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Applying RCA Tools and Concepts to HAI Investigations

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NO CONFLICTS OF INTEREST

OPINIONS DISPLAYED OR EXPRESSED ARE PURELY MY OWN.


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LEARNING OBJECTIVES

Describe how Cause Mapping can be used to identify numerous root causes in HAIs

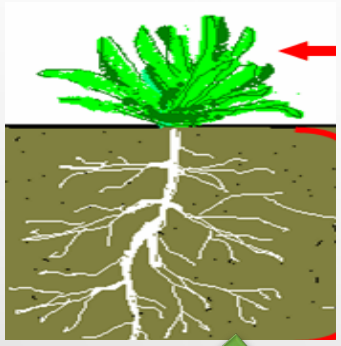
Demonstrate how the Human Factors Analysis and Classification System can used to classify contributing factors to HAIs

Utilize the RCA^2 Action Hierarchy to rate the strength of improvement interventions in your IP action plans.

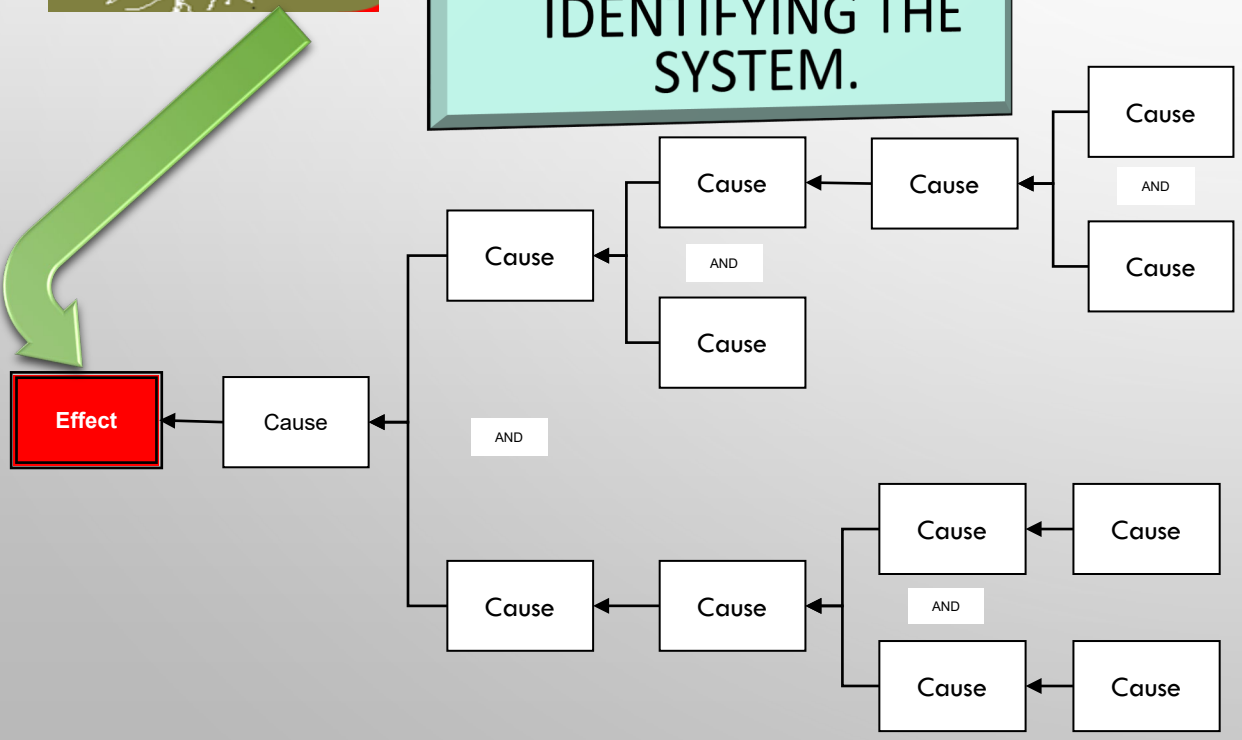
CAUSE MAPPING

CAUSE MAPPING

CAUSE-AND-EFFECT RELATIONSHIPS



- THE ROOT IS A **SYSTEM OF CAUSES.** GETTING TO THE ROOT OF THE PROBLEM MEANS IDENTIFYING THE SYSTEM.



A CAUSE IS A PRODUCER OF AN EFFECT.

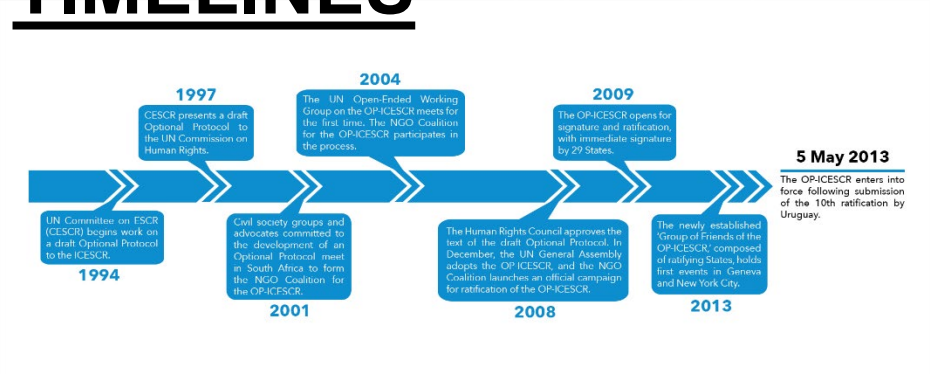
- **EACH CAUSE CAN BE VIEWED AS HAVING MULTIPLE CAUSES.**
- **ALL OF THE CAUSES ARE REQUIRED FOR THE INCIDENT TO OCCUR.**
- **A PROBLEM CAN BE VIEWED AT MULTIPLE LEVELS OF DETAIL.**
- **BY DEFINITION, IF ANY CAUSE IS CONTROLLED, THE OUTCOME OF THE SYSTEM IS CHANGED. SO, THE FOCUS MUST BE ON SOLUTIONS THAT MITIGATE THE RISK AND REDUCE/ELIMINATE THE POTENTIAL FOR PROBLEMS.**

CAUSE MAPPING BENEFITS:

- ALLOWS YOU TO SEE ***BEYOND THE TIMELINE*** OF HOW AN EVENT TRANSPIRED.
- HIGHLIGHTS THE PROCESSES THAT CONTRIBUTED TO THE EVENT
- FORCES THE INVESTIGATOR TO KEEP ASKING ***WHY***
- IDENTIFIES ***MANY*** ROOT CAUSES, AS OPPOSED TO JUST ONE
- CAN MORE READILY IDENTIFY THE ***HUMAN FACTORS CONNECTED TO THOSE CAUSES AND*** ALLOWS YOU TO SEE THE "BIGGER PICTURE" OF ALL THOSE RELATIONSHIPS

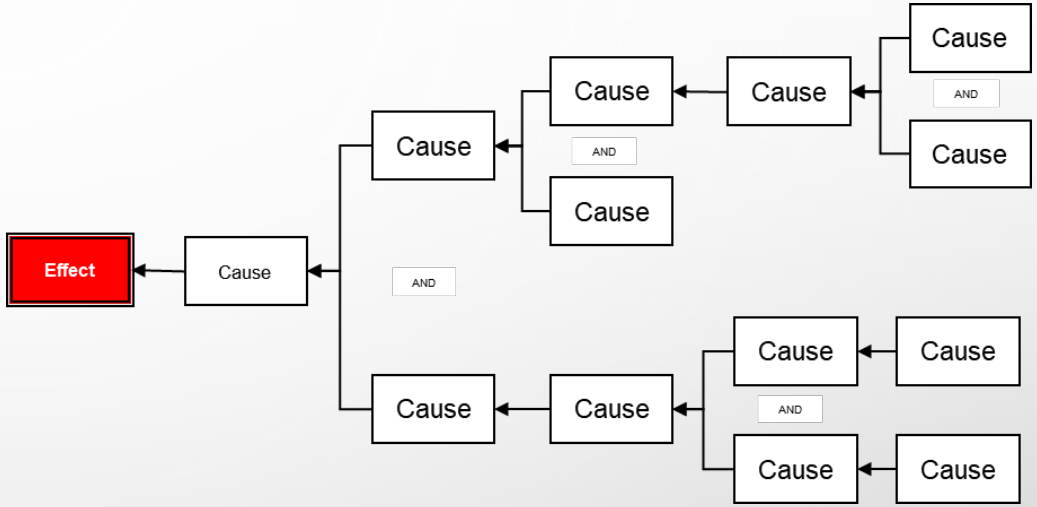
TIMELINES VS CAUSE MAPS

TIMELINES



- ALWAYS linear
- Follows the chronological order of "smaller" events which led up to a significant event
- Does not truly show a cause-effect relationship from one event to another – it's a simple time sequence of what happened.

CAUSE MAPS



- Almost NEVER linear
- Pulls out the reasons why – or ***how*** those "smaller" events (and many other details) – led to the significant event.

CAUSE MAPPING

Instead of: "for every effect, there is a cause;"

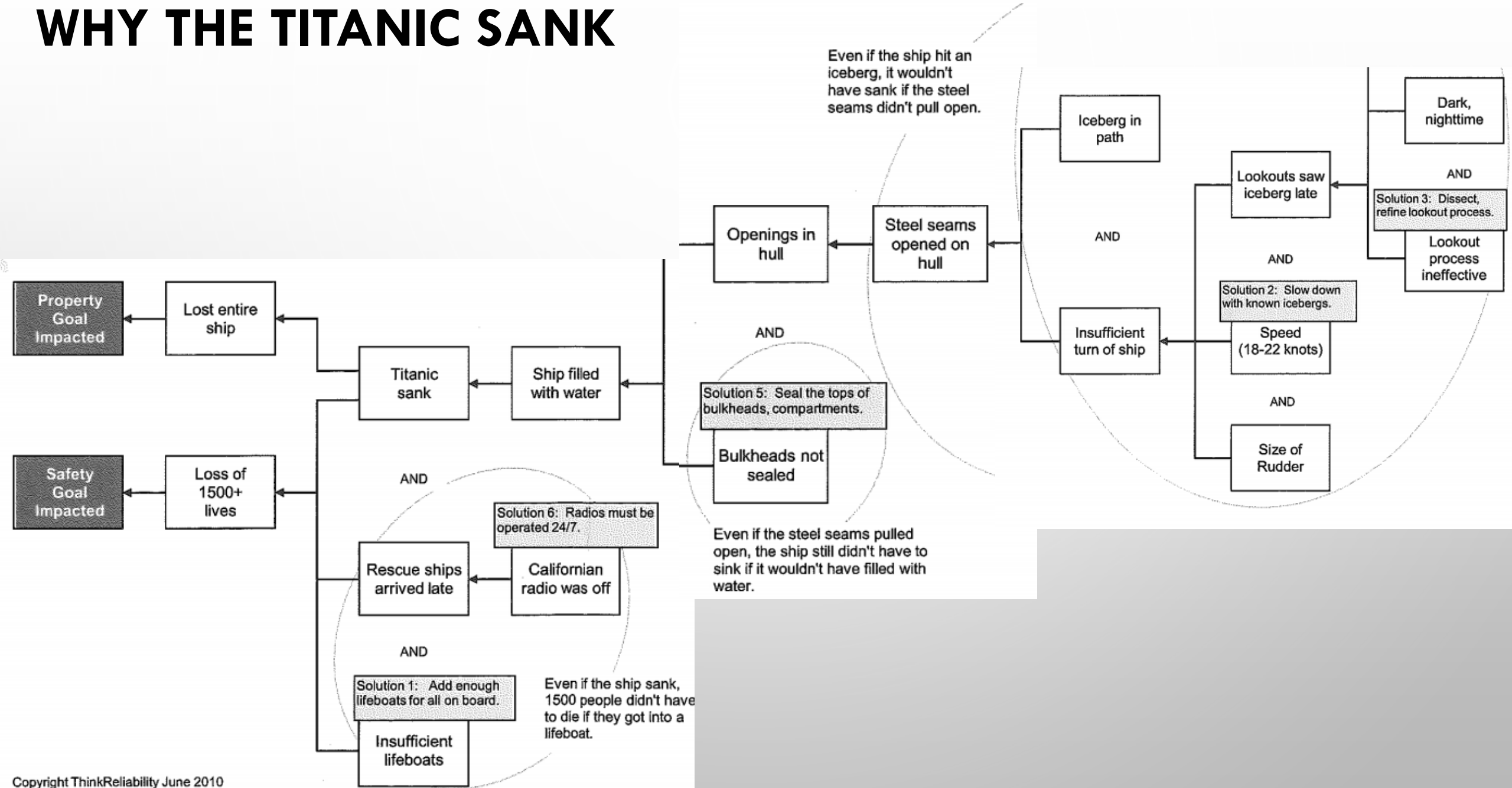
A more accurate approach is: "for every effect, there are causes."

STEPS TO CREATE A CAUSE MAP:

1. START WITH *IMPACT TO GOALS* – YOURS ARE LIKELY GOING TO BE "IMPACT TO PATIENT SAFETY".
2. ASK "WHY" QUESTIONS TO REVEAL CAUSES:
    - *WHY DID IT HAPPEN?*
    - *WHAT WAS IT CAUSED BY?*
    - *WHAT MUST WE HAVE FOR THIS EFFECT TO OCCUR?*
    - *WHAT IS REQUIRED FOR THIS TO HAPPEN?*
    - *HOW DOES THE CAUSE PRODUCE THE EFFECT?*
    - ***(IDENTIFY STEPS IN-BETWEEN)***


USA
TODAY

WHY THE TITANIC SANK



APPLY CAUSE MAPPING TO A CAUTI

CASE SCENARIO

- 65 YO FEMALE LONG TERM CARE RESIDENT WITH HX OF DJD OF THE HIP; CHRONIC PAIN; INCONTINENCE OF URINE; AND SEVERE CAD ADMITTED WITH COMMUNITY ACQUIRED PNEUMONIA, DEHYDRATION, ELEVATED BUN AND CREATININE
- FOLEY CATHETER PLACED ON ADMISSION FOR ACCURATE I&O IN BORDERLINE AKF
- FOLEY REMAINED IN PLACE FOR 10 DAYS; BEGAN C/O SUPRAPUBIC PAIN
- URINE CULTURE ORDERED, COLLECTION DELEGATED TO NURSE TECH
    - TECH NOT AWARE FOLEY WAS TO BE REMOVED PRIOR TO SPECIMEN COLLECTION
- CX + FOR E. FAECALIS

CAUTI INVESTIGATION

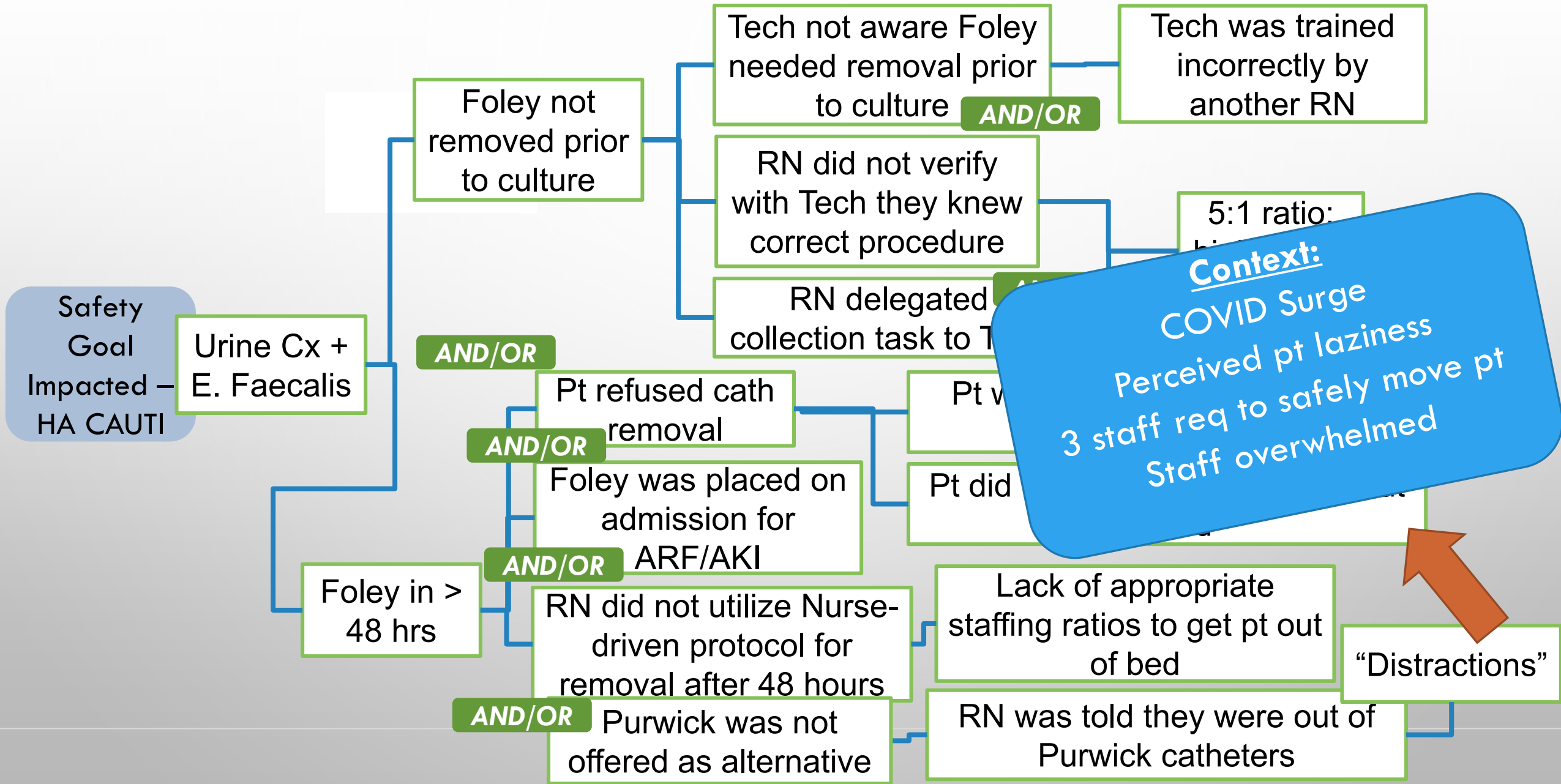
INTERVIEW WITH THE NURSE TECH:

- TECH WAS TRAINED INCORRECTLY BY AN RN TO COLLECT URINE CULTURES
- IT WAS REPORTED THAT PATIENT REFUSED TO URINATE WITHOUT IUC IN PLACE
- PATIENT WAS ADVISED THAT THE CATHETER SHOULD BE REMOVED AFTER 48 HOURS BY MEDICAL TEAM
- THE PATIENT REFUSED AND WOULD NOT PERFORM ADLS WITHOUT THE HELP OF 2-3 STAFF MEMBERS

INTERVIEW WITH THE RN:

- SPECIMEN COLLECTION WAS DELEGATED TO TECH DUE TO STAFFING/WORKLOAD
- TO REMOVE CATHETER AND REPLACE PRIOR TO CULTURE COLLECTION WOULD TAKE AT LEAST TWO STAFF MEMBERS
- PATIENT REFUSED TO VOID AND DID NOT WANT TO GET OUT OF BED
- RN WAS TOLD THEY WERE OUT OF PURWICK CATHETERS

CAUSE MAP – HEALTHCARE ACQUIRED CAUTI



HUMAN FACTORS

IN HEALTHCARE

HUMAN FACTORS....means sometimes we do dumb things....because we are human!

But some of these are REALLY questionable.....

WHAT IS HUMAN FACTORS IN HEALTHCARE?

A multi-disciplinary science that sits at the intersection of psychology and engineering

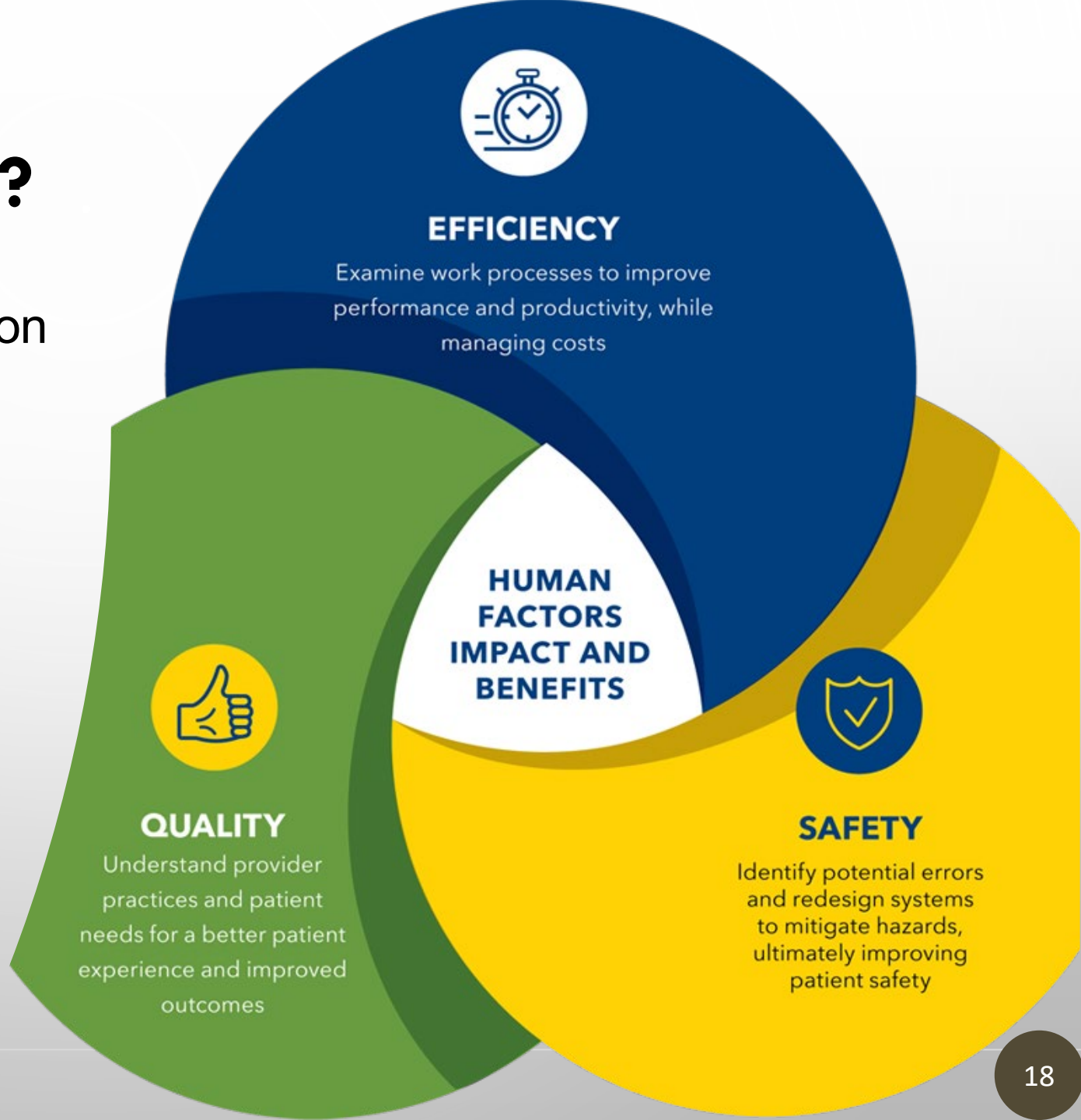
Focused on understanding the interaction among humans and other elements of a system within a given environment

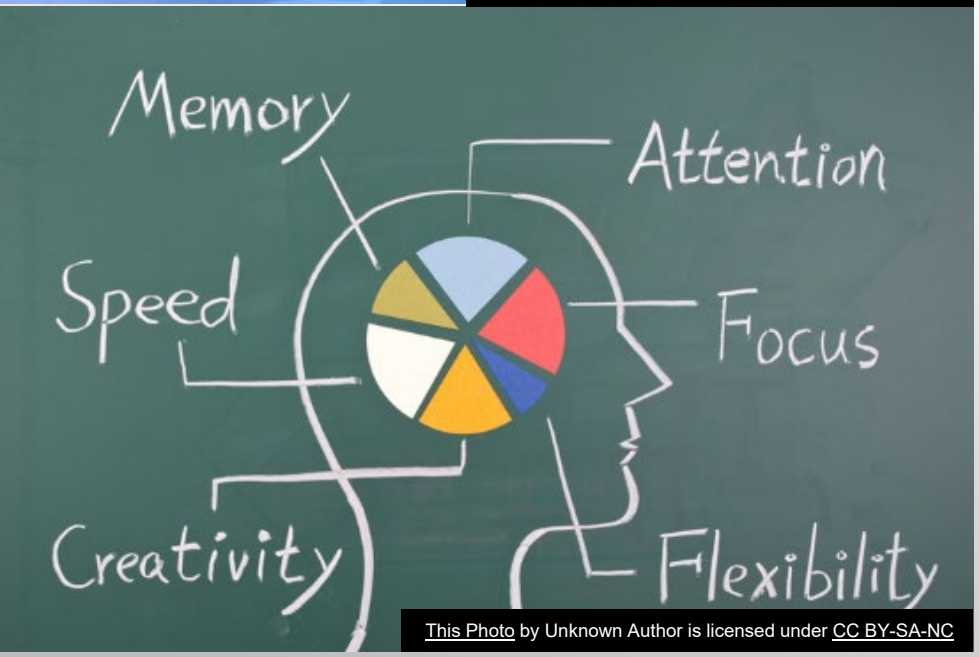
Applies psychological and physiological principles and theories to the design of products, processes and systems

Improves safety, efficiency, quality, and reliability when applied effectively, while reducing costs

WHY IS THIS IMPORTANT?

- Improve patient safety and satisfaction
- Reduce clinician burnout
- Boost process efficiency
- Enhance communication
- Generate effective and sustainable solutions
- Mitigate the risk of error
- Optimize training
- Design user-centered health IT solutions





Incorporating the Human Factors Analysis Classification System (HFACS)

- HFACS is an aviation-based methodology for determining causal human factors which lead to patient safety events.
- Examines human behavior, abilities, and other characteristics and their interaction with tools, machines, systems, tasks and environments.

In other words, how are we making it easy for staff to do the right thing within their given constraints?

HUMAN FACTORS

MAKE IT EASY FOR HOMER TO DO THE RIGHT THING

Homer's main tasks are:

- Monitor key plant conditions
- Make adjustments from the control room to ensure the plant runs smoothly and safely
- Communicate with operators who work outside of the plant.

Imagine there is a serious process break, how might Homer respond?

HOMER'S HUMAN FACTORS

- There are a dozen alarms going off
- Homer has never seen this situation before
- His supervisor is on a lunch break
- Emergency response procedures aren't very clear
- All the buttons on his control panel look the same
- Homer is concerned about shutting down the plant
- He's been working overtime due to staff shortages
- Bart is in trouble at school (again), and..
- He hasn't had a donut for at least an hour and his blood sugar is dangerously low

They might even make it more likely that, unintentionally, he won't do the right thing.

Human Factors Analysis and Classification System Hierarchy

Unsafe Acts

Errors

- **Decision Errors**
  - Incorrect diagnosis
  - RN not turning on lights
- **Skill-Based Errors**
  - Skipping steps on CL insertion checklist
  - Inadequate training on a procedure
- **Perceptual Errors**
  - Misreading equipment (glucometer; BP cuff)

Violations

- **Routine Violations**
  - Short-cuts
  - Violation of Policy/ Procedures
- **Exceptional Violations**
  - Disruptive behavior
  - Unreasonable risk taking

Unsafe Acts

ANY act that deviates from a generally safe way or specified method of doing a job and which increases the probabilities for an adverse event (e.g., lack of or improper use of PPE; failure to wash your hands; omitting steps in a procedure; not replacing telemetry batteries when notified)

Preconditions for Unsafe Acts

Situational Factors

Tools/ Technology
- Poor design
- Defective equipment

Task
- Routine vs. infrequent tasks
- Complexity of task

Physical Environment
- Disorganized/ cluttered
- Noisy

Individual Factors

Mental State
- Complacency
- Distractions/ Task overload

Physiological State
- Personal illness/ effects of personal meds
- Fatigue

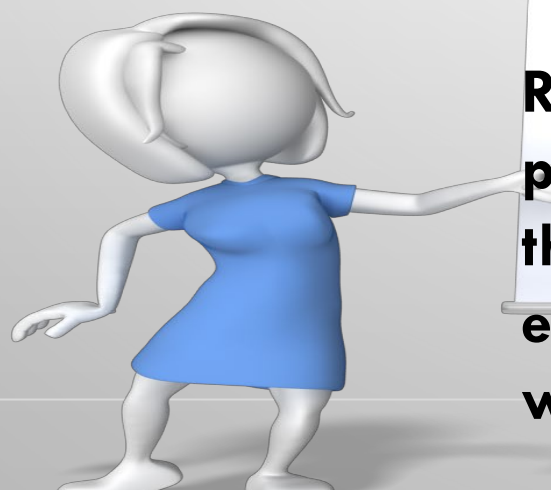
Fitness for Duty
- Lack of sleep
- Alcohol hangover

Team Factors

Leadership
- Unwillingness to ask for help/fear of consequences

Communication
- Inadequate handoffs

Coordination
- Lack of teamwork
- Lack of discharge planning



Preconditions for Unsafe Acts

Refers to an individual's mental state; physiological state; or physical/mental limitation that effect performance; AND the situational, environmental, and teamwork factors, all of which can result in human error or unsafe acts.

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Supervisory Factors

Inadequate Supervision

- Lack of presence within the work environment
- Inadequate mentoring/coaching

Planned Inappropriate Operations

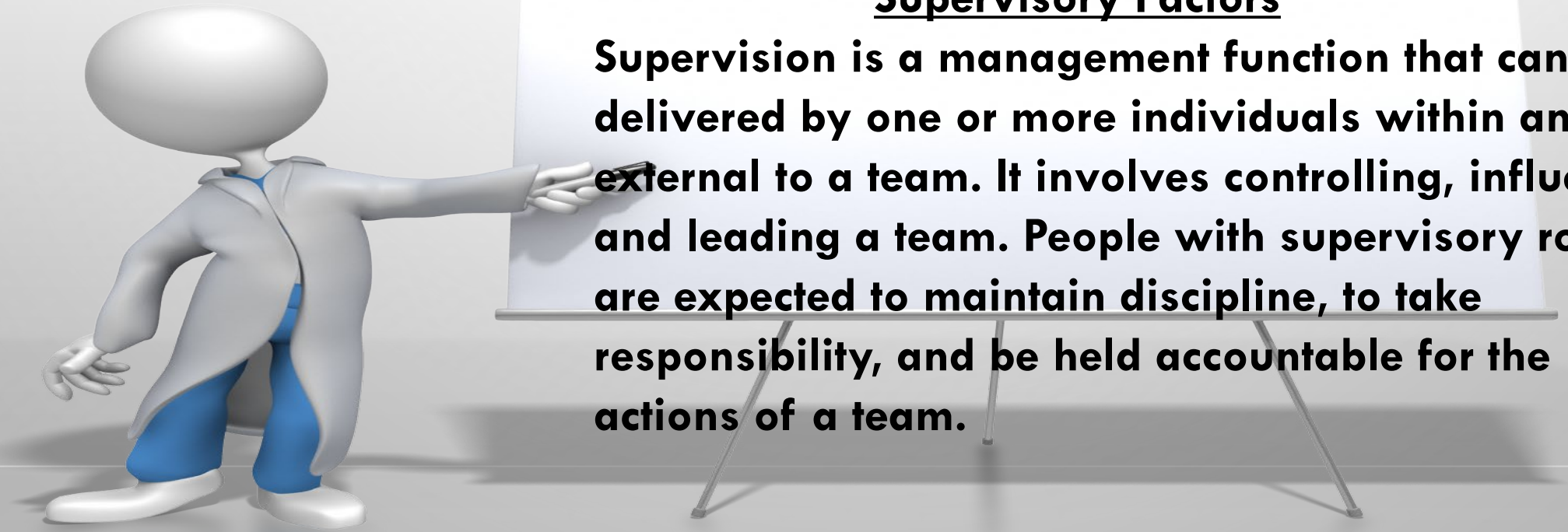
- Requiring staff to work unreasonable shift routines
- Failure to ensure enough staff are available

Failure to Correct Known Problem(s)

- Not enforcing the rules
- Failure to review and revise policies/ procedures

Supervisory Violation

- Falsifying records
- Requiring staff to engage in unsafe practices



Supervisory Factors

Supervision is a management function that can be delivered by one or more individuals within and/or external to a team. It involves controlling, influencing and leading a team. People with supervisory roles are expected to maintain discipline, to take responsibility, and be held accountable for the actions of a team.

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Organizational Influences

Organizational Culture

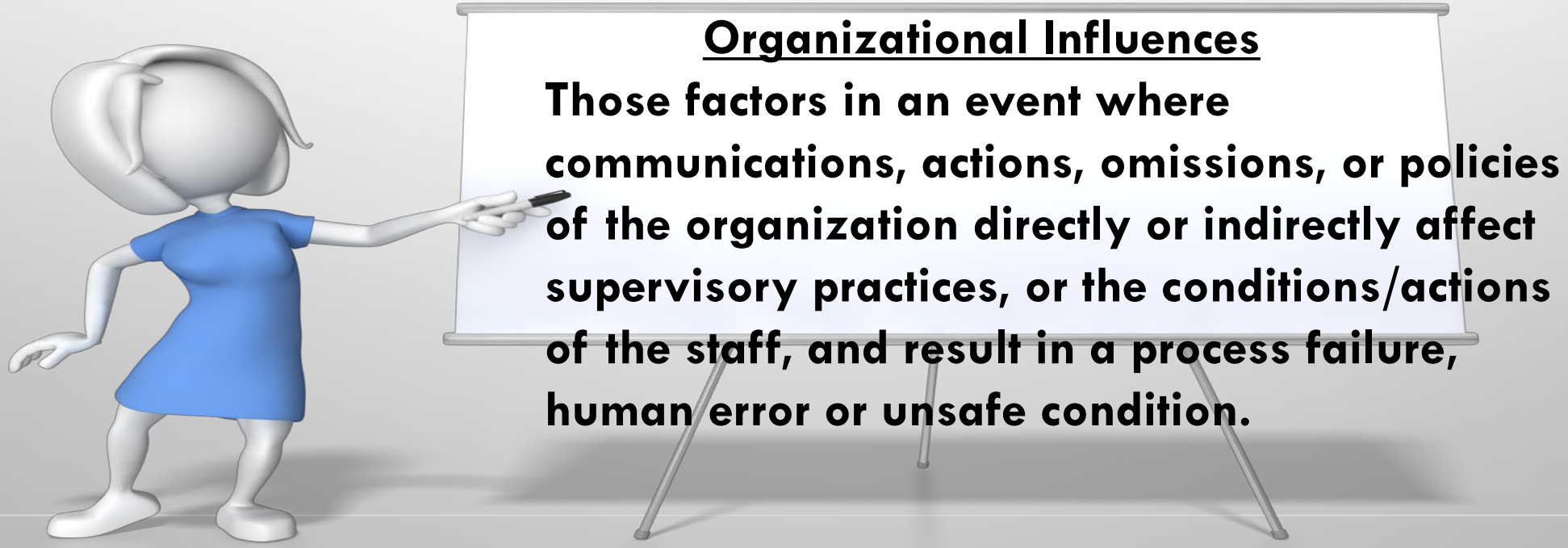
- Revenue generation supersedes safety
- Proactive safety initiatives receive minimal support

Operational Process

- Lack of leadership commitment
- Competing initiatives

Resources Management

- Budgetary constraints
- Limited acquisition on necessary equipment/ technology



Organizational Influences

Those factors in an event where communications, actions, omissions, or policies of the organization directly or indirectly affect supervisory practices, or the conditions/actions of the staff, and result in a process failure, human error or unsafe condition.

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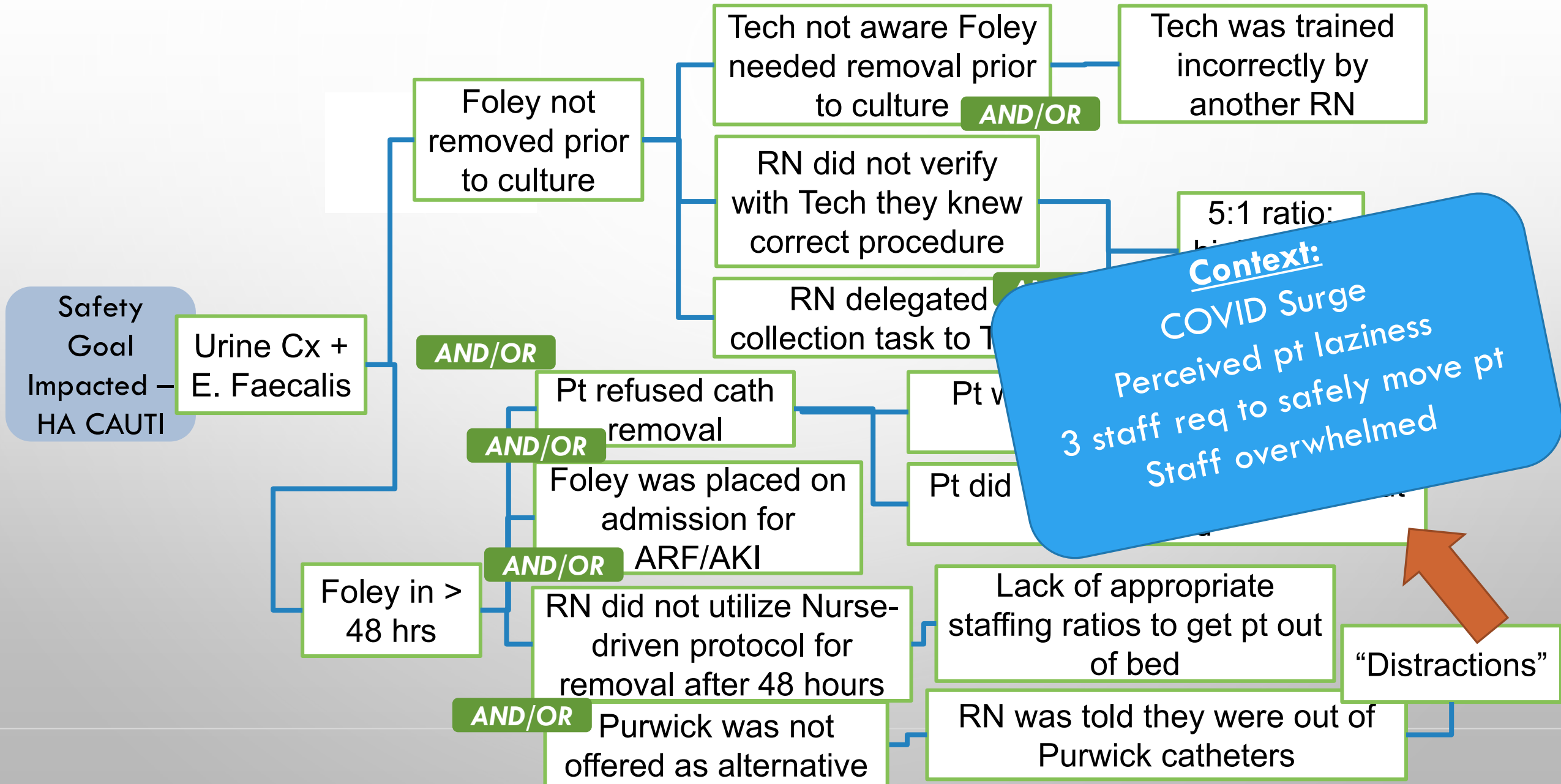
CAUSE MAP – HEALTHCARE ACQUIRED CAUTI



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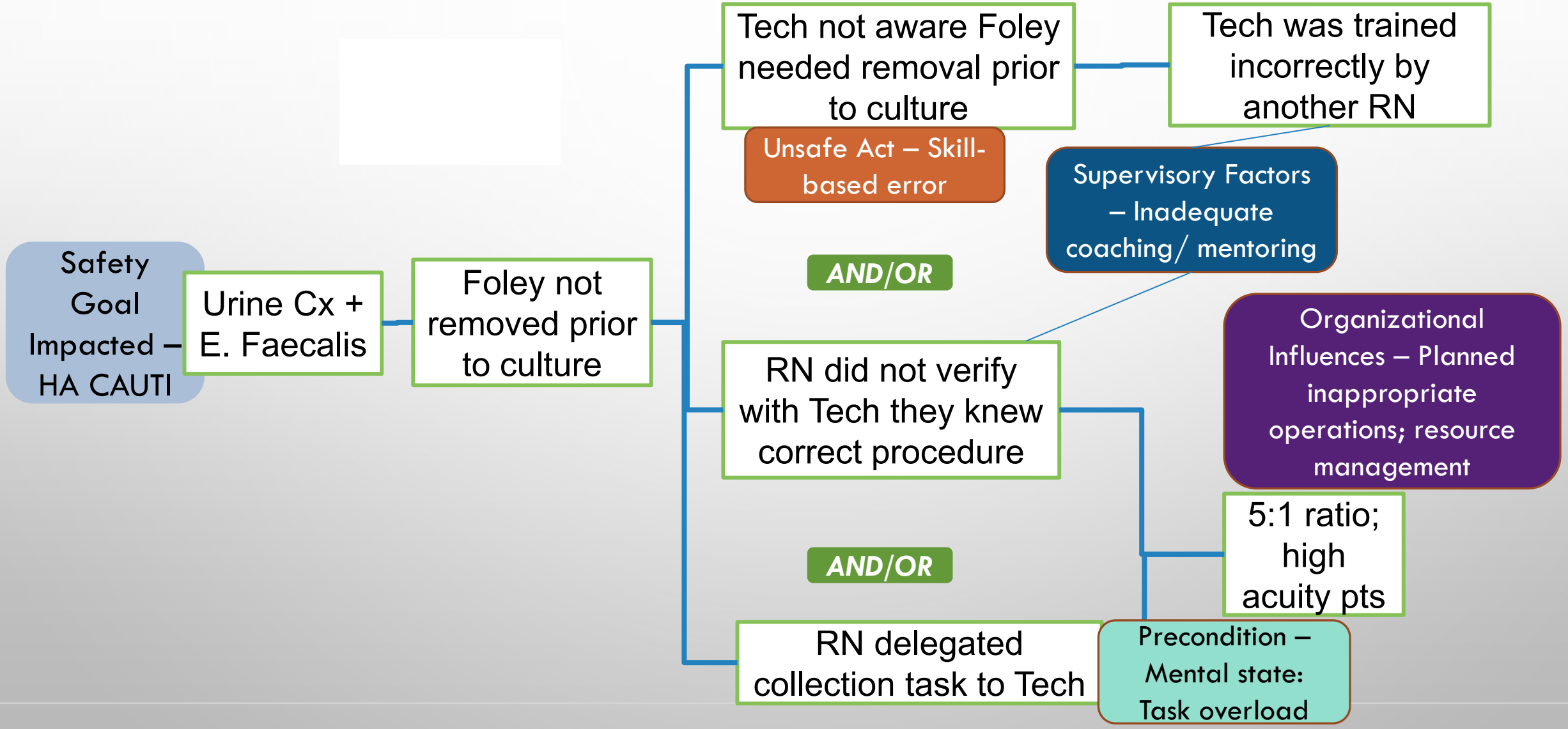

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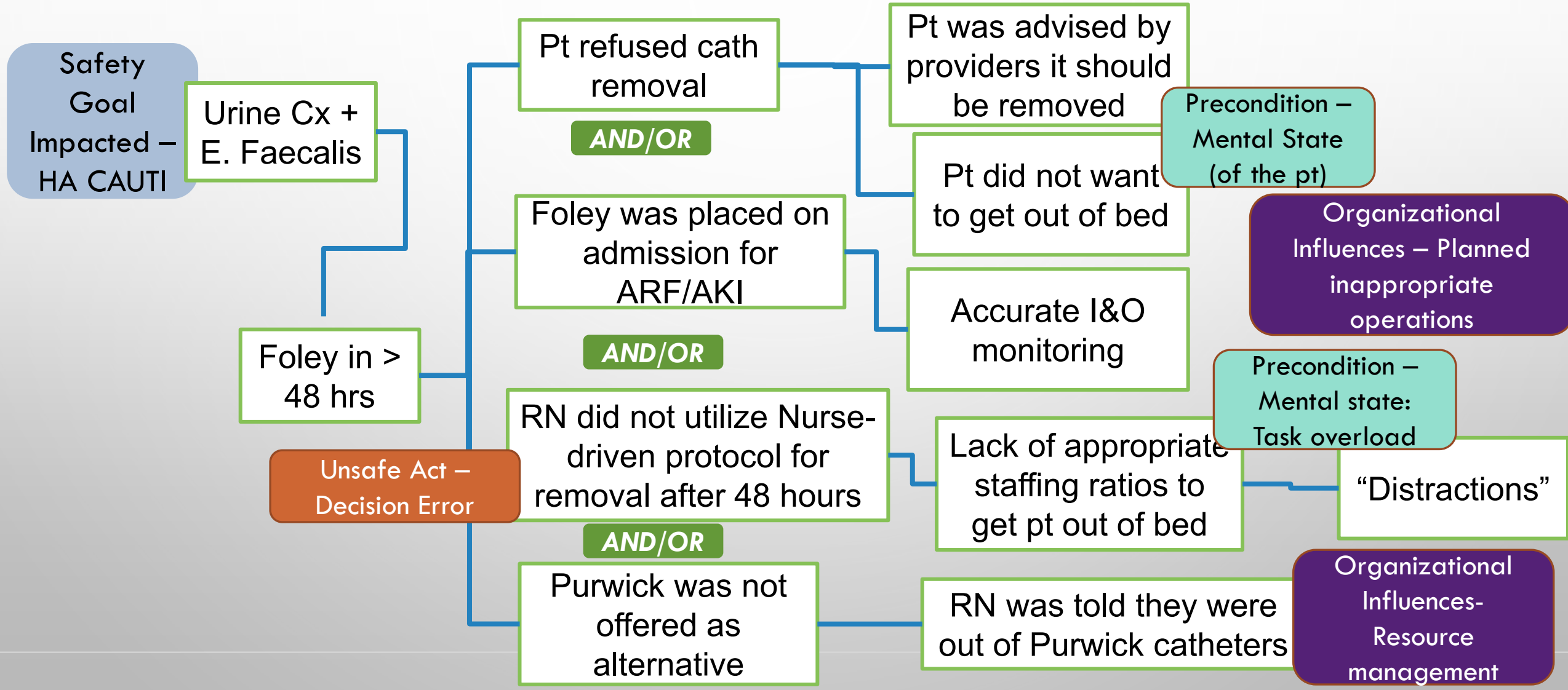

WHAT IS THE RCA^2 ACTION HIERARCHY

RCA²
Improving Root Cause Analyses and Actions to Prevent Harm

STRENGTH OF ACTIONS

Stronger Actions	Intermediate Actions	Weaker Actions
Architectural/ Physical Changes	Redundancies	Double Checks
Forcing Functions	Decrease in workload/ Increase in Staffing	Warning Labels
Simplifying the Process	Software/ technology enhancements	New policy/ procedure
Standardizing Equipment or Process	Simulation-based education w competency assessment on regular basis	Traditional training/education
Tangible Involvement/ Action by Leadership	Checklist/ Cognitive Aids	
	Eliminating look and sound-alikes	
	Enhanced communication methods	

ACTION PLANNING – RATED INTERVENTIONS

Contributing Human Factor	Intervention	Strength of Intervention	
Unsafe act – Skill-based error: Tech did not know proper procedure for urine cx	Ensure adequate training as part of orientation.		Weak – not likely to "stick" without further activities/ interventions
	No longer allow Techs to obtain urine cultures		**Strong – because removing the risk from the process.**
	Create a procedure checklist and affix to all sterile urine cup packages		**Intermediate – Cognitive aid/ checklist**

ACTION PLANNING – RATED INTERVENTIONS

Contributing Human Factor	Intervention	Strength of Intervention	
Precondition: Mental state/ Task Overload	Build "respite time" in addition to meal break time, in to each shift, with active involvement of leadership		**Strong – because of tangible involvement by leadership.**
	Trial Team Nursing assignments – 2 RNs and 1 Nurse Tech for 8 patients		**Intermediate – Decrease in workload/ incr in staffing**
	Implement new policy for 1:4 Nurse to Pt ratios		Weak – policy/ procedure

ACTION PLANNING – RATED INTERVENTIONS

Contributing Human Factor	Intervention	Strength of Intervention	
Supervisory Influence: Inadequate coaching/mentoring (of the Tech)	Develop central list of all procedures Tech's have been checked off for and locate for easy Chg RN access		**Intermediate – Enhanced communication**
	Reminders to RNs in huddles to double-check and ensure Techs have been checked off before assigning tasks.		Weak – not likely to "stick" without further activities/ interventions
	With involvement of leadership, launch and utilize Just Culture for accountability of RNs/Chg RNs for ensuring Tech's competency		**Strong – Tangible leadership involvement**

ACTION PLANNING – RATED INTERVENTIONS

Contributing Human Factor	Intervention	Strength of Intervention	
Organizational Influence: Resource mgmt – Purwick Catheters	Analyze Purwick product usage; identify supply chain gaps and alternative resourcing entities.		Weak – not likely to have impact without further interventions
	Anticipate high pt/ usage volumes to standardize par levels over course of the year.		**Strong – standardization of process**
	Internal immediate back-up resource plan when supplies hit critical threshold.		**Intermediate – Redundancy**

THANK YOU!

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