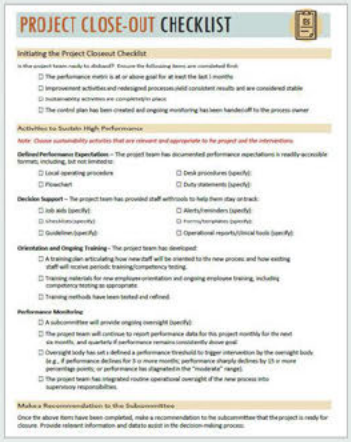
7

What are some pitfalls that you have experienced with handing off a project to a process owner?

8

PROJECT CLOSE-OUT CHECKLIST

- Use the project close-out sheet when you are getting ready to handoff the project to the process owner
- Make a recommendation to the responsible subcommittee for discussion and decision
  - Include relevant information and data to help in the decision-making process



PROJECT CLOSE-OUT CHECKLIST

Initiating the Project Closeout Checklist

Is the project team ready to dishand? Ensure the following items are considered first:

- ☐ The performance metric is at or above goal for at least the last 3 months
- ☐ Improvement activities and redesigned processes/yield consistent results and are considered stable
- ☐ Sustainability activities are completed/in place
- ☐ The control plan has been created and ongoing monitoring has been handed off to the process owner

Activities to Sustain High Performance

Note: Choose sustainability activities that are relevant and appropriate to the project and the interventions.

Defined Performance Expectation – The project team has documented performance expectations in readily-accessible formats, including, but not limited to:

- ☐ Local operating procedure
- ☐ Desk procedures (specify):
- ☐ Flowchart
- ☐ Duty statements (specify):

Decision Support – The project team has provided staff with tools to help them stay on track:

- ☐ Job aids (specify):
- ☐ Alerts/reminders (specify):
- ☐ Checklists (specify):
- ☐ Forms/templates (specify):
- ☐ Guidelines (specify):
- ☐ Operational reports/clinical tools (specify):

Orientation and Ongoing Training – The project team has developed:

- ☐ A training plan articulating how new staff will be oriented to the new process and how existing staff will receive periodic training/competency testing.
- ☐ Training materials for new employee orientation and ongoing employee training, including competency testing as appropriate.
- ☐ Training methods have been tested and refined.

Performance Monitoring

- ☐ A subcommittee will provide ongoing oversight (specify):
- ☐ The project team will continue to report performance data for this project monthly for the next six months, and quarterly if performance remains consistently above goal.
- ☐ Oversight body has set a defined a performance threshold to trigger intervention by the oversight body (e.g., if performance declines for 3 or more months, performance sharply declines by 15 or more percentage points; or performance has stagnated in the "moderate" range).
- ☐ The project team has integrated routine operational oversight of the new process into supervisory responsibilities.

Make a Recommendation to the Subcommittee

Once the above items have been completed, make a recommendation to the subcommittee that the project is ready for closure. Provide relevant information and data to assist in the decision-making process.

TABLE EXERCISE: Can we close this project?

Activities-to-date	Subcommittee Recommendation
1. Redesigned process rolled out in all clinics, LOP has been approved, training materials added to NEO, process owner is on board and signed off on the Control Plan, goal has been met for the last month	
2. Redesigned process implemented, performance goal has been met for the last 4 months, however, still waiting for the Program to identify a process owner	
3. Interventions still in testing phase with one clinic, project lead being pulled away to work on a different urgent project	
4. Redesigned process rolled out institution-wide, new LOP approved, training and checklists completed, process owner has been involved the whole time and is prepared to assume responsibility, the goal has been met for the last 5 months, and subcommittee will continue to monitor performance quarterly	

REPORTING TO THE SUBCOMMITTEE/ EXECUTIVE MANAGEMENT

- Provide project updates monthly using the available report-out template
- The QMC or subcommittee is responsible for intervening if little or no progress is made, or if performance is slipping
- The committee can use the Improvement Project Decision-Making Algorithm to determine if intervention is necessary

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When can the project team disband?

1. The performance metric is at or above goal for at least 3 months
2. Improvement activities and redesigned processes yield consistent results and are considered stable
3. Sustainability activities are completed/in place
4. The control plan has been created and ongoing monitoring has been handed off to the process owner
5. The subcommittee has approved the project close-out

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Pitfalls in the Control Phase

- Letting team members walk away from the project too soon
- Not setting up a control plan
- Not identifying an oversight group
- Not identifying a specific role/classification to be the process owner
- Hand off does not occur with the process owner
- The project lead doesn't let go

What to do now?

Resources

QMLO: L6S Bridge Program Resources

[redacted]

Additional resources

- Local QMSU
- Local L6S Green/Black belt certified staff
- Regional QM Teams
- If you have questions, con [redacted]

Questions?

THANK YOU!