Improvement Academy

Institute for Healthcare Quality,
Safety and Efficiency

SCHOOL OF MEDICINE

UNIVERSITY OF COLORADO **ANSCHUTZ MEDICAL CAMPUS**

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Agenda

1 Team Introductions

2 Introduction to QI: Why?

3 The 5 Steps of QI

———————— LUNCH ————————

4 The Business Case

5 Creating your Action Plan

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Introductions

Who are you?
Why are you here?
What improvement project are you working on?
What do you do to relieve stress?

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Why are we here?

765 – 50 – 4

QI = Quality Improvement

Systematic and ***continuous*** actions that lead to ***measurable*** improvement in health care services and the health status of targeted patient groups.

~~Value~~
QI = ~~Quality~~ Improvement

Systematic and continuous actions that lead to measurable improvement in health care services and the health status of targeted patient groups.

$$VALUE = \frac{Quality + Safety + Experience}{Cost}$$

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Model of Quality Improvement

DMAIC

Define, Measure, Analyze, Improve, Control

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Six Sigma

"six" standard deviations from mean
(error rate of one per 3.4 per million)

DMAIC

Define, Measure, Analyze, Improve, Control
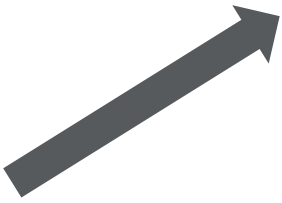
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Sense a problem

No improvement

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DMAIC (*də-MAY-ick*)
<u>D</u>efine, <u>M</u>easure, <u>A</u>nalyze, <u>I</u>mprove, <u>C</u>ontrol

D – M – A – I - C

Sense a problem

Sustained improvement

Part 1: Defining the Problem

Sense a problem

No improvement

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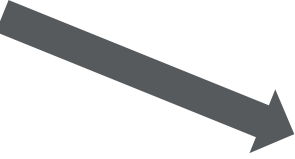
Define: So WHAT?

Sense a problem → Describe in detail
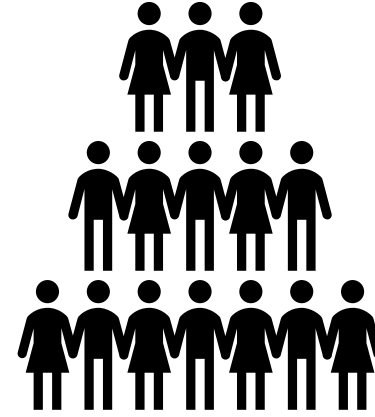
Understand stakeholders – Voice of Customer

Define Scope

Tool 1: The Problem Statement

What is your Scope?

What are you fixing?

ER Triage Problem

Patients are not happy with their experience in the ED.

The ER Triage Problem

There have been several complaints regarding ER Triage

Data review shows excessive wait times at triage

ER patient satisfaction in the 25th percentile

Excessive 'Left Without Being Seen' is leading to loss of patients and patient safety concerns

Door to Doctor time was nearly 80 minutes

$$\text{VALUE} = \frac{\text{Quality} + \text{Safety} + \text{Experience}}{\text{Cost}}$$

Problem Statement

Our patients wait too long in the Emergency Room before they see a provider (an average of 80 minutes), as evidenced by recent complaints on HCAPHS surveys, poor satisfaction scores, excessive wait times and long Door to Doctor times, ultimately resulting in patients leaving the ER without being evaluated.

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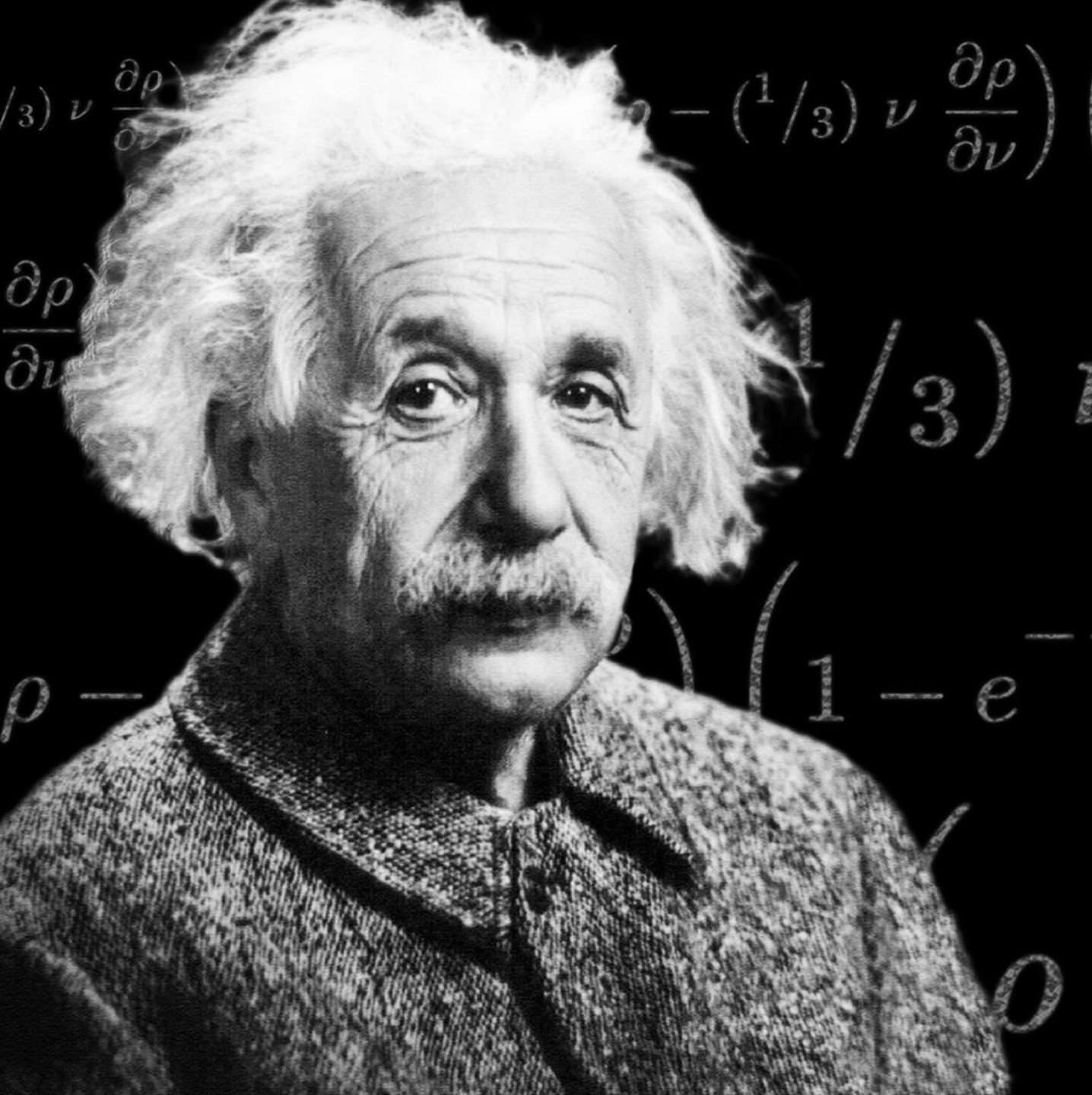
"If I had an hour to solve a problem, I'd spend 55 minutes thinking about the problem and five minutes thinking about solutions."

Define the problem

How do you know it's a problem?

Who is affected?

By how much?

Are there guidelines / best practices to refer to?

Breakout 1: Problem Statement Workshop
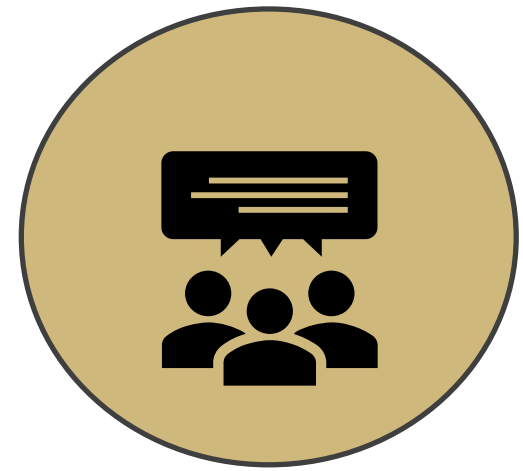
- Work with your team

- Discuss your problem (come back to Value equation if needed)

- Write down a problem statement

- Identify missing information

- Report Out

Return in 20 minutes

Tool 2: Voice of the Customers
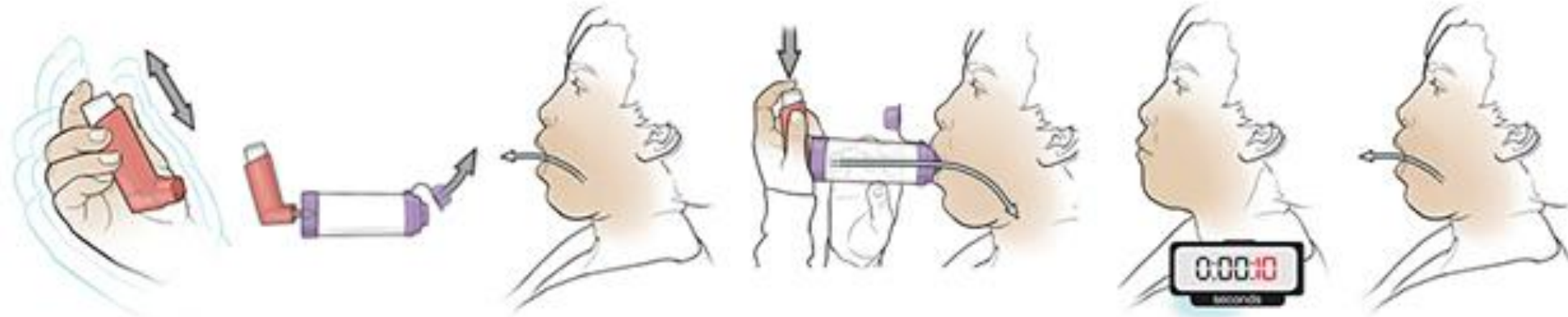
A Story

Remove cap and shake inhaler.

Insert inhaler into spacer.

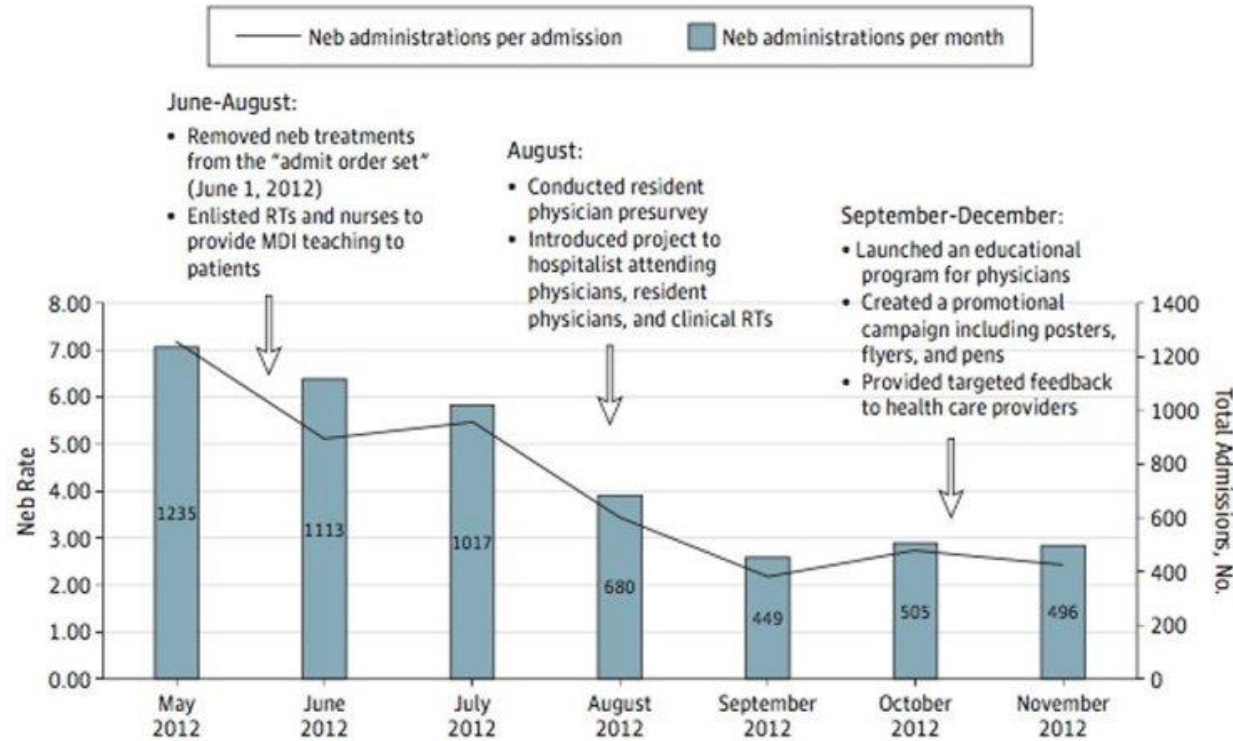Breathe out all the way.

Press down on the inhaler. Slowly breathe in.

Hold your breath for a count of 10.

Slowly breathe out.

A Story

Figure. Multifaceted Intervention and Nebulizer Rates on a High-Acuity Medical Ward

Decreased labor cost

Fewer readmissions
- 20% of patients with COPD readmitted within 30 days

A Story

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Who are your customers?

Voice of the Patient

Who are the patients?

What are their needs?

What are their perceptions of current state process?

Voice of the Provider & Staff

Who are the staff & providers?

What are their needs?

What are their perceptions of current state process?

The ER Triage Problem

There have been several complaints regarding ER Triage

Data review shows excessive wait times at triage

ER patient satisfaction in the 25th percentile

Excessive 'Left Without Being Seen' is leading to loss of patients and patient safety concerns

Door to Doctor time was nearly 80 minutes

$$VALUE = \frac{Quality + Safety + Experience}{Cost}$$

Redesign

Trauma patient

Kid – ear infection

The Outcome

Patients

Care for non-urgent patients under 30 minutes

Business

Door to provider time less than 7 minutes

Developed a supertrack team – RN, APP, techs

Providers

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Breakout 2:
Voice of the Customers

Identify your Customers (Patients, Providers, Staff, Business)

Discuss how to facilitate a VOC for your project

Document your plan

Report Out

15 minutes

Voice of the Business

Who represents the business?

What do they care about?

What are the financial implications?

The Business – Hospital Leadership

Other hospitals are marketing shorter wait times!

If we require EMS to go on divert, we will lose patients/customers.

We get dinged for high rates of 'left without being seen'

We won't achieve Level 1 Trauma accreditation.

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Business Case

How to Show Your Value (and get what you need)

A Story

The oncology infusion center was struggling with poor patient experience scores related to the duration of their visits.

They wanted support in the form of a QI specialist to help address this problem.

How do they make the case for more support?

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The Business Case

Why?

Gets you resources

Shows executives what you're going to do (in their language)

Triages *your* improvement work to the top of the list

How?

$$\text{VALUE} = \frac{\text{Quality} + \text{Safety} + \text{Experience}}{\text{Cost}}$$

Step 1: What are you planning to do?

Step 2: What is the benefit?

Step 3: How do I show the benefit?

Step 4: What data do I need?

A Story: Infusion Center

① <u>What are you trying to do?</u>   (process measure)

Reduce time from check-in to completed drug infusion by 72 minutes

② <u>What is the benefit?</u>   (outcome measure)

Patient's happier
Staff happier - less down time
Timely Access - open more chair time for other patients
More patients for same amount of staff

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③ # How will you convey benefit?

Number of patients per month: **107**

Current time needed per patient: **272** minutes

Goal time needed per patient: **200** minutes

Average Reimbursement for patient: **$1585**

Baseline # of mins of patient care / month = 29,104 mins (107 x 272 mins)

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③ How will you convey benefit?

Goal # of mins of patient care / month = 21,400 minutes (107 x 200 mins)

Goal minutes saved / month = 7,704 minutes (29,104-21,400 mins)

Potential new encounters / month = 38 (7,704 mins saved/200 mins/pt)

Potential increase in reimbursement = $60,230 (38 pts/mo x $1585)

Potential increase in reimbursement per year = $722,760 ($60,230/mo x 12)

④ What data points would you need?

- Baseline time from check in to completion

- Current time from check in to completion

- Goal time from check in to completion

- Baseline number of patients per month

- Contribution margin per case

Data Collection Plan

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A Personal Story

I want to go on vacation...

Eleuthera, Bahamas

1. What am I trying to do? Vacation

2. What is the benefit? Happier, More Productive Emily

3. How will I convey benefit?

    - due to relief of burnout – ability to work extra moonlighting shifts (1k per month)

    - due to increased productivity – take kids to soccer practice

    - allows husband to have more productive workdays (4 hours / week, $100/hour)

    - 1k + (16 hours x $100 / hour) x 6 months = $15,600

Eleuthera < $15,000

Next Steps

Dear Executive Stakeholder,

I plan to save you $700k next year.

To do this, I will need 20% of support from a QI specialist, roughly $20K.

Your ROI will be $680k.

Thanks!

Future Action Item: Create a Business Case

Step 1: What are you trying to do?

Step 2: What is the benefit?

Step 3: How will you show this benefit?

Break-out to Discuss

Complete in Coaching Session

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Part 2: Understanding your Problem

DMAIC
<u>D</u>efine, **<u>M</u>easure, <u>A</u>nalyze,** <u>I</u>mprove, <u>C</u>ontrol

D – M – A – I - C

Sense a problem

Sustained improvement

37% of Physical Therapy Consults Are Inappropriate

10,000 hours of work (wasted) per year

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Measure

Gemba (the Actual Place, Walk)

WHAT is the problem

Epic

Gemba 現場

Go See.
Ask Why?
Show Respect.

Why do we order PT?

Reason for PT?   ??????

Comments: ➕ Add Comments

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Tool 3: Process Map
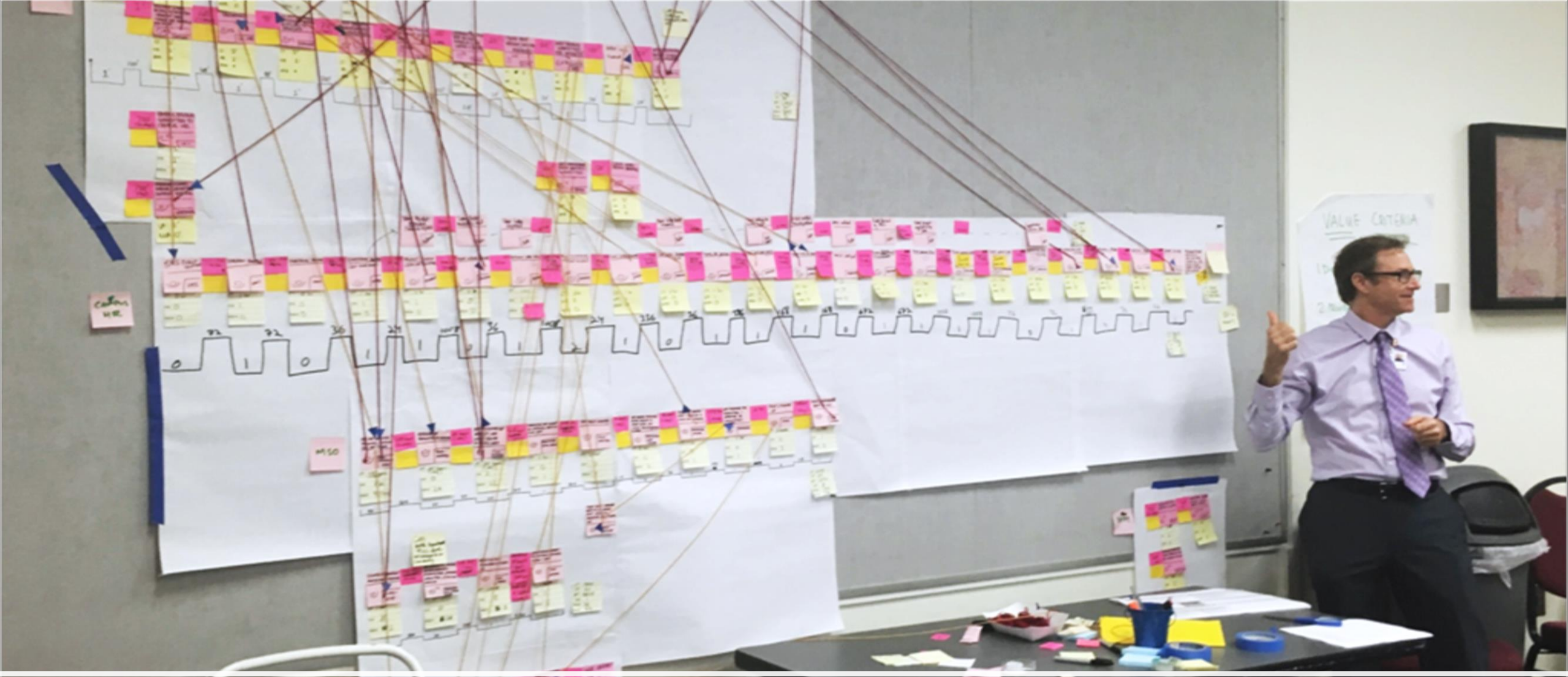
Process Mapping: Making the Invisible, Visible
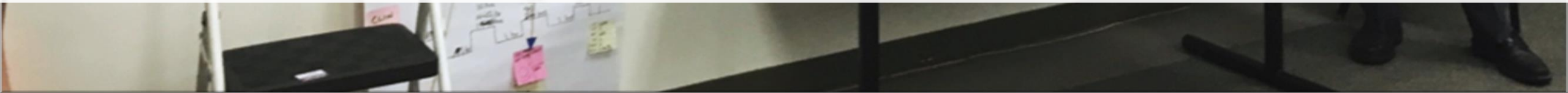
Code Stroke: Satellite COVID Hospital

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Step 1: Defining your Process

1. What is the name of this process?

2. What starts the process?

3. What ends the process?

CODE STROKE ACTIVATION AND DECISION-MAKING

Focal deficit recognized

Neurology Decision Made

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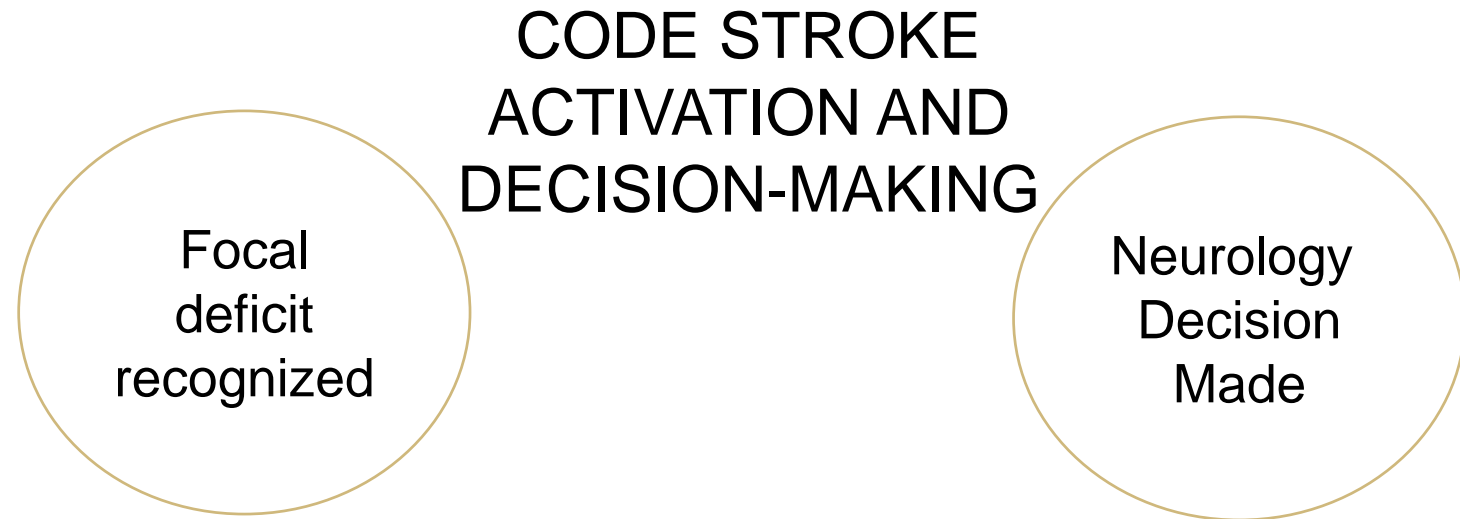
Step 2: Determine your 'Entity'

HUMAN

INANIMATE OBJECT

INFORMATION

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Step 3: Add Process Steps

- Steps, Tasks, Operations
- Verb / Noun
- Granularity may vary

Step 3: Include Decision Points

- A decision separates branches in the process flow map
- Label decisions as questions
- Each arrow is labeled as an answer to the question
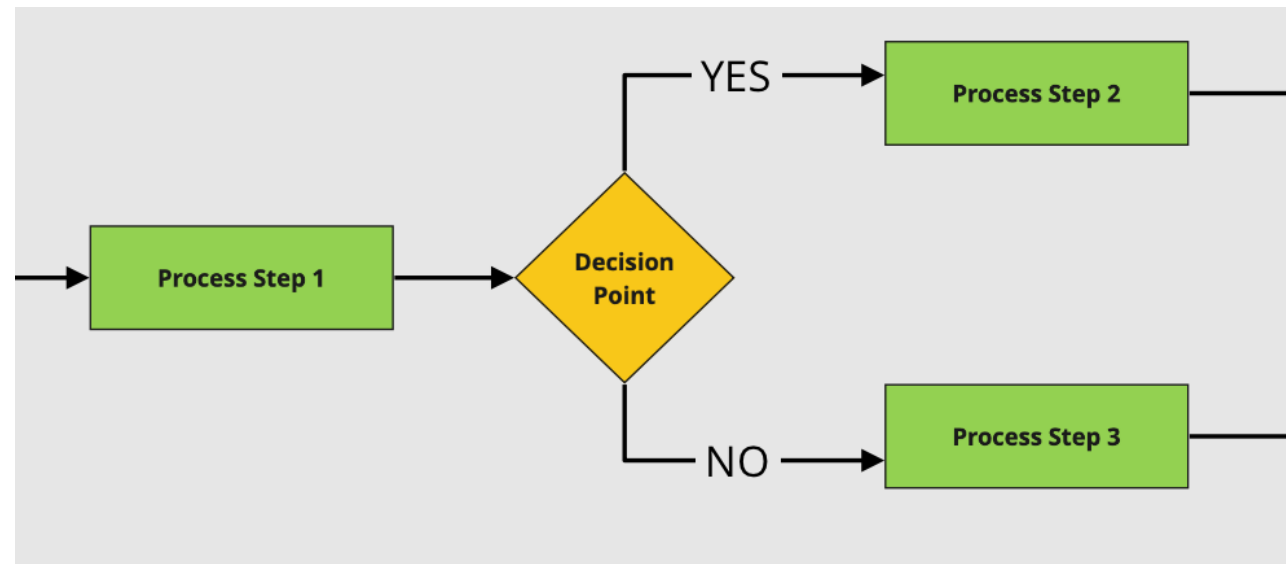
Step 4: Identify Pain Points

- Confusion, variability

- Opportunities for improvement

- Waste, Inefficiency
  - Defects
  - Waiting times
  - Extra Motion
  - Over Processing
  - Underutilized talent
  - Transportation
  - Over production
  - Excess Inventory

Process Map
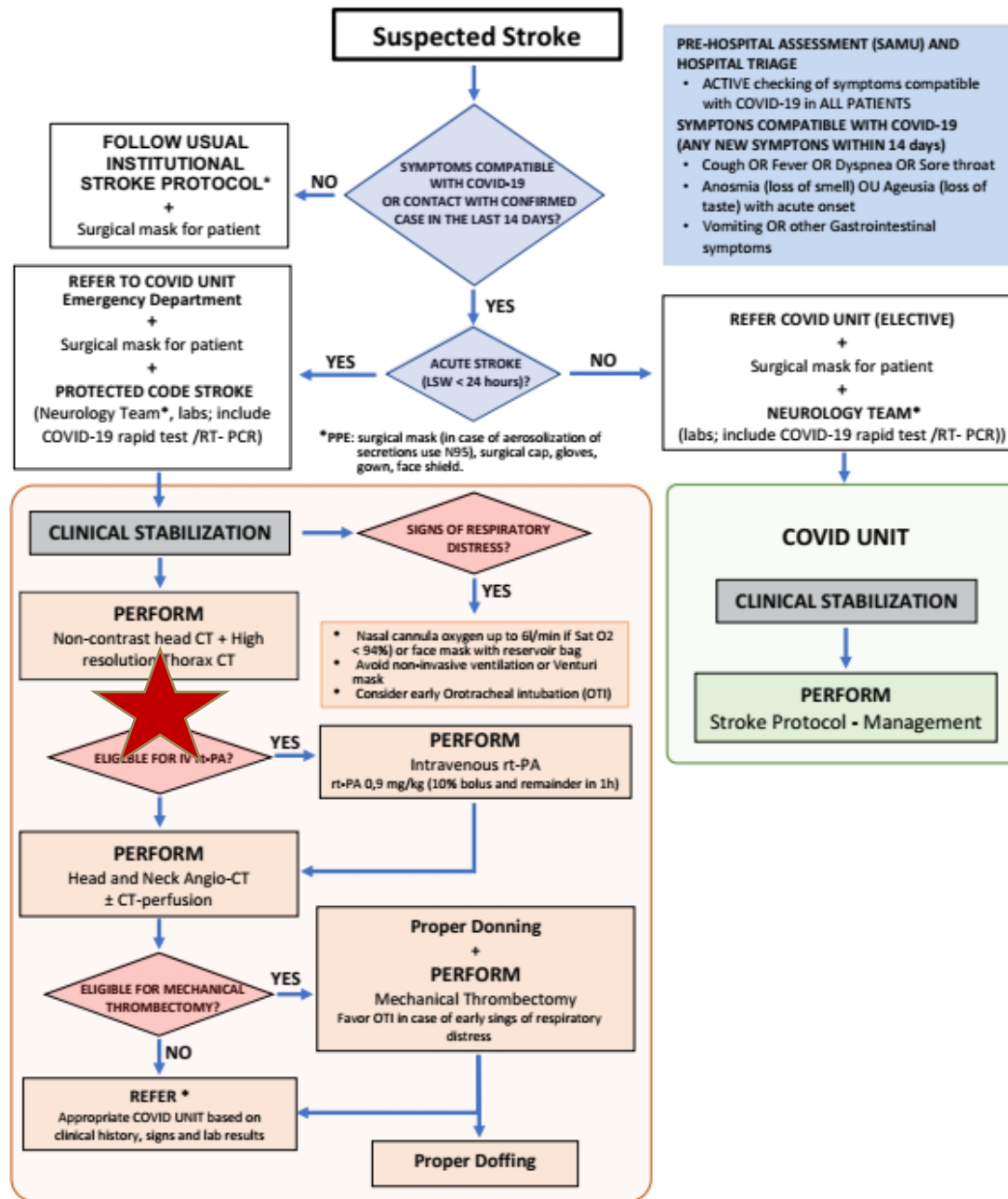
Break-out 3: Process Map

Name the process you want to map, identify start / stop

Name the entity you are following

Identify individuals you want engaged in this process – plan event

Begin to develop process map

10 minutes

Analyze: WHY? 🛠️
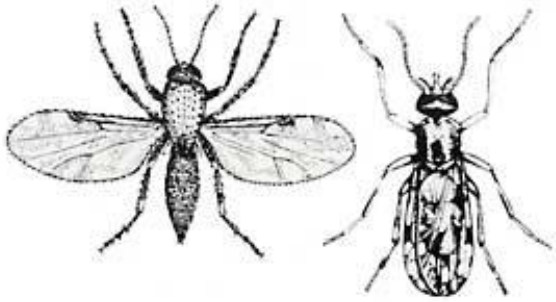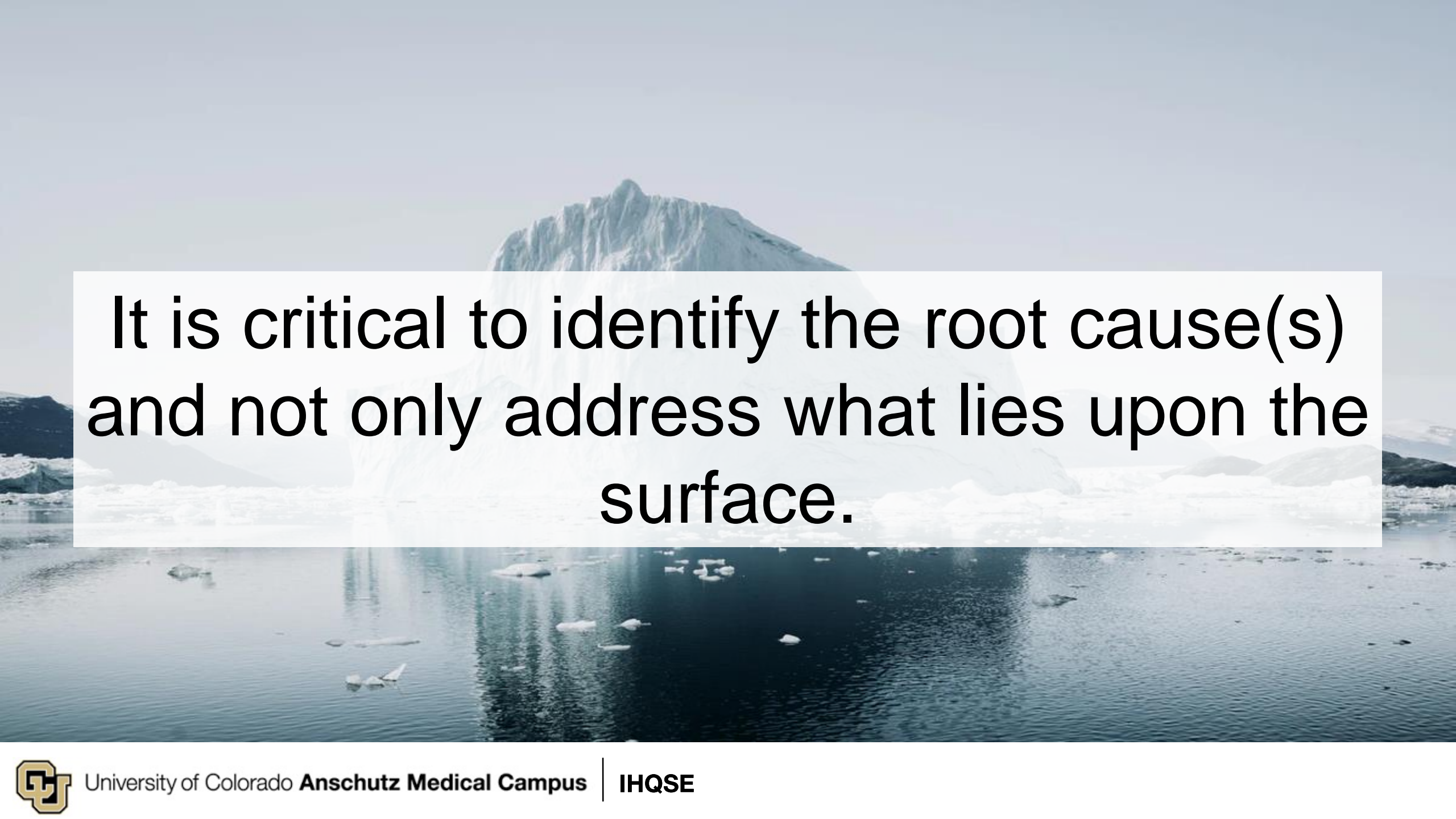
5-Why's
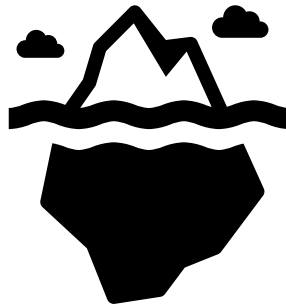
Root Cause Analysis
Affinity Diagram
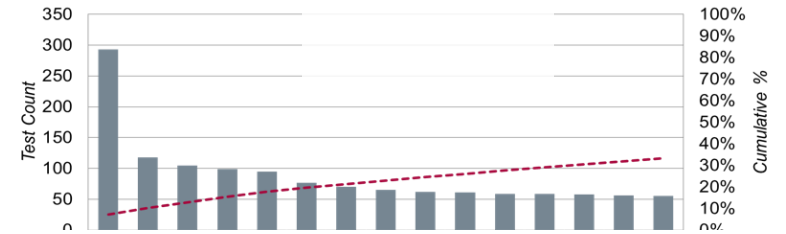
Pareto Chart

It is critical to identify the root cause(s) and not only address what lies upon the surface.

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Tool 4: Understanding Root Causes

Voice of the customer

Epic

現場

Gemba (Walk)

Process Map

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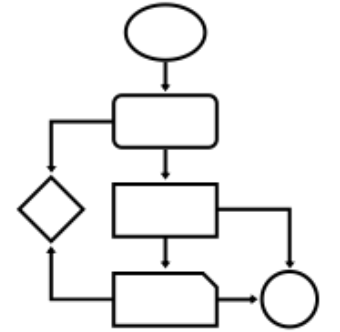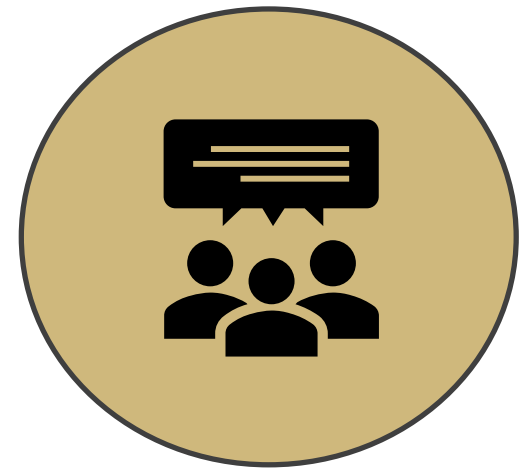
Step 1: Brainstorm

Breakout 4: Contributing Factors

Consider WHY you have a problem

Brainstorm as many causes of this problem as possible.

Put each on 1 sticky note.

Report Out

15 minutes

Five Why's
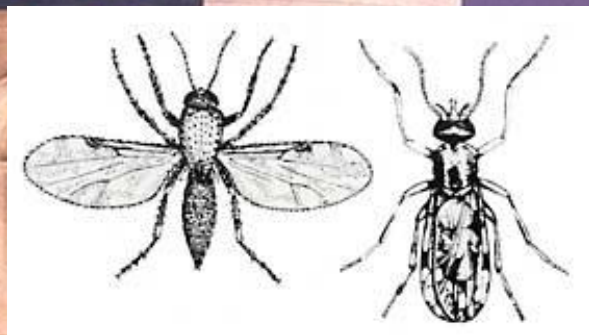
5 WHYs?

Why don't providers order PT appropriately?
They don't know what is appropriate

Why don't they know the indications?
It is part of the nursing assessment. Epic doesn't guide them.

Why don't we understand the nursing assessment?
It's a different language and training than providers use.

Why doesn't Epic guide them?
No list of indications.

Why don't nurses place the PT orders?

Step 2: Sort by Themes

Communication
Environment
Materials
Processes
EHR
Policies

Step 3: Create Affinity Diagram

EHR	Communication	Process	Materials Environment	Knowledge
No Indications	RN/MD/PT Different language	not discussed in discharge rounds	Busy	Don't know indications for PT
RN assessment not included			x Geographic cohorting	
No feedback loop				
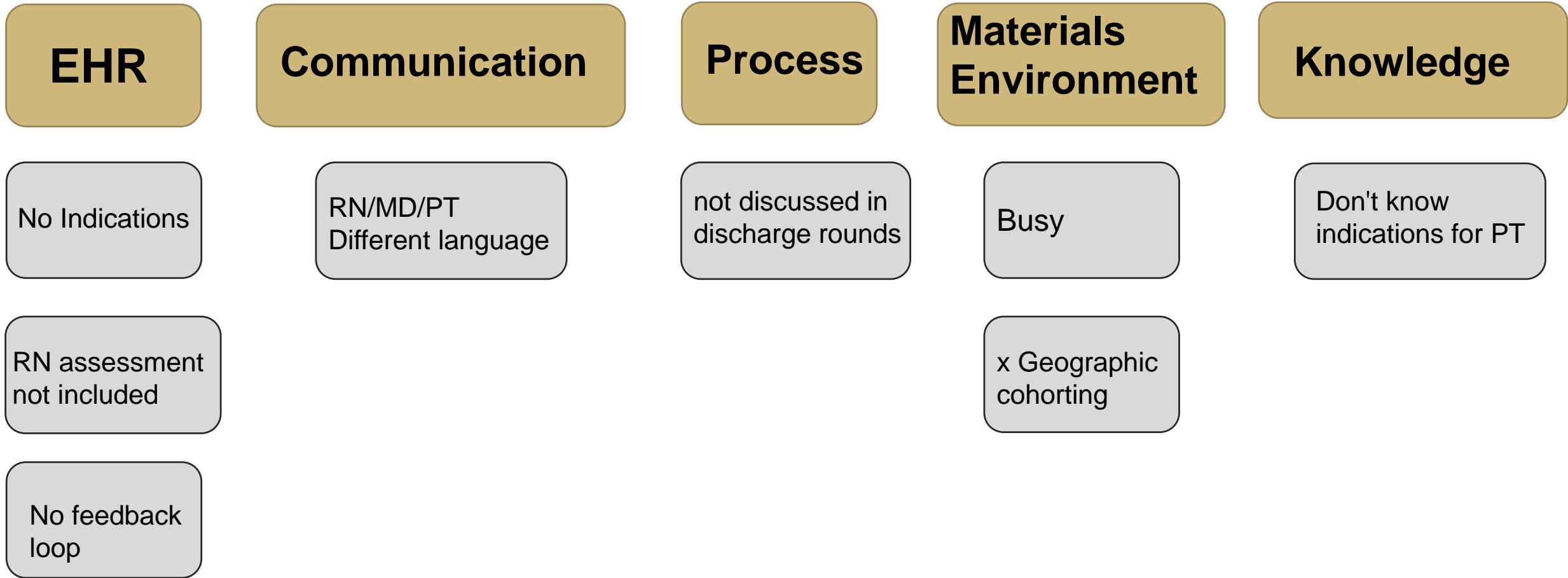
Step 4: Vote on Importance

EHR

No Indications

RN assessment not included

No feedback loop

7

Communication

RN/MD/PT Different language

6

Process

not discussed in discharge rounds

2

Materials Environment

Busy

x Geographic cohorting

1

Knowledge

Don't know indications for PT

2

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Analyze

Aim statement

S	Specific
M	Measurable
A	Attainable
R	Relevant
T	Timely

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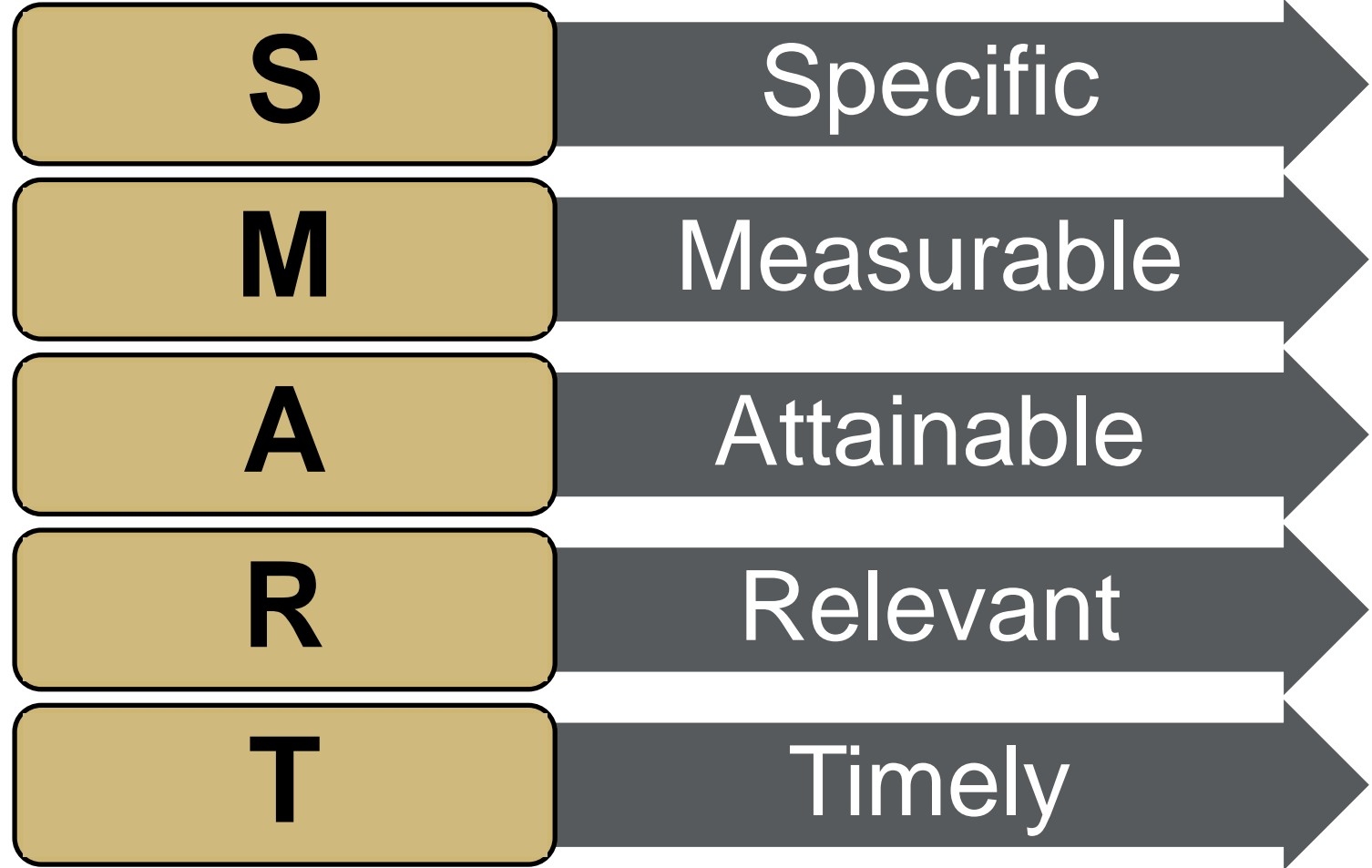
Matter to Patients

OUTCOME
- Patient Satisfaction
- LOS
- Readmission Rate
- Throughput
- Adverse Events

Can act as proxy for outcomes

PROCESS
- Use of checklists
- Patient Centered Rounds
- Lab orders
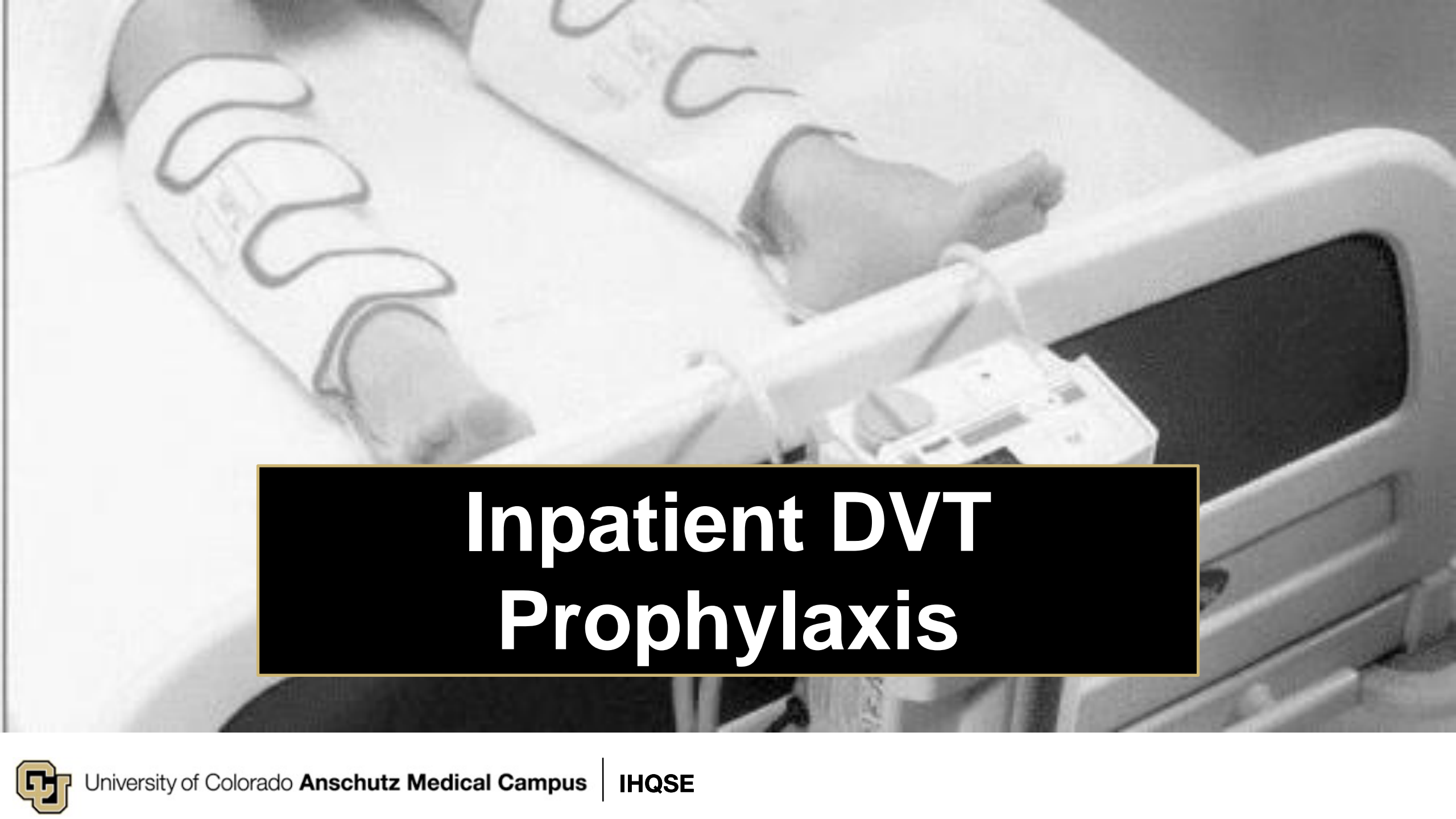
STRUCTURE
- Order Sets
- Regionalized
- Nurse:Patient ratio
- Discharge navigators

INTERVENTIONS

BALANCE

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Inpatient DVT Prophylaxis

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OUTCOME — DVT rates / PE rates / Mortality

PROCESS — Use of Rx prophylaxis / Risk scoring

STRUCTURE — Anti-coagulants stock / RNs to administer

INTERVENTIONS

BALANCE — Bleeding Rate

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OUTCOME

PROCESS

STRUCTURE

The thing you want to affect = PROJECT GOAL

10,000 hours of PT work (wasted) per year

The things you think contribute to the outcome = AIM STATEMENT

Inappropriate orders (37% of consults)
+/- Order Set Creation

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Focus on the process, not the results. Take one step at a time. You don't climb a mountain by simply looking at the top.

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By the end of Measure & Analyze....

<u>SMART</u> <u>AIM:</u>

Our AIM is to reduce inappropriate consults to Physical Therapy for medicine inpatients from **37%** to **10%** by May, 2021.

A note on data...

"In God we trust. All others must bring data."

- W. Edwards Deming

"The goal is to turn data into information, and information into insight."

- Carly Fiorina, former executive, president, and chair of Hewlett-Packard Co.

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Data Collection Plan

Key Question	Data Element Name	Operational Definition	Parameters	Source	Who	Frequency
What is the length of stay?	Length of stay (LOS)	LOS = Admit time to Discharge time	• Date range: 1/1/2020 - 12/31/2020 • One listed for every patient by CSN • Format: time in hours	EHR -- ADT	Which team member is in charge of collecting?	Monthly data pull, 1st of month

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Breakout 5:
Create an AIM Statement, Data Plan

Identify your process, outcome measures

Create or Refine a SMART AIM Statement

Data Collection Plan

Report Out

10 minutes

Part 3: Making Improvements

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Safety and Efficiency

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DMAIC (*də-MAY-ick*)
Define, Measure, Analyze, Improve, Control

D – M – A – I - C

Sense a problem

Sustained improvement

Define, Measure, Analyze, Improve, Control

Understand your problem

Fix it
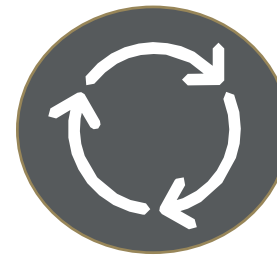
Sustain

1. **Target the root causes**
2. Design the right solutions
3. Choose the most impactful
4. Trouble Shoot

Tool: The Pareto Principle

Pareto Rule
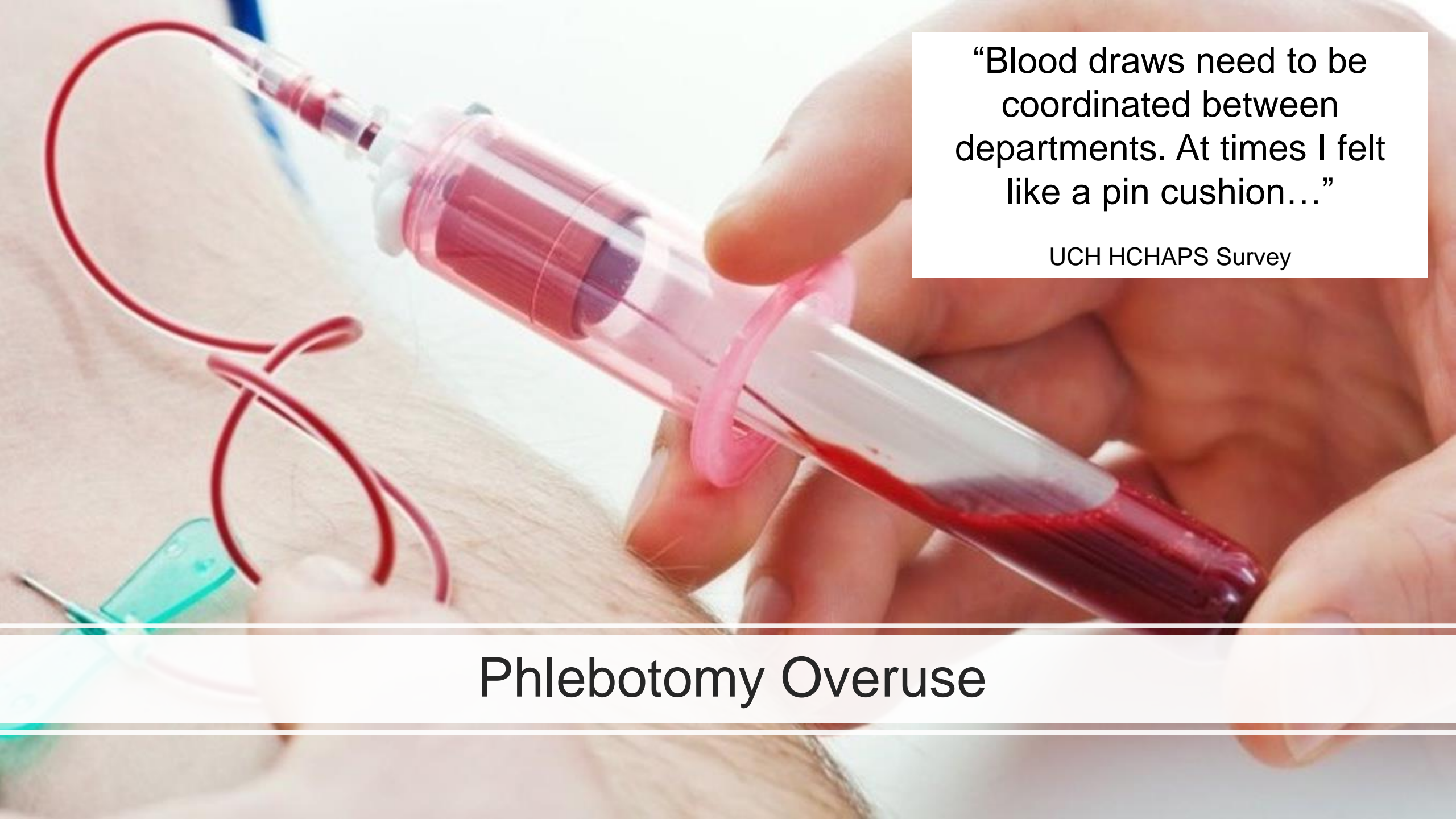
80/20

"Blood draws need to be coordinated between departments. At times I felt like a pin cushion…"

UCH HCHAPS Survey

Phlebotomy Overuse

Top 15 Add-On Failures: UCH Inpatient January – August 2017
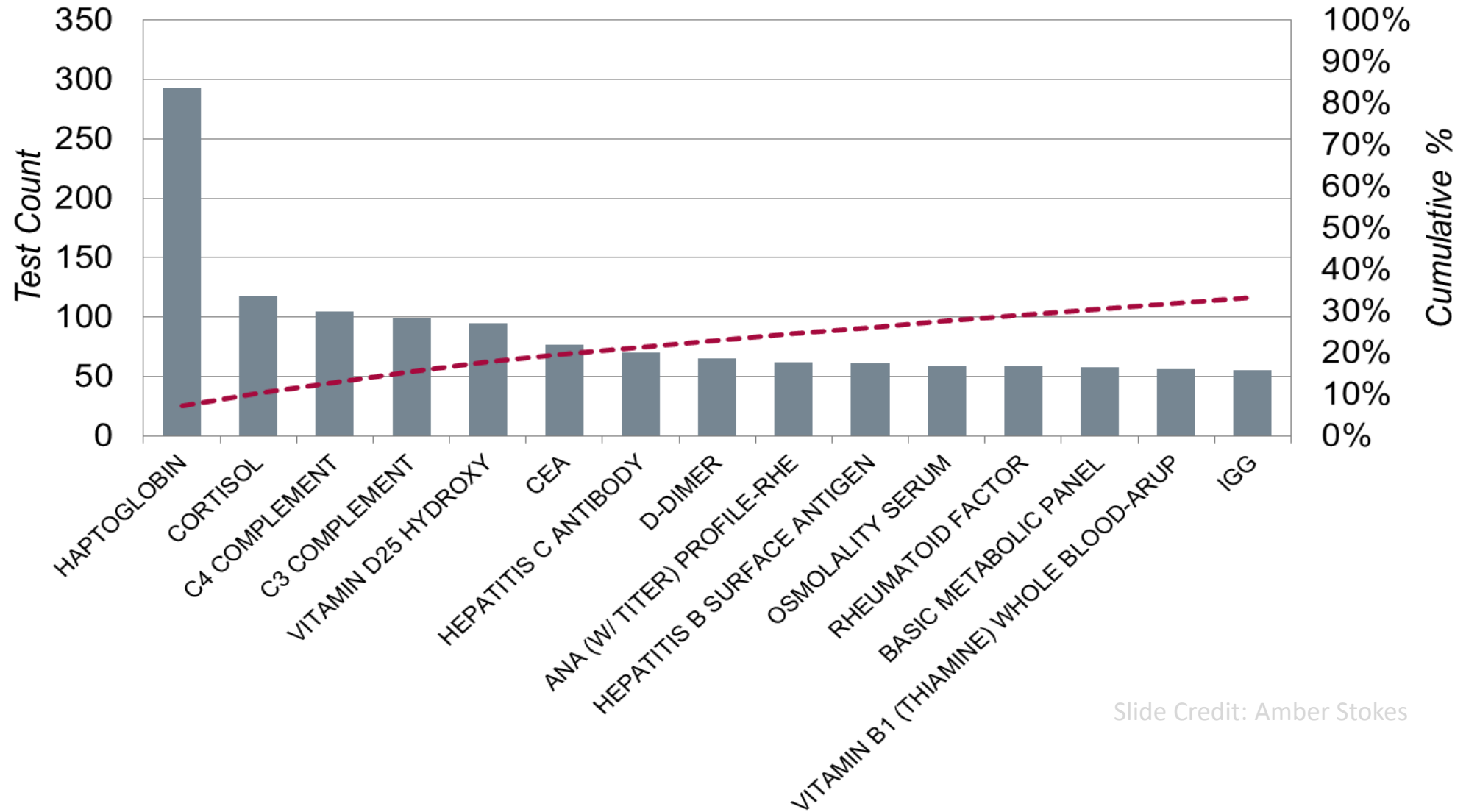
Slide Credit: Amber Stokes

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Using a Pareto Chart

List of Reasons for Problem
or areas where problems is
occurring

Gather data on these reasons → **Create** Pareto Chart → Use to **Target** Interventions
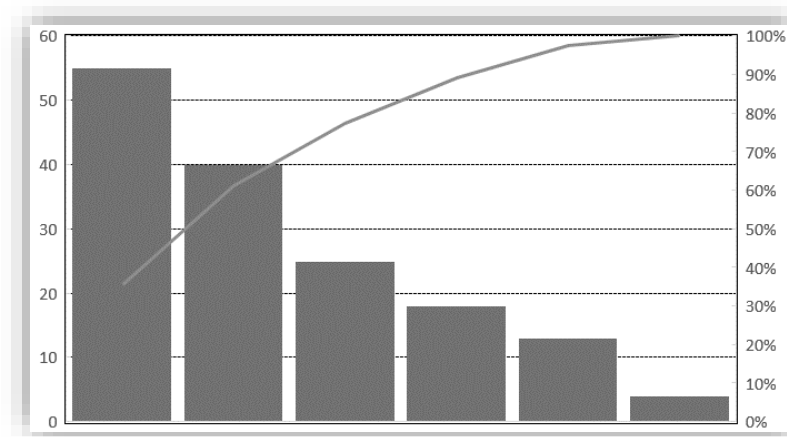
1. Target the root causes

2. **Design the right solutions**

3. Choose the most impactful

4. Trouble Shoot

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Improve

1. Hierarchy of Interventions
2. Double Diamond – Design Thinking
3. Positive Deviance

FORCING FUNCTIONS

AUTOMATION & COMPUTERIZATION

MORE EFFECTIVE

SIMPLIFICATION & STANDARDIZATION

System-focused

REMINDERS, CHECKLISTS & DOUBLE CHECKS

RULES & POLICIES

LESS EFFECTIVE

EDUCATION & TRAINING

People-focused

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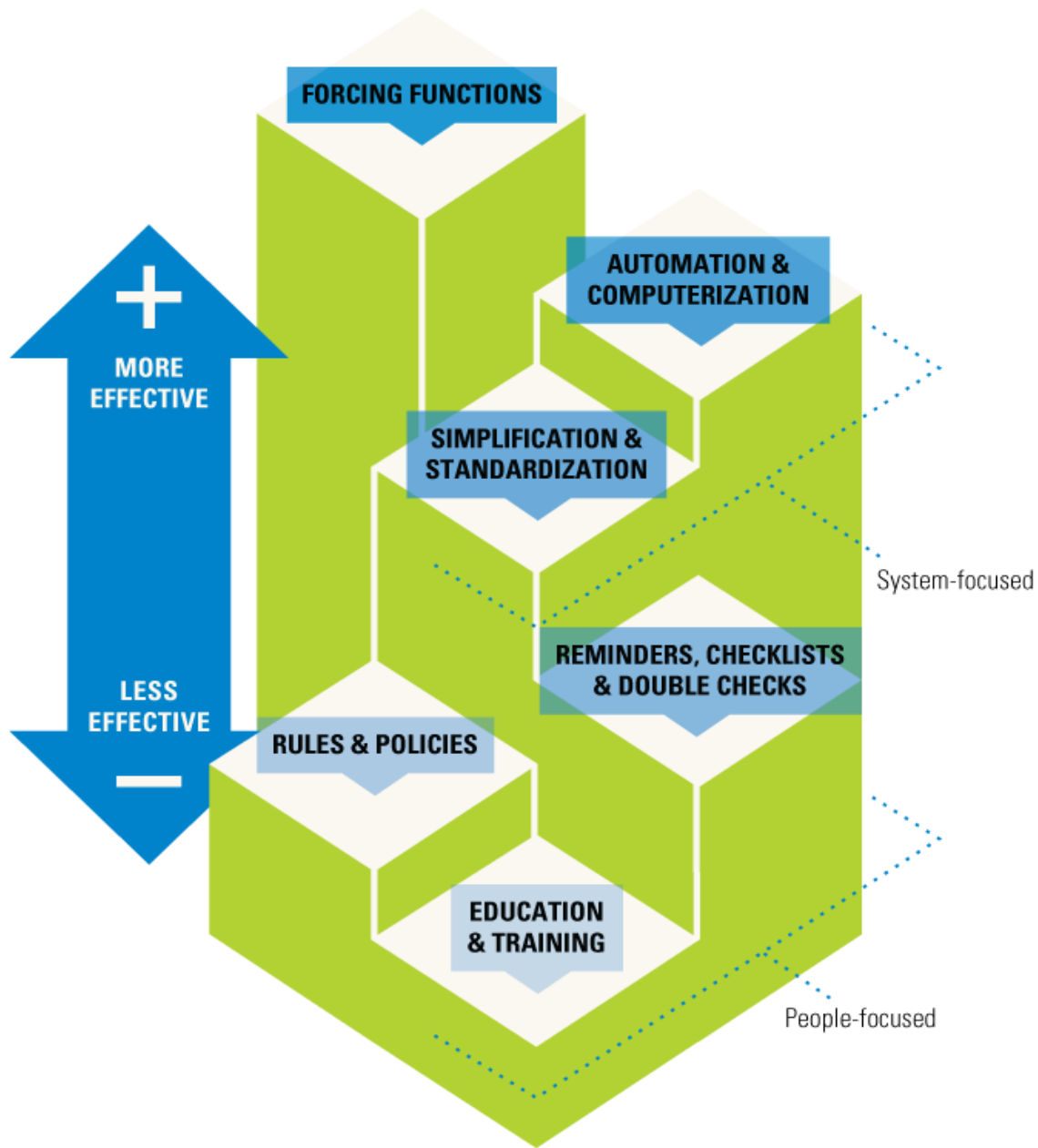
Please order contact precautions (BPA# 1183)

Infection Prevention and Control

- Contact precautions until result is negative, if result is positive precautions will continue for duration of therapy.
- Please refer to Gastroenteritis table on the Infection Control page on The Source for more information.
- If you have questions regarding isolation precautions, please contact Infection Control at 720-848-6978.

Order   Do Not Order   Special contact isolation status

Acknowledge Reason

Isolation not required   Deferred at this time

WHO Surgical Safety Checklist
(adapted for England and Wales)

National Patient Safety Agency
National Reporting and Learning Service

SIGN IN (To be read out loud)
Before induction of anaesthesia

TIME OUT (To be read out loud)
Before start of surgical intervention for example, skin incision

SIGN OUT (To be read out loud)
Before any member of the team leaves the operating room

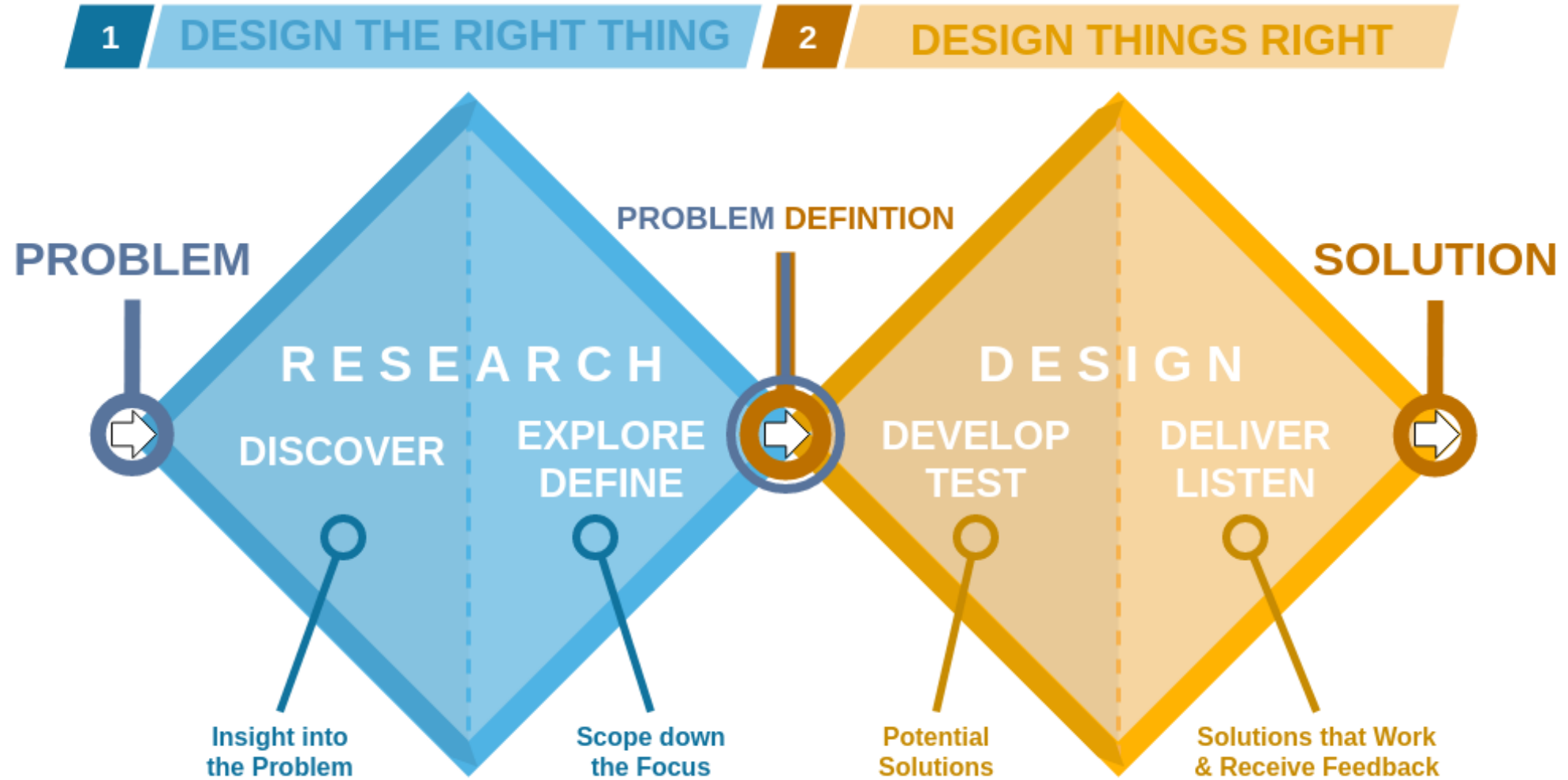This checklist contains the core content for England and Wales
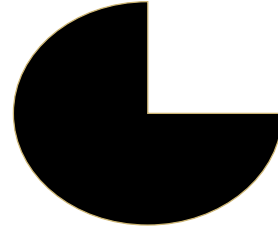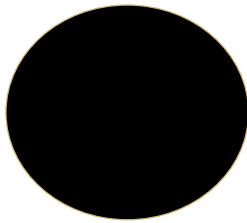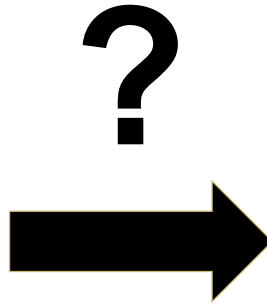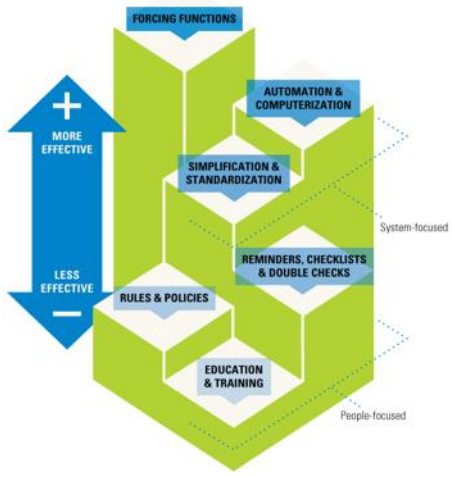
Improve: Design Thinking 🛠
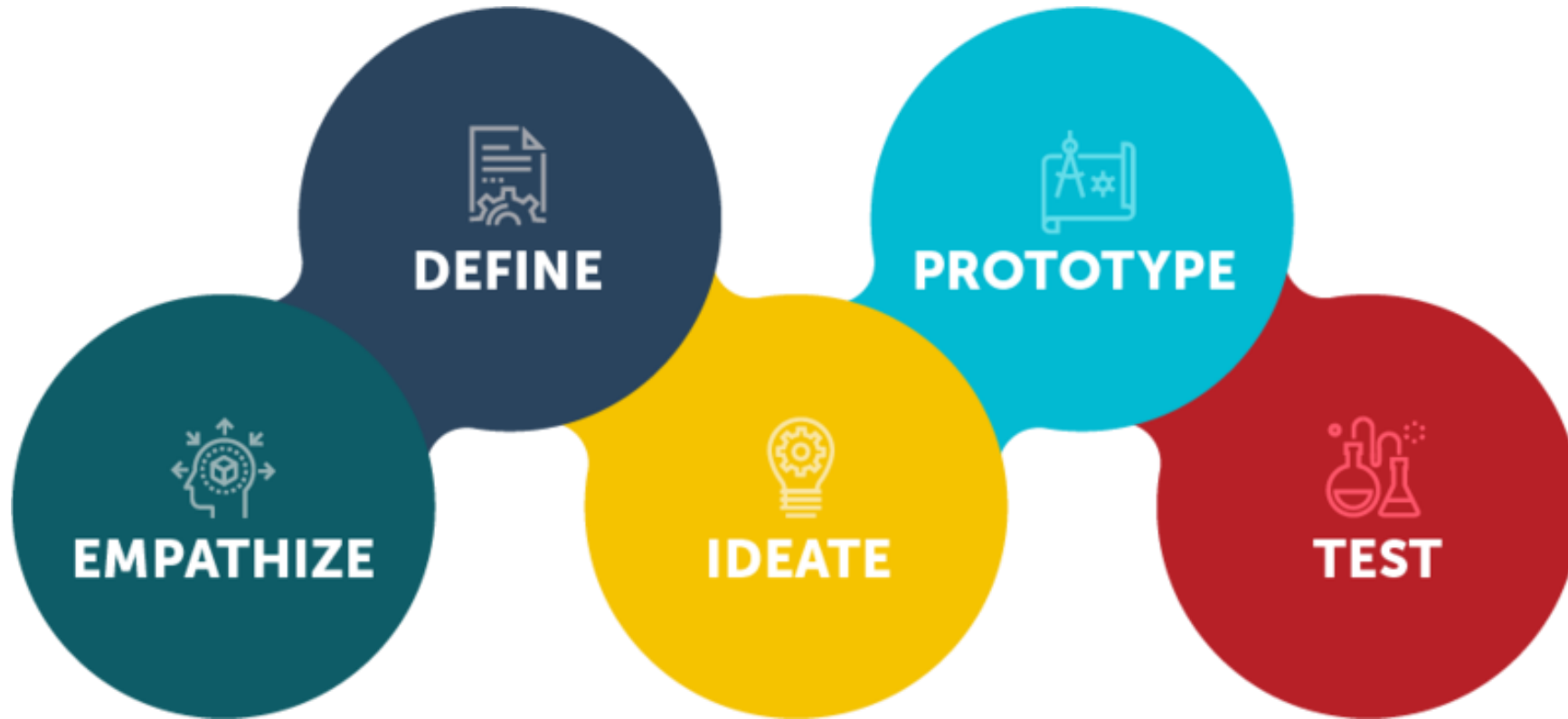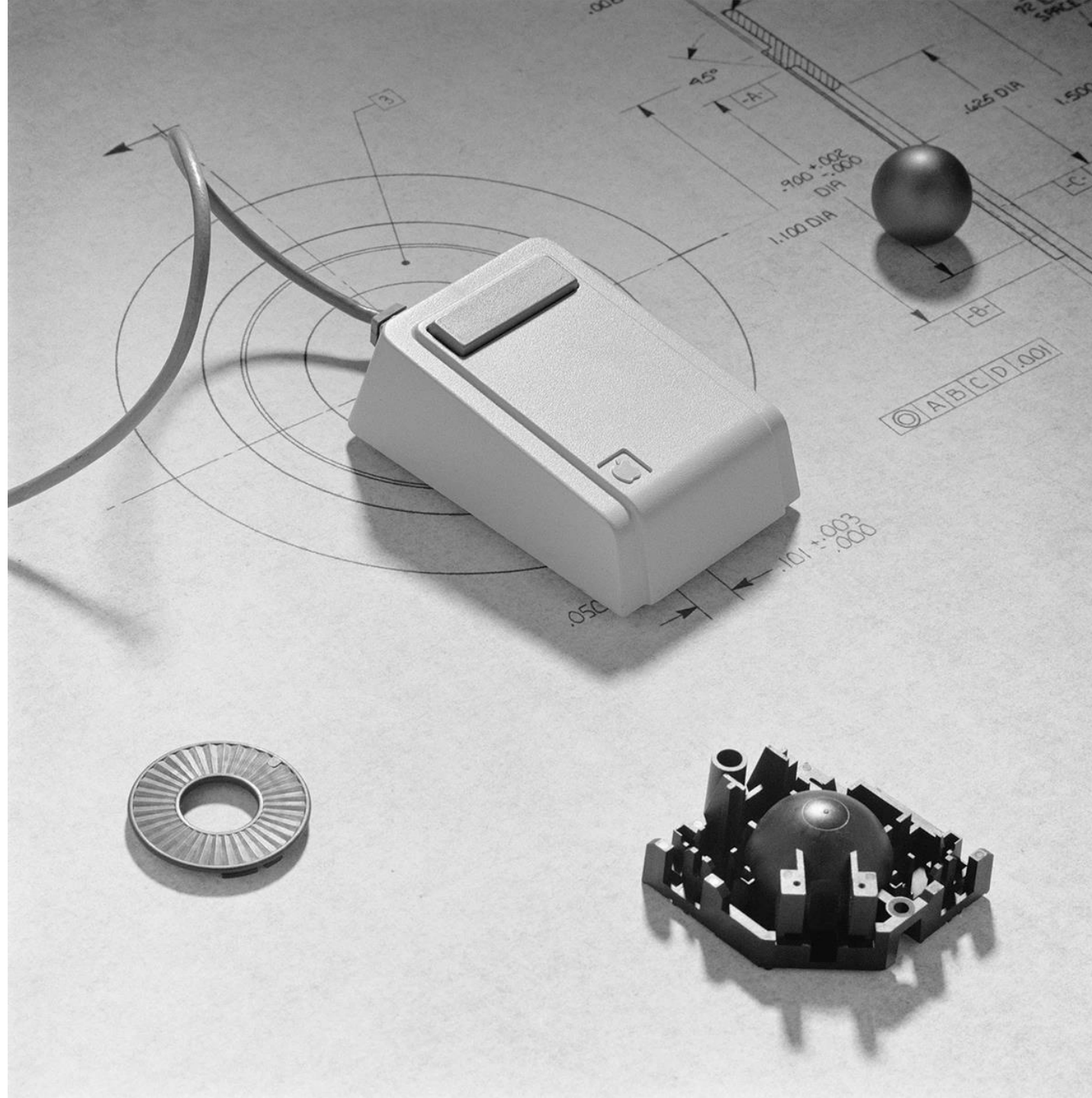
Improve

DESIGN THE RIGHT THING

1

DESIGN THINGS RIGHT
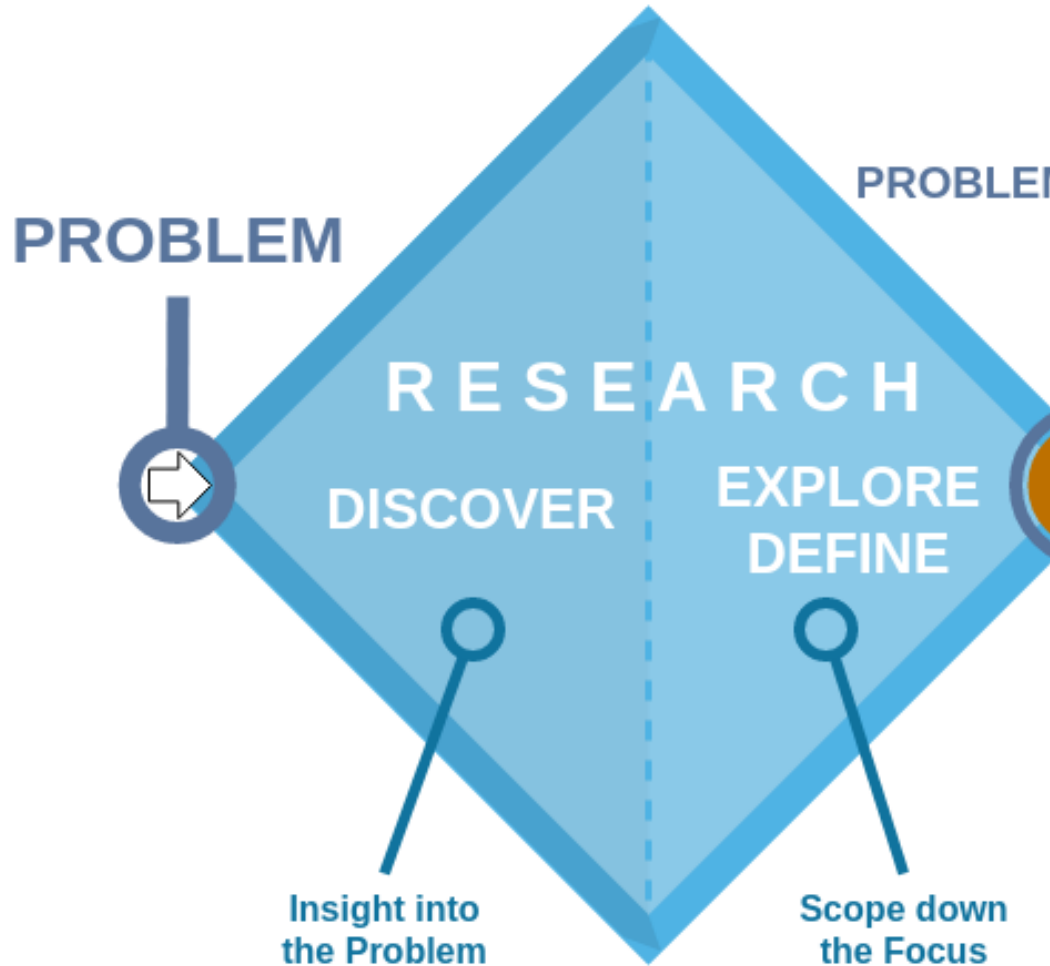
2

PROBLEM

PROBLEM DEFINTION

SOLUTION

RESEARCH

DISCOVER

EXPLORE
DEFINE

DESIGN

DEVELOP
TEST

DELIVER
LISTEN

Insight into
the Problem

Scope down
the Focus

Potential
Solutions

Solutions that Work
& Receive Feedback
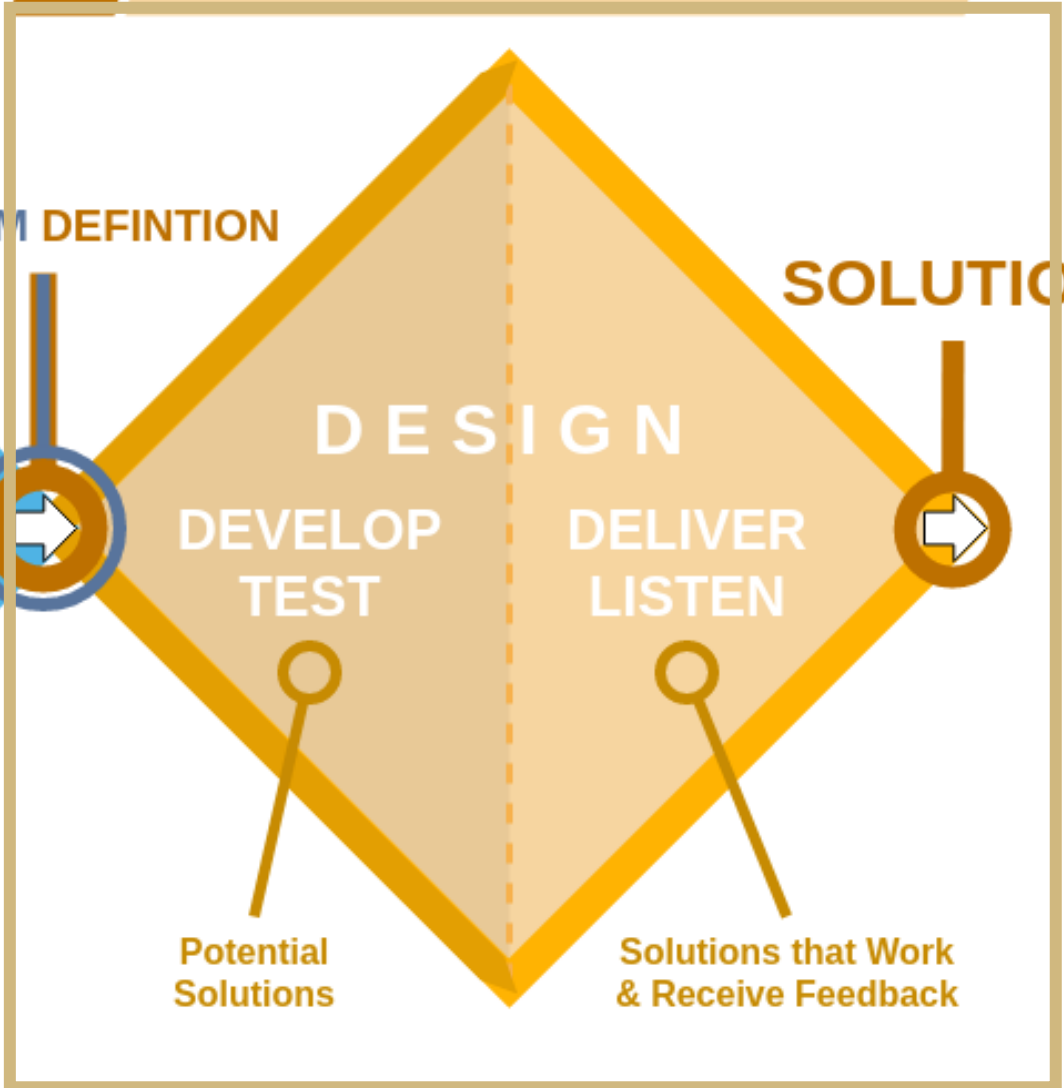
Empathize & Define:

"Impatient."
"Bored."

We need to design a better stoplight to keep people entertained so they stay safe at intersections.

Ideate:

Prototype: The Dancing Stoplight

Test: Reduction in traffic deaths by 81%.
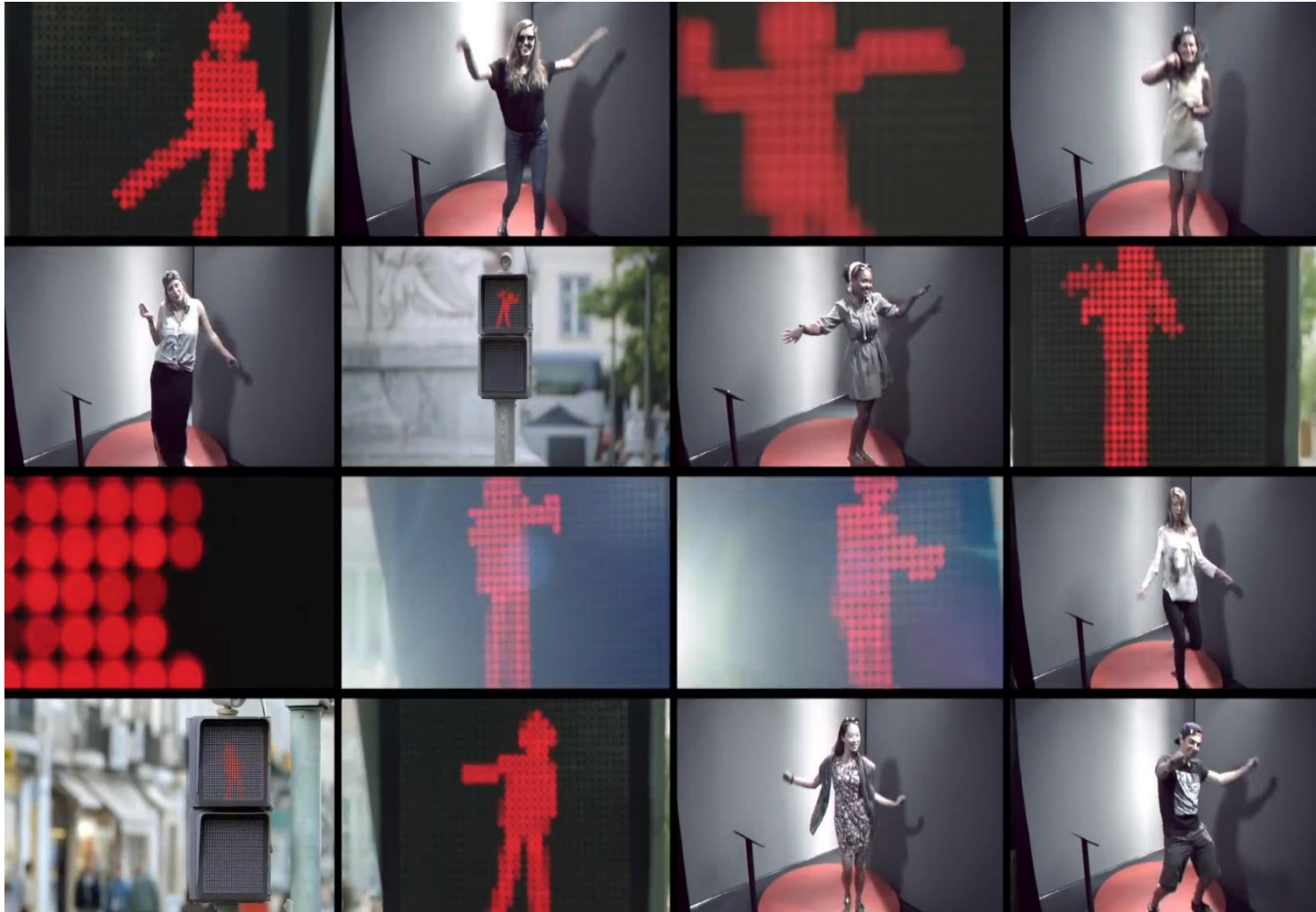
Design thinking to drive innovation.

Human centered, empathy driven, immersion in the experience of your user

Attitude of prototyping - iterative process, feedback open

Collaborative

A bias toward action

Improve: Positive Deviance

Positive Deviance is applied in settings where certain groups or individuals solve problems better than others given the same resources.

Assumes that there is an answer out there but not widely known

What if I could draw blood without poking the patient?

How do you correctly identify positive outliers?

Reputational Scores (USNWR, Award Winners)

Snowball methodology

Outcome Metrics

TRY HARDER

DO MORE

"What would this look like if it were easy?"

- Tim Ferris

"Perfection is achieved, not when there is nothing more to add, but when there is nothing left to take away."

- Antoine de Saint-Exupéry, French pioneering aviator, poet, aristocrat

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1. Target the root causes
2. Design the right solutions
3. **Choose the most impactful**
4. Trouble Shoot

Quick Wins

Major Projects

Fill-in Jobs

Thankless Tasks

Impact

Effort

Epic

Education

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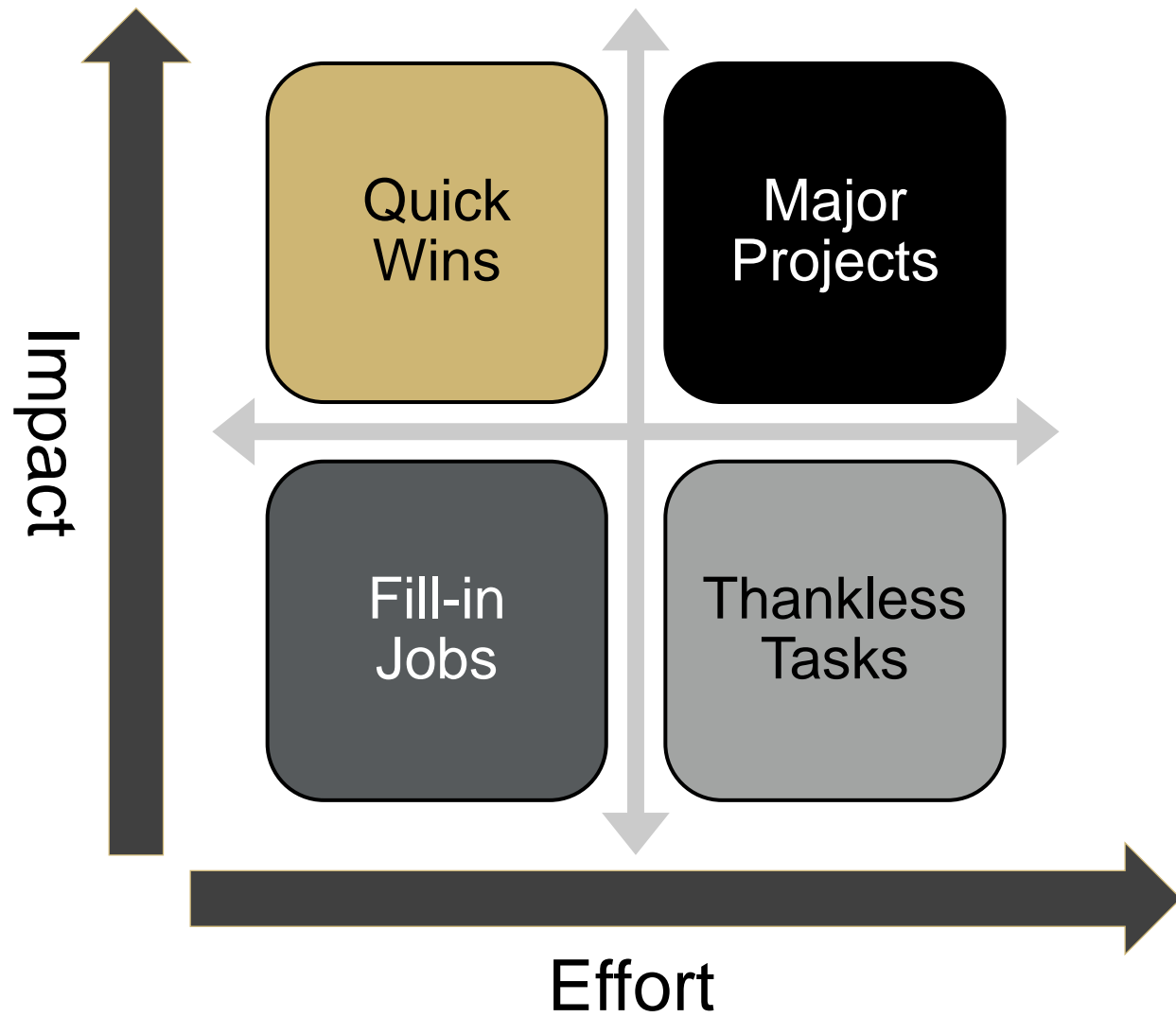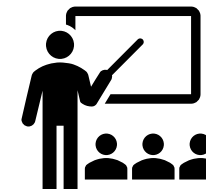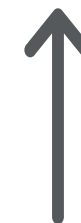
You now understand your problem and its' root causes through your **D-M-A** work.

You know which root causes you will target using **Pareto Principle.**

You've designed multiple solutions using the **Hierarchy of Interventions**, **Design Thinking** and **Positive Deviance**.

You've used your **Effort/Impact** to decide which intervention to roll out first.

1. Target the root causes
2. Design the right solutions
3. Choose the most impactful
4. **Trouble Shoot**

Improve: Brainwriting Pre - Mortem

The Program has been running for 1 year.

It has failed miserably.

What went wrong?

Breakout 6: Interventions

Brainstorm THREE possible interventions.

- Based on your D-M-A work
- What would this look like if it were easy?
- Consider who does this THE BEST.
- Consider what solution "defies gravity."

10 minutes

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Part 4: Sustaining Improvements

Define, Measure, Analyze, Improve, Control

Understand your problem

Fix it
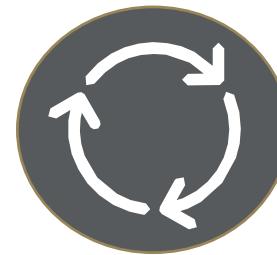
Sustain

Define
- Problem Statement
- Voice of Customer

Measure
- Gemba
- Process Map
- Identify Process, Outcome, Balancing

Analyze
- Affinity Diagram – ID Root Causes
- Pareto – Rank Root Causes

D, M, A - SMART AIM
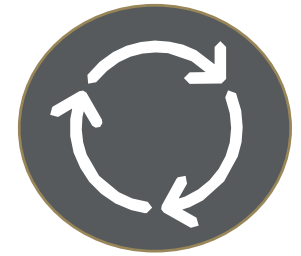
Improve
- Identify Key Targets for Intervention from Pareto Chart
- Design Interventions using Positive Deviance, Pre-Mortem

Control
- Sustainability Plan

Define, Measure, Analyze,

Understand your problem

Next Steps

Second session July
- How to Make People Follow
- Presenting to Influence
- Approach to Data
- Overcoming Resistance

Biweekly coaching meetings
Set a timeline for success (6 months)
Deliverables: Presentation to stakeholders
Improvement is continuous...

Action Plan

1. Communication plan (set biweekly meetings with team & coach)

2. Building your team (who else needs to be engaged)

3. Where are you in DMAIC (look at project charter together)

4. Create agenda for first meeting

5. Discuss data collection plan

The Charter