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Objectives

Upon completion of this presentation, you will be able to:


- Identify wastes in your workflows
- Apply the Lean Six Sigma DMAIC process to your project work
- Engage appropriate resources to support sustainable quality improvement efforts in your care areas

8 WASTES OF LEAN
INFOGRAPHIC

 An infographic titled "8 WASTES OF LEAN" showing eight categories of waste with icons: Over Production, Motion, Extra Processing, Waiting, Non-Utilized Talent, Inventory, Defects, and Transportation.

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Lean Six Sigma- DMAIC Road Map




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Objective of this roadmap and tool set:
To identify problems, generate and test solutions, and sustain lasting change in your practice area!

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Engage- Think within your Workflow



- What am I doing?
- Why is this taking so long?
- How did I spend that long doing that thing?

Start the habit of questioning your daily processes.


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Where it Started- Confusing Supply Rooms

Background

- 48 (now 72 bed) inpatient medical unit
- Gastrointestinal, metabolic, medical psychiatric patients
- 15% of our patients required a Nasogastric tube for part of their stay
- 2 different supply rooms, medication room, room with pumps/poles (4 total rooms)



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Problem Statement and Project Aim



Problem Statement: From July 16, 2025, to July 20, 2025, the average time to gather necessary supplies for new onset NGT feeds was X minutes which causes a delay in the delivery of enteral feeds.

Project Aim: Decrease the average time it takes to gather the necessary supplies needed for new onset NGT feeds from X minutes to X minutes by July 30, 2025.



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Define



1. Initial Project Charter
2. Elevator Speech
3. Stakeholder Analysis
4. Communication Plan
5. High Level Process Map
6. SIPOC
7. Voice of the Customer
8. Project Plan



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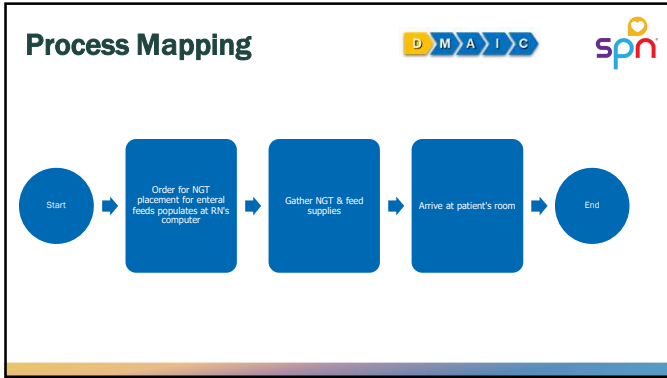
Elevator Speech



- Identify problem
- Why it is important
- What we need from them
- What we aim/promise to provide



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Voice of the Customer

Need:

- "Hard to find everything you need because clean supply rooms don't stock the same items."
- Business looks like: Visibly would like process to take 10 minutes

RM #1:

- "Is helpful that all of the supplies needed for one task aren't in the same cabinet."
- Business looks like: Visibly would like process to take 12 minutes

RM #2:

- "I feel like it's becoming increasingly harder to find everything you are looking for on the unit."
- Business looks like: Visibly would like process to take 15 minutes and it only be necessary to go to one location versus multiple

RM #3:

- Business looks like: Visibly would like process to take 12 minutes

RM #4:

- Business looks like: Visibly would like process to take 12 minutes

RM #5:

- "There are a bunch of items in different places and sometimes I forget where certain things are. It's a pain finding the right supplies."
- Business looks like: Visibly would like the process to take 10 minutes

RM #7:

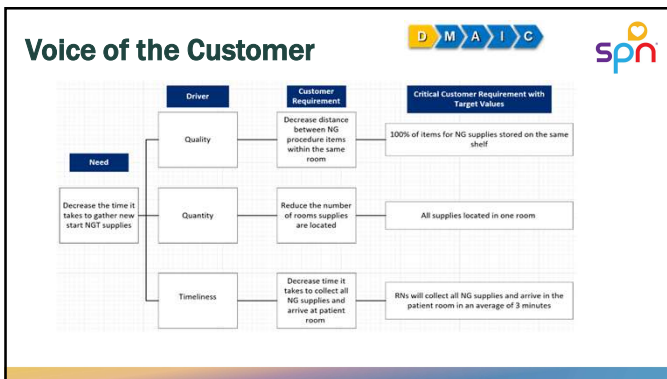
- "It's a total hassle so I feel like I'm used to having to search for supplies when I'm on an all different units. I would like to have the supplies arranged so that they're easy to find."
- Business looks like: Visibly would like process to take 10 minutes consistently across floors

RM #8:

- "It's frustrating that you go have to go to the clean supply, med room, and ward through to get everything."


- Foster collaboration
- Increase understanding of other people's workflow
- Brainstorming

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Engage- Think of a problem



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What process can you think of right now that takes too long, too many steps, too many people, etc?



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Measure

1. Detailed Process Map
2. Value Add Analysis
3. Spaghetti Diagram
4. Data Collection Plan
5. Measurement System Analysis (Practical)
6. Baseline Data Analysis
7. Value Stream Map
8. Project Plan



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Value Add Analysis



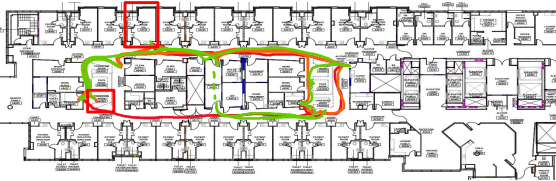
Key Takeaways:

- Total Steps: 27
- Value Add Steps: 0 (0%)
- BVA Steps: 15 (55%)
- NVA Steps: 12 (44%)

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Spaghetti Diagram



Baseline "AS IS" Spaghetti Diagram:
Demonstrates movement between four different rooms (two clean supply rooms, med room, walkthrough). Additionally, RNs walked around the unit to places such as front desk and desks at the nurse's stations to find certain supplies NOT within those other four rooms (such as a sharpie and scissors).

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Engage: Measuring the Problem




Whatever problem that has too many steps or takes too long- how could you measure that problem and involve your team?

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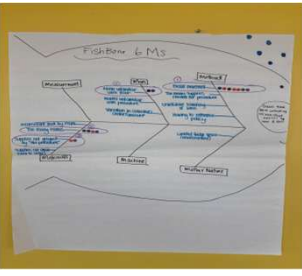
Analyze

1. Root Cause Analysis
2. Fishbone Diagram
3. Final $y=f(x)$
4. Project Plan



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Fishbone Diagram



**Root Cause Analysis
Organizational Tool**

6 Ms:

- Measurement
- Materials
- Man
- Machine
- Method
- Mother Nature

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Engage- What could be the cause?

Imagine if you could remove that one unnecessary step from your day—what time, frustration, or patient contact might you gain back?

Brainstorm some causes that may be associated with your problem-


- too much variation
- too much distance
- Is the environment getting in the way somehow?

A small scale project could flush this out!

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Improve- PDSA 1 and 2

1. Brainstorm Solutions
2. Effort/Impact Matrix
3. Risk Assessment
4. Implementation Plan
5. Pilot
6. Post Pilot Data Analysis
7. Future State Process Map
8. Update Risk Assessment
9. Project Plan



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Effort to Impact Matrix





X axis- Effort
Y axis- Impact

Top Solution:
Reduce the Number of Rooms

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Risk Assessment (SWIFT)




Risk Assessment – SWIFT (Structured What-If Technique)


What if?	Answer/Cause	Likelihood of occurrence • Quite possible • Possible • Unlikely	Consequences • High severity • Serious • Minor	Action to mitigate risk
All Level 8 RNs are not aware of change in process & continue with "AS IS" way of doing	Ineffective communication from QI team members	Possible	Minor	Develop an effective communication strategy to ensure all RN team members are updated
Needed supplies are not available in "new room"	Not utilizing the "blue bin" process that has already been implemented on US at CHCO instead using our own room bin system	Possible	Minor	Assign specific team member to ensure that supplies in new bin system are restocked regularly
RNs not willing to implement new process	Team members used to current workflow	Possible	Minor	Show data that supports new process & create educational email
Unable to move blue bin system for handling supplies into one designated area	System already put in place to ensure supplies are restocked based on current location	Quite possible	Minor	Communicate with blue bin team members to determine the possibilities of change
Infection prevention regulations preventing moving forward	Due to the preparation of forfaits being in a certain destination not intended	Possible	Serious	Brainstorm for solutions that potentially include a different room than the existing

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PDSA 1 Summary




- Plan:
 - Time test, rearrange supplies in fewer rooms, reorient, and time test again
- Do:
 - Performed the time test-cycles carried out as planned.
- Study:
 - Results matched our predictions: 5m4s -> 2m1s (61% decrease)
- Act:
 - Adapt, Adopt or Abandon: Adapt- Try again in PDSA 2



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PDSA 2 Summary

- Plan:
 - Add additional two supplies to our fewer room set up, reorient, and time test again
- Do:
 - Performed the time test-cycles carried out as planned.
- Study:
 - Results matched our predictions: 5m4s -> 1m8s (78% decrease)
- Act:
 - Adapt, Adopt or Abandon: *Adopt*- Implement on a large scale and plan for sustainability



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Future State Process Map



Key Takeaways: In an ideal state, condensing all supplies into one centralized location means turning our process map into a very linear process without any decision points. **Total reduction in NVA steps of 11% (44% to 33%)**

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Engage- Small Changes, Big Momentum

Quick, testable wins help teams stay motivated.


Start with potential solutions that are small and immediately measurable—it builds both skill and momentum.

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Control





1. Control Plan
2. Overall Lean Benefits
3. Final Lean A3
4. Lessons Learned
5. Project Plan



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Next Steps- Control Plan

Monitoring Plan										
Process Step	What's Controlled?	Input or Output	Specs, Limits & Requirements	Measurement Method	Control Method	Sample Size	Frequency	Who / What Measures	Where Recorded	Decision Rule / Corrective Action
Gathering supplies	Time spent gathering supplies	Input	2 minutes Correct PAR Levels	Observation/Auditing	Process control	Population of supplies in Warehouse	Weekly	Project Core Team	Excel tracking sheet in shared teams folder	Assess need for re-education, reassess supply area to ensure identification
Gathering supplies	Permanent supply room setup (to be done in future phase)	Input		Observation/Auditing	Process control	Walkthrough	Weekly	Blue Bin Team (TBD)	Blue Bin System (TBD)	Escalate concerns to appropriate

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Lessons Learned

- You don't need a formal Quality Improvement credential to drive improvement.
- Many individuals need to be collaborated with in different ways to make project work successful, and this teaches valuable skills.
- Each small experiment sharpens our awareness of waste and strengthens our practice.

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Engage- Collaborate and Empower



What professionals do you know in your clinic/unit/hospital can you contact about a QI initiative?

What frontline team members can you ask that are itching to get involved or leveling on your unit that you could engage and empower to learn new strategies together with you?

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Image Sources



1. 8 Wastes of Lean. (2020). *The Lean Builder* [Image]. <https://theleanbuilder.com/eight-wastes-of-lean-on-the-job-site/>
2. DMAIC Roadmap. (2023). *Process Improvement Academy* [Image]. [Childrenshospitalcolorado.org](https://www.childrenshospitalcolorado.org)
3. Magnifier Focuses on the question of Why. (2022). [Image]. *Stock Photos*. <https://www.iStockphoto.com/photos/magnifying-glass-focus-on-word-quality>
4. Magnifying glass yellow background. (2023). [Image]. *Shutterstock*. https://www.shutterstock.com/search/magnifying-glass-yellow-background?image_type=photo&page=2&rd_rkref=https%3A%2F%2Fwww.google.com%2F
5. Ph paper stock photos. (2024). [Image]. *Deposit photos by victa print*. <https://depositphotos.com/photos/ph-paper.html>
6. Apex Oral Syringe with filter tip. (2025). [Image]. *Carex*. <https://carex.com/products/apex-oral-syringe?srsltid=AfmBOorUVK5Q1KxKQZ-OKCSbONWzn9PleyEWFjv6-6zarkHkzQKq3>
7. CORFLO Ultra nasogastric pediatric feeding tube. (2026). [Image]. *HPFY Healthy products for you*. <https://www.healthproductsforyou.com/p-corflo-ultra-nasogastric-pediatric-feeding-tube-with-stylet-and-erfit-connector.html>
8. Kangaroo OMNI Enteral Feeding pump. (2025.) [Image]. *New Leaf Home Medical*. <https://www.newleafhomemedical.com/products/kangaroo-omni-enteral-feeding-pump/>
9. Elevator Lift. (2024). [Image]. *Shutterstock*. <https://www.shutterstock.com/search/big-elevator-lift>
10. Wasting Time clocks Waste Basket Illustrations. (2026). [Image]. *Dreamstime*. <https://www.dreamstime.com/illustration/wasting-time-clocks-waste-basket.html>
11. Delegation Done Right: Empowering your team to Step Up. (2025). [Image]. <https://www.linkedin.com/pulse/delegation-done-right-empowering-your-team-step-up-coralee-beatty-zbpgc>

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References



1. Barhorst, S., Prior, R. M., & Kanter, D. (2023). Implementation of a best-practice guideline: Early enteral nutrition in a neuroscience intensive care unit. *JPEN. Journal of parenteral and enteral nutrition*, *47*(1), 87–91. <https://doi.org/10.1002/jpen.2411>
2. Batu, Z., Bulbul Maras, G., & Turan, K. (2024). Enhancing nutritional care in palliative care units: assessing nurse knowledge and quality perception in enteral nutrition practices. *BMC nursing*, *23*(1), 949. <https://doi.org/10.1186/s12912-024-02580-x>
3. Hanford, J., McQuay, C., Vachharajani, A., Obi, O., & Anders, A. (2024). Reducing Procedural Pain and Avoiding Peripheral Intravenous Catheters by Implementing a Feeding Protocol for Late Preterm Infants: A Quality Improvement Project. *Advances in neonatal care : official journal of the National Association of Neonatal Nurses*, *24*(3), 219–226. <https://doi.org/10.1097/ANC.0000000000001125>
4. Krishnan, M., Yeap, S., Howell, B., Voulgaridou, M., Robinson, H., Breeze-Jones, H., Anjum, T., & Slade, P. M. E. (2025). Improving safety and timeliness around nasogastric tube feeding on an Acute stroke unit. *BMJ open quality*, *14*(2), e003353. <https://doi.org/10.1136/bmjopen-2025-003353>

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