USING DATA TO IMPROVE QUALITY: INTEGRATING LEAN TECHNIQUES INTO QI

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LEARNING OBJECTIVES

This session should…….

- Establish a foundation for your Lean in Healthcare journey
- Encourage you to consider alternate ways of thinking
- Provide you an opportunity to learn more about Lean in Healthcare with education and discussion

This session will not…….

- Make you a master of Lean
- Be a substitute to “learn by doing” within your own organization

WHAT IS LEAN?

- Lean is a philosophy, mindset and a set of tools focused on delivering value to customers/patients through the elimination of waste in the business process

- The two founding concepts of Lean:
  - to increase process efficiency by consistently and thoroughly eliminating waste and
  - to respect humanity by developing every worker to his or her full ability

THE SEVEN (EIGHT) WASTES

WORMPIT

THE SEVEN (EIGHT) WASTES - WORMPIT

- **W**aiting
- **O**ver-Production
- **R**ework/Defects
- **M**otion
- **P**rocessing (excess)
- **I**nventory
- **T**ransportation
- **N**ot Clear (Confusion)

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WAITING

WAITING

Definition:

Idle time created when people, information, equipment, or materials are not at hand

Causes:

- Poor understanding of the time required to do a task
- Poor accountability for delivering on time
- Compounding delays
- Unresponsiveness of scheduling systems to demand of work

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WAITING

Examples:

- Waiting for other workers at meetings, surgeries, procedures, reports
- Patients waiting for appointments, doctor visits, procedures

Countermeasures:

- System redesigns that support workers in doing their work by clear specification of activities and outcomes, and safe environment for problem solving in the course of work
- Clear definition/understanding of what is ‘defect free’

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OVER-PRODUCTION

OVER-PRODUCTION

Definition:

Redundant work

Causes:

- Misinterpretation of regulations
- Poor communication between departments/offices
- No clear specification of who needs what
- Computer systems not linked

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OVER-PRODUCTION

Examples:

- Duplicate charting
- Multiple forms with the same information
- Copies of reports sent automatically

Countermeasures:

- Clear interpretation of regulations
- System (electronic or paper) of information traveling with patient that eliminates redundancy

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REWORK
(DEFECTS)

REWORK (DEFECTS)

Definition:

Work that contains errors of lacks something of value

Causes:

- Lack of understanding of what is ‘defect free’
- Lack of specification in work processes

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REWORK (DEFECTS)

Examples:

- Medication errors
- Variation in outcomes
- Incorrect charges/billing
- Surgical errors

Countermeasures:

- System redesigns that support workers in doing their work by clear specification of activities and outcomes, and safe environment for problem solving in the course of work
- Clear understanding of what is ‘defect free’

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MOTION

MOTION

Definition:

Movement of people that does not add value

Causes:

- Inconsistent information systems (includes communication)
- Materials stocking that does not match the demand
- Scheduling that creates work-arounds and re-work

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MOTION

Examples:

- Looking for information
- Looking for materials and people
- Materials, tools located far from the work

Countermeasures:

- IT systems that match the demand of work
- Reliable communication systems
- Fluid materials availability that meet the current demand
- Consistent scheduling that meets the demand

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PRODUCTION
(EXCESS)

PRODUCTION (EXCESS)

Definition:

Activities that do not add value from the patient/customer perspective

Causes:

- Work area layout that does not promote continuous flow
- Complex flow of medication delivery from pharmacy
- Multiple/complex forms

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PRODUCTION (EXCESS)

Examples:

- Clarifying orders
- Redundant information gathering/charting
- Missing medications
- Regulatory paperwork

Countermeasures:

- Work area re-designs to create continuous flow
- Simplified/consistent delivery systems for meds/materials/information
- Forms that document only essential information

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INVENTORY

INVENTORY

Definition:

More materials on hand than are required to do the work

Causes:

- Supply/demand not well understood
- Outdated supplies not deleted
- Personal preferences catered, duplicated

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INVENTORY

Examples:

- Overstocked medications on units
- Overstocked supplies on units and in central supply storeroom

Countermeasures:

- Supply exactly what is needed; no more, no less
- Keep supply availability current
- Understand personal preferences and orchestrate “like” items

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TRANSPORTING

TRANSPORTING

Definition:

Required relocation/delivery of patient, materials, or supplies to complete a task

Causes:

- Non-standardized supply location
- Supplies to complete one task located in multiple locations

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TRANSPORTING

Examples:

- Delivery of medication from pharmacy
- Staff travel to a remote storage room to retrieve supplies
- Delivery of surgical pack to OR

Countermeasures:

- Conduct a 5-S workplace organization to standardize location of supplies near the point of work
- Examine staff location as related to commonly used supply storage locations

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NOT CLEAR
(CONFUSION)

NOT CLEAR (CONFUSION)

Definition:

People doing the work are not confident about the way to perform tasks

Causes:

- Lack of standardized specification of activities of work
- Lack of common language
- Workers relying on memory or figuring things out

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NOT CLEAR (CONFUSION)

Examples:

- Same activities being performed in different ways by different people
- Unclear physician's orders
- Unclear route for medication administration
- Unclear system for indicating charges for billing

Countermeasures:

- All activities of work clearly specified
- Clear signals that trigger activities of work uniformly

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DOMESTIC LEAN
Goddess

LEAN PROBLEM SOLVING TOOLS

LEAN PROBLEM SOLVING TOOLS

- Observation
- 5-S
- A3 (PDSA)

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OBSERVATION

OBSERVATION

WHAT IT IS……

- In person
- First-hand
- One at a time
- Capture what ‘is’
- Recording of actual happenings

WHAT IS IT NOT…….

- Monitoring
- Following
- Interviewing
- Watching
- Self-performed

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OBSERVATION

The only way to:

- See what is really happening vs what you believe is happening
- Experience the patient perspective
- Understand the root cause
- Ensure all on the team have knowledge of actual process
- Generate ideas to eliminate root cause vs just a quick fix

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OBSERVATION

Go to the Gemba!!!

Japanese:

- the actual place
- the place where the work is done
- the crime scene

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Observation Form

Date: _____ Site/Dept: _____ Observer: _____

Task #	Clock Time	Stop Watch Time		
	Hr:Min:Sec	Min:Sec	Task Description	Notes

OBSERVATION FORM

Watch for:

- Lack of process in how things are done
- Inconsistent ways of completing the same tasks
- Complicated communication processes
- Equipment unavailable
- Extended travel times/distances for supplies, equipment, meds

5S SYSTEM


5S Explanation
5S
Sort
Set in Order
Shine
Standardize
Sustain
When in doubt, move it out – Red Tag technique
A place for everything and everything in its place
Clean and inspect or Inspect through cleaning
Make up the rules, follow and enforce them
Part of daily work and it becomes a habit

5S SYSTEM

- Sort
  - Get rid of unneeded items
- Straighten
  - Organize and label the location for items that are needed in the area
- Shine
  - Clean the workspace
  - Equipment is clean and prepped for use
- Standardize
  - Develop cleaning methods and cleanliness standards to maintain the first 3S's
- Sustain
  - Review the workplace regularly. Make it a habit

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Before 5S
After 5S
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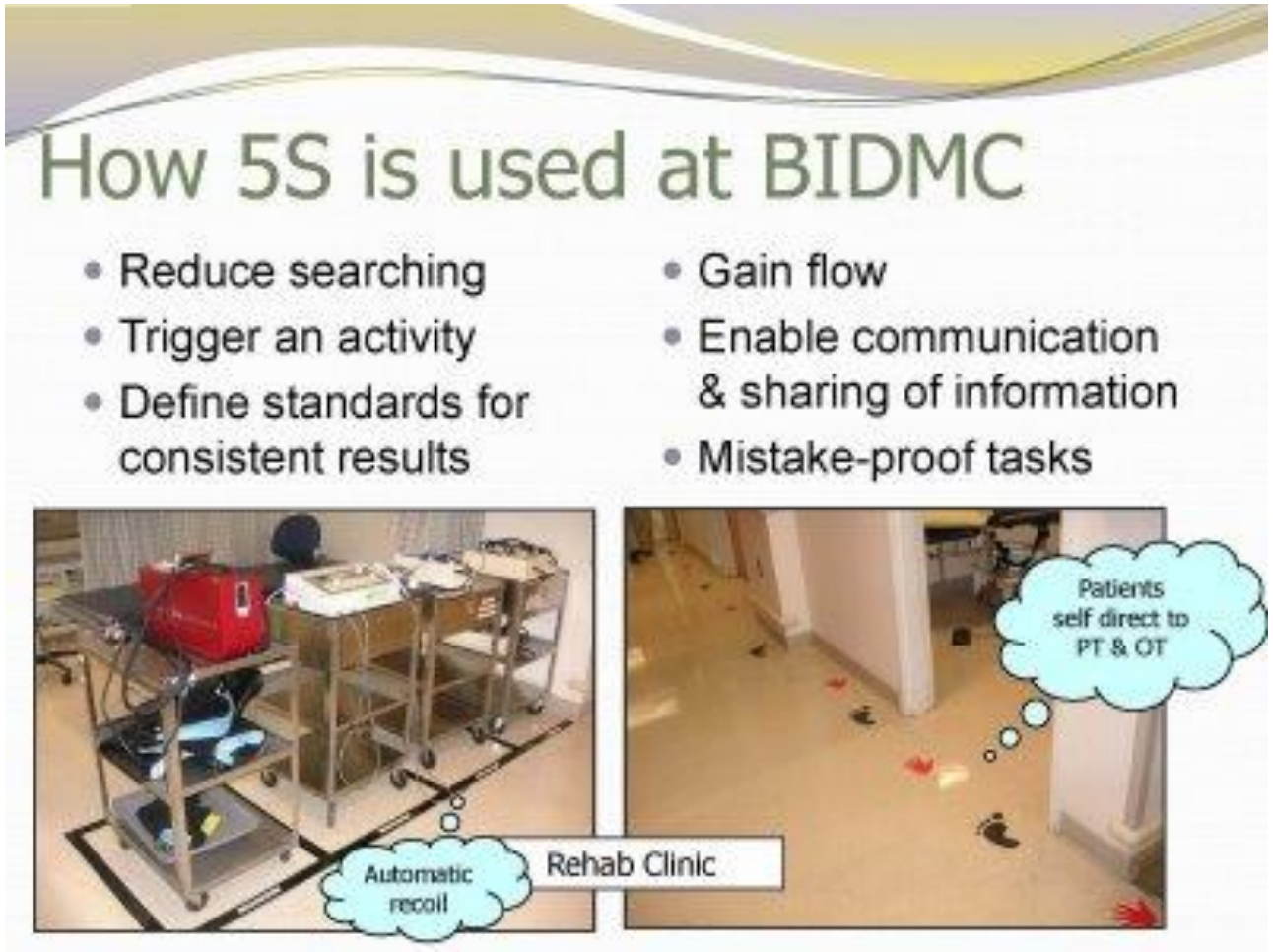


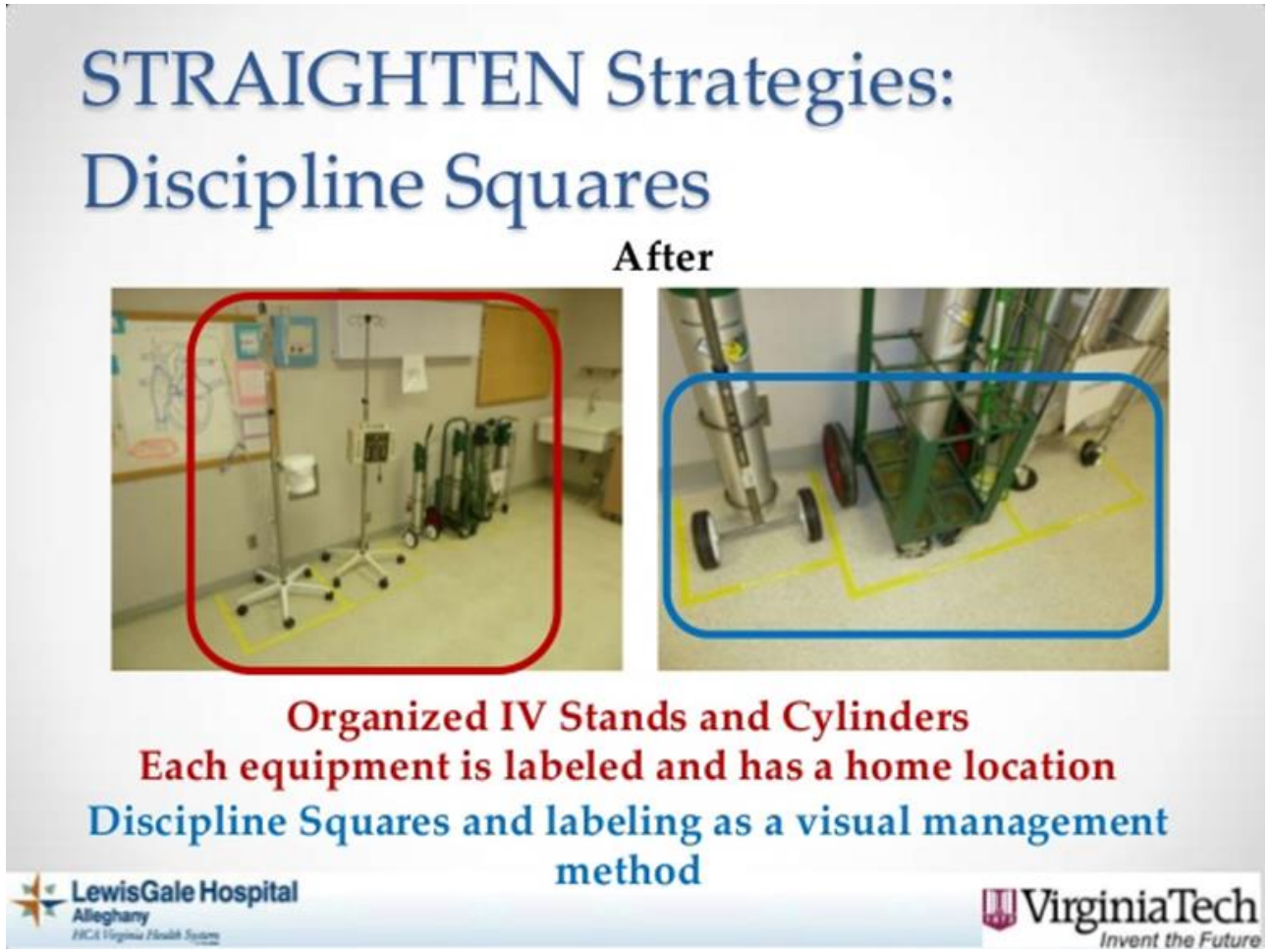
DECREASE TIME SEARCHING
INCREASE STORAGE CAPACITY

DECREASE TIME SEARCHING
INCREASE STORAGE CAPACITY

A PLACE FOR EVERYTHING

AND

EVERYTHING IN ITS PLACE



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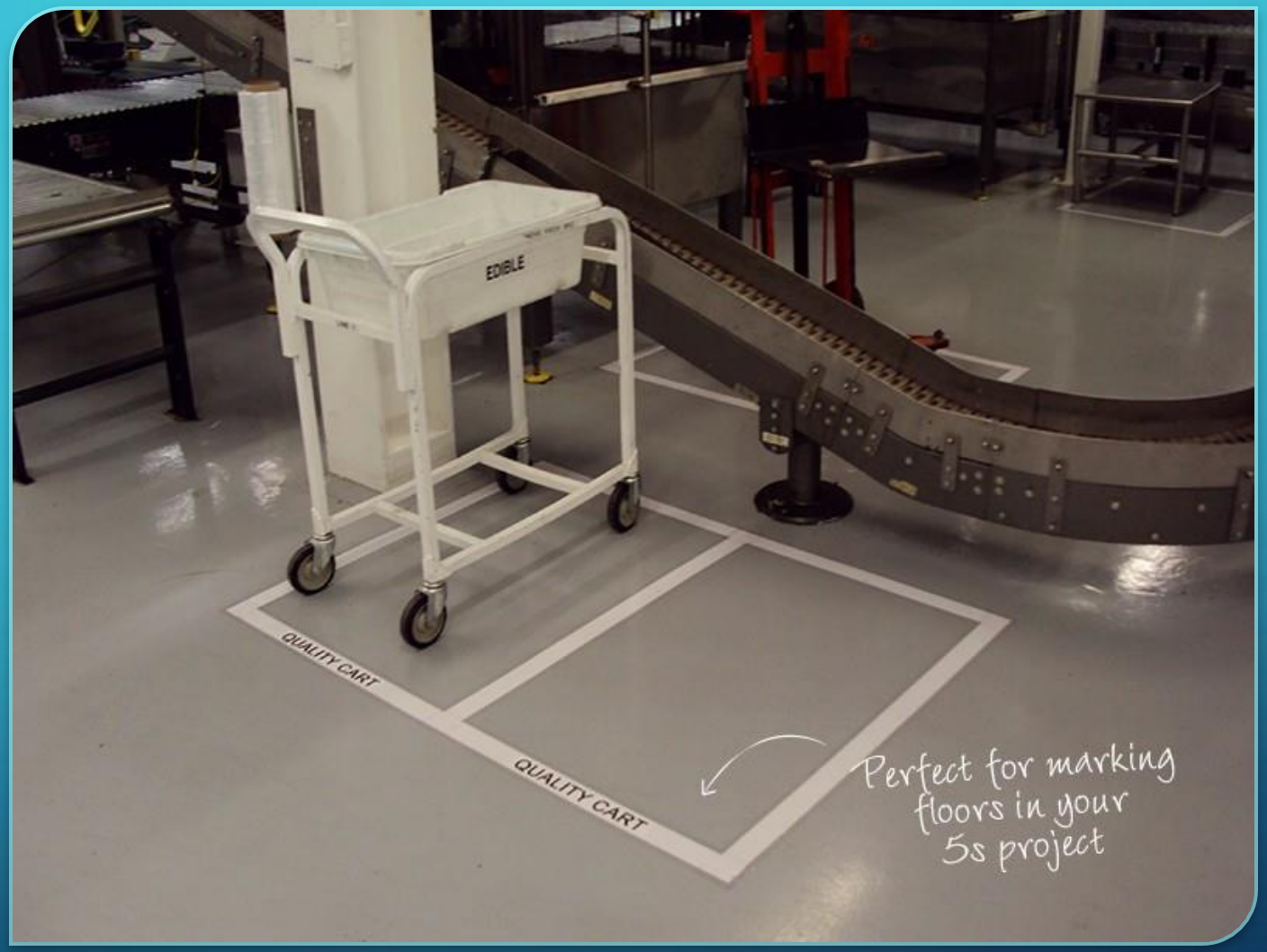
EDIBLE
QUALITY CART
QUALITY CART
Perfect for marking
floors in your
5s project

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IT'S NOT THAT YOU DON'T KNOW WHAT A STAPLER IS……..

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BE ABLE TO SEE WHAT'S MISSING AT A QUICK GLANCE

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A3 PROBLEM SOLVING

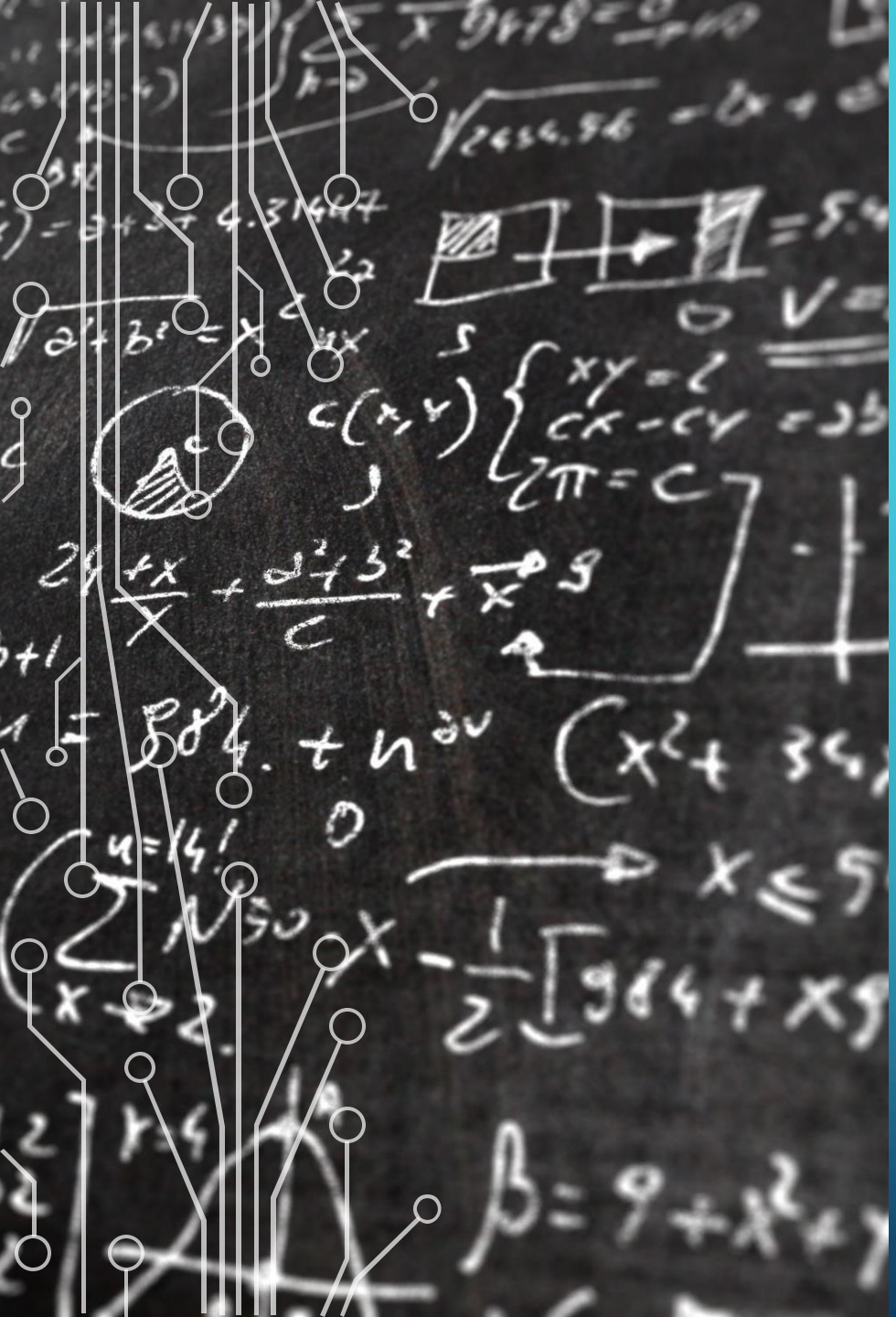
A3 PROBLEM SOLVING

A3 is a template to document work and keep the team focused on solving the right problem in the right, systematic order

A3 is the size of the sheet of paper

A3 is a ‘one stop’ for all project information and how it is progressing

Handwritten – no extra notes or typing needed



A3 PROBLEM SOLVING

There is no "magic" in the steps of A3 Problem Solving.

These steps are basically:

- Identify the problem or need
- Understand the current situation/state
- Develop the goal statement – develop the target state
- Perform root cause analysis (5 whys)
- Brainstorm/determine countermeasures
- Create a countermeasures implementation plan
- Study results – confirm the effect
- Update standard work

Common Components of the A3 Report

Plan → **Do, Check, Act**

Theme: "What is our area of focus?"

Owner: Person accountable for results.

Background
- Problem statement
- Context - why is this a problem?

Current Condition
- Diagram of current situation or process
- What about it is not ideal?
- Extent of the problem (metrics)

Target Condition / Measurable Objectives
- Diagram of desired state
- Measurable targets – how will we know that the improvement has been successful?

Root Cause & Gap Analysis
- Graphical depiction of the most likely direct (root) causes

Countermeasures / Implementation Plan
- What?
- Who?
- When?
- Where? (if relevant)

Effect Confirmation
- What measurable results did the solution achieve (or will be measured to verify effectiveness)?
- Who's responsible for ongoing measurement?

Follow-up Actions
- Where else in the organization can this solution be applied?
- How will the improved state be standardized and communicated?

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A3 PROBLEM SOLVING

The steps follow the Deming Plant-Do-Study-Act (PDSA) cycle:

Steps 1 through 5 being the ”Plan”

Step 6 being the “Do”

Step 7 being the “Study”

Step 8 being the “Act”.

Title:	Fresh Eyes:	Team:	Start Date:
Owner:	SME:		Revision Date:

PLAN

1. Problem Statement or Need

2. Current Situation/State

3. Goal Statement - Target State

4. Analysis / Root Cause (5 Whys)

PLAN

5. Brainstorm/Countermeasures

DO

6. Countermeasures Implementation Plan (Who, What, When)

STUDY

7. Study (Planned vs. Actual Results)

ACT/ADJUST

8. Update Standard Work

Notes:

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A3 PROBLEM SOLVING

1. Identify the problem or need

- Why do we need to work on this?
- What got us to believe this is an issue?
- Why this over other issues?
- Context
- Importance

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A3 PROBLEM SOLVING

2. Understand the current situation/state

- Problem statement/definition
- Draw
- Clear and logical
- "As Is" process map
- Scale of the problem (data)

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A3 PROBLEM SOLVING

3. Develop the goal statement – develop the target state

- Target level of performance
- Desired outcome
- Clearly and unequivocally state what the problem is

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A3 PROBLEM SOLVING

4. Perform root cause analysis

- All relevant factors considered
  - People, Machine, Methods, Measurement, Environment, etc
- 5 Whys

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A3 PROBLEM SOLVING

5. Brainstorm to determine countermeasures

- Actions being taken to address the issue
- What some term ‘improvements’
- Quick fixes (containment actions)
- “To Be” Process Map

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A3 PROBLEM SOLVING

6. Create a countermeasures implementation plan

- Document:
  - Who is going to do
  - What are they going to do
  - Where is it going to be done
  - When will they do it
  - Why are they doing it
  - How will they do it

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A3 PROBLEM SOLVING

7. Study results – confirm the effect

- Results achieved
- Trend graph (before/after)
- Has actual performance moved in line with goal
- If it has not improved, then why? What was missed?

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A3 PROBLEM SOLVING

8. Update standard work

- Make process consistent
- Ensure it is exactly how process currently works
- Have someone test who is not familiar with the process and observe to ensure

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Title:	Fresh Eyes:	Team:	Start Date:
Owner:	SME:		Revision Date:

PLAN

1. Problem Statement or Need

2. Current Situation/State

3. Goal Statement - Target State

4. Analysis / Root Cause (5 Whys)

PLAN

5. Brainstorm/Countermeasures

DO

6. Countermeasures Implementation Plan (Who, What, When)

STUDY

7. Study (Planned vs. Actual Results)

ACT/ADJUST

8. Update Standard Work

Notes:

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REVIEW YOUR A3

- Hold it at arm's length
  - Neat, clear, uncluttered
  - Mix of text, information, and graphics
- Co-Worker Review
  - Do they understand the message
  - Can they identify the flow
  - Do they know what the goal is
- Are there mistakes

PICK OUT CLOTHES
THE NIGHT BEFORE

NO CHANGE

READY, SET, GO

READY TO GET STARTED WITH YOUR LEAN JOURNEY?

IDEAS FOR LEAN

- Care Transitions – EDTC – improved connections to patients
- Streamlining triage processes in the ED – improving OP-22
- Reduce unnecessary antibiotic prescriptions – optimizing antibiotic stewardship
- Implement fast track protocols – reduce ED Wait times and improve OP-18
- SDoH screening process – improving community connection with data
- HCAHPS question improvements – improving feedback/communication
- Revenue cycle – registration issues – paperwork reduction/pt satisfaction
- Patient discharge consistency – coordination between providers and staff

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GET OUT THERE

- Practice your 5S techniques in your workstation
  - Think of supply rooms and places that should be uniform regardless of department or area
- Talk with your front-line staff about quality projects
  - Consider Observation of a suggested improvement opportunity
- Pull out an A3 to evaluate the current state vs target state
  - Discuss countermeasures to reach the aim
  - Plan countermeasures
  - Implement countermeasures then evaluate for desired changes

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QUESTIONS????

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FUNDING ACKNOWLEDGEMENT

THIS PROJECT IS SUPPORTED BY THE HEALTH RESOURCES AND SERVICES ADMINISTRATION (HRSA) OF THE U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES (HHS) UNDER GRANT NUMBER 5-U2WRH33327-03-00, RURAL HOSPITAL FLEXIBILITY PROGRAM, 0% NON-GOVERNMENTAL SOURCES. THIS INFORMATION OR CONTENT AND CONCLUSIONS ARE THOSE OF THE AUTHOR AND SHOULD NOT BE CONSTRUED AS THE OFFICIAL POSITION OR POLICY OF, NOR SHOULD ANY ENDORSEMENTS BE INFERRED BY HRSA, HHS OR THE U.S. GOVERNMENT.

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OPPORTUNITY Just knock.

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Evaluation – We Need Your Input