Teaching Patient Safety

Quality and Safety Educators Academy

May 7, 2015

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Jennifer Myers MD

Our Goals

By the end of this session, you will have:

1. A framework for thinking about medical errors
2. A new vocabulary to teach students and residents about patient safety
3. Examples of teaching tools and activities that can be used to teach patient safety skills to trainees.
4. Tips for dealing with medical errors that involve trainees

Our Goals

By the end of this session, you will have:

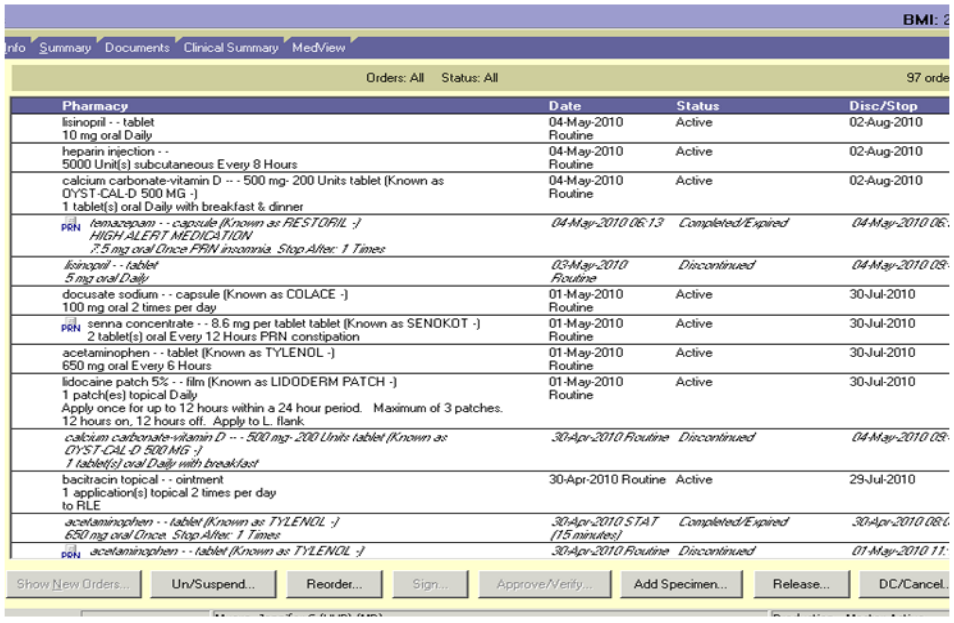
"Going to the balcony…"

-Lori Newman MSc.

3. Examples of teaching tools and activities that can be used to teach patient safety skills to trainees.

Case

- Phone call from the hospital QI department about a troublesome adverse event involving the residents
- Patient one week s/p knee replacement, admitted with a new pulmonary embolism.
- Admitting intern wrote orders in the Computer Physician Order Entry (CPOE) system.



BMI:

Info | Summary | Documents | Clinical Summary | MedView

Orders: All Status: All 97 orde

	Pharmacy	Date	Status	Disc/Stop
	lisinopril - - tablet 10 mg oral Daily	04-May-2010 Routine	Active	02-Aug-2010
	heparin injection - - 5000 Unit(s) subcutaneous Every 8 Hours	04-May-2010 Routine	Active	02-Aug-2010
	calcium carbonate-vitamin D -- - 500 mg- 200 Units tablet (Known as OYST-CAL-D 500 MG -) 1 tablet(s) oral Daily with breakfast & dinner	04-May-2010 Routine	Active	02-Aug-2010
PRN	*temazepam - - capsule (Known as RESTOFIL -)* *HIGH ALERT MEDICATION* *7.5 mg oral Once PRN insomnia Stop After: 1 Times*	*04-May-2010 06:13*	*Completed/Expired*	*04-May-2010 06:*
	lisinopril - - tablet *5 mg oral Daily*	*03-May-2010* *Routine*	*Discontinued*	*04-May-2010 08:*
	docusate sodium - - capsule (Known as COLACE -) 100 mg oral 2 times per day	01-May-2010 Routine	Active	30-Jul-2010
PRN	senna concentrate - - 8.6 mg per tablet tablet (Known as SENOKOT -) 2 tablet(s) oral Every 12 Hours PRN constipation	01-May-2010 Routine	Active	30-Jul-2010
	acetaminophen - - tablet (Known as TYLENOL -) 650 mg oral Every 6 Hours	01-May-2010 Routine	Active	30-Jul-2010
	lidocaine patch 5% - - film (Known as LIDODERM PATCH -) 1 patch(es) topical Daily Apply once for up to 12 hours within a 24 hour period. Maximum of 3 patches. 12 hours on, 12 hours off. Apply to L. flank	01-May-2010 Routine	Active	30-Jul-2010
	calcium carbonate-vitamin D -- - 500 mg- 200 Units tablet (Known as OYST-CAL-D 500 MG -) *1 tablet(s) oral Daily with breakfast*	*30-Apr-2010 Routine*	*Discontinued*	*04-May-2010 08:*
	bacitracin topical - - ointment 1 application(s) topical 2 times per day to RLE	30-Apr-2010 Routine	Active	29-Jul-2010
	acetaminophen - - tablet (Known as TYLENOL -) *650 mg oral Once Stop After: 1 Times*	*30-Apr-2010 STAT* *(15 minutes)*	*Completed/Expired*	*30-Apr-2010 08:*
PRN	*acetaminophen - - tablet (Known as TYLENOL -)*	*30-Apr-2010 Routine*	*Discontinued*	*01-May-2010 11:*

Show New Orders... | Un/Suspend... | Reorder... | Sign... | Approve/Verify... | Add Specimen... | Release... | DC/Cancel...

Case Continued

- Following day → Knee acutely swollen, drop in Hct, high PTT and orthopedist concerned about hemarthrosis
- On review, team recognized that the orders were for 2X the correct dose of heparin (load and gtt)
- Likely hemarthrosis due to heparin overdose

Patient diagnosed
with
knee hematoma

How could this have
happened?

Definitions

- Is there a difference??
  - Adverse Event
  - Near miss
  - Medical Error

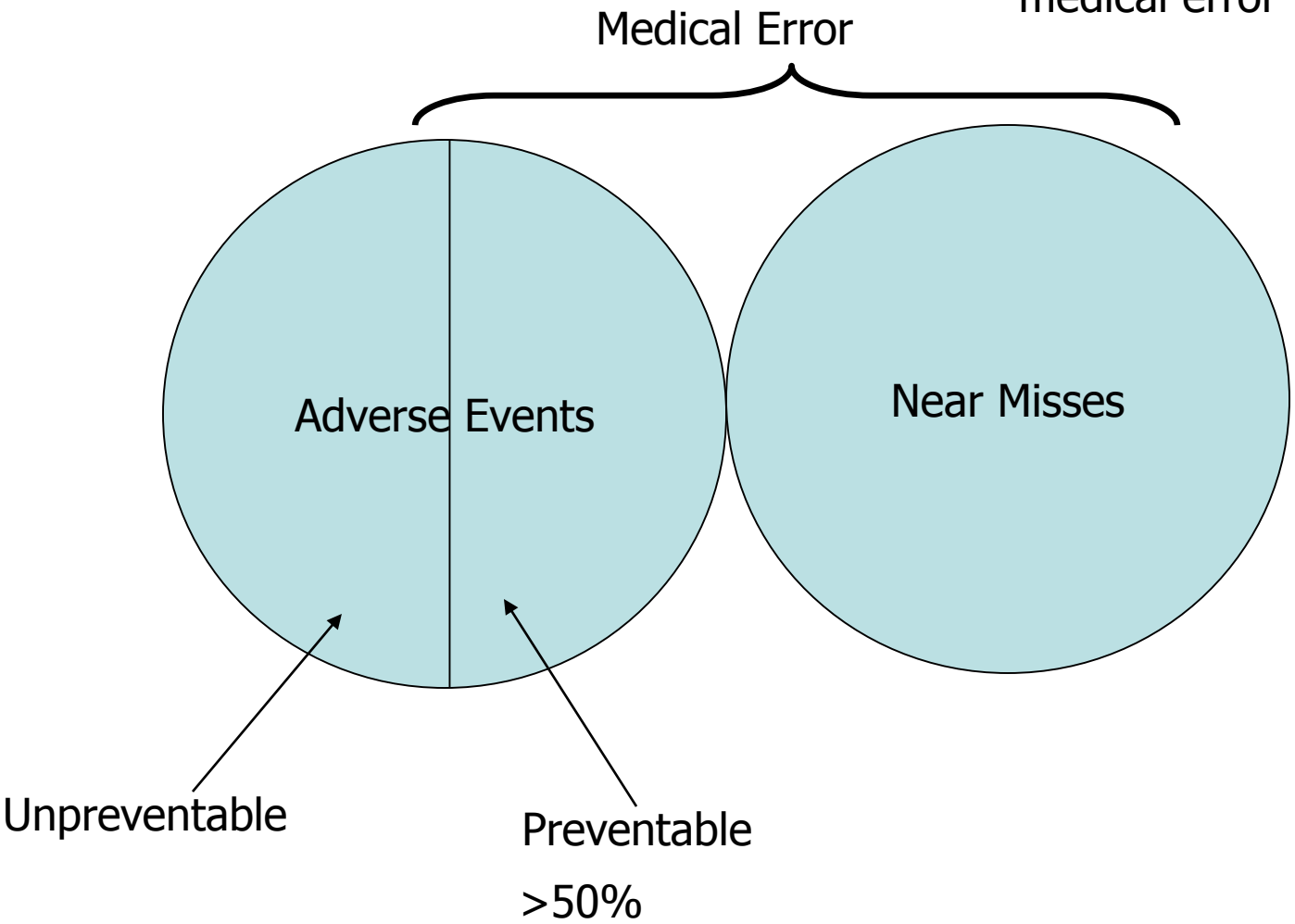
Adverse events

- Anytime a patient suffers a negative outcome from an interaction with the healthcare system
- Adverse events can both be preventable and unpreventable.
- Examples of preventable adverse events include
  - Medication errors
  - Diagnostic errors
  - Procedural errors

Near Miss

- An event or situation that did not produce patient injury, but only because of chance.
- Can be due to patient factor or can be “caught” by system
- Close call or near “hit”

44-98,000 people could die annually as a result of medical error



Harvard medical practice study, 1991

Utah and Colorado , 1992

Swiss Cheese Model of Error

Reason, J. BMJ 2000;320:768-770

Copyright ©2000 BMJ Publishing Group Ltd.

Definitions

- Adverse Event Review
- Root Cause Analysis
- Contributing Factors Analysis
  - 3 Questions
    - What happened?
    - Why did it happen?
    - How can we prevent it from happening again?

Rationale – why do this?

- The reporting and analysis of adverse events are crucial to redesigning safer systems.
- Easy to miss the point
  - Blame the individual
  - Draw the wrong conclusion
- Systematic approach
  - Takes you from the sharp end (the individuals) and takes you up to the blunt end (the organizational processes)

Event Analysis

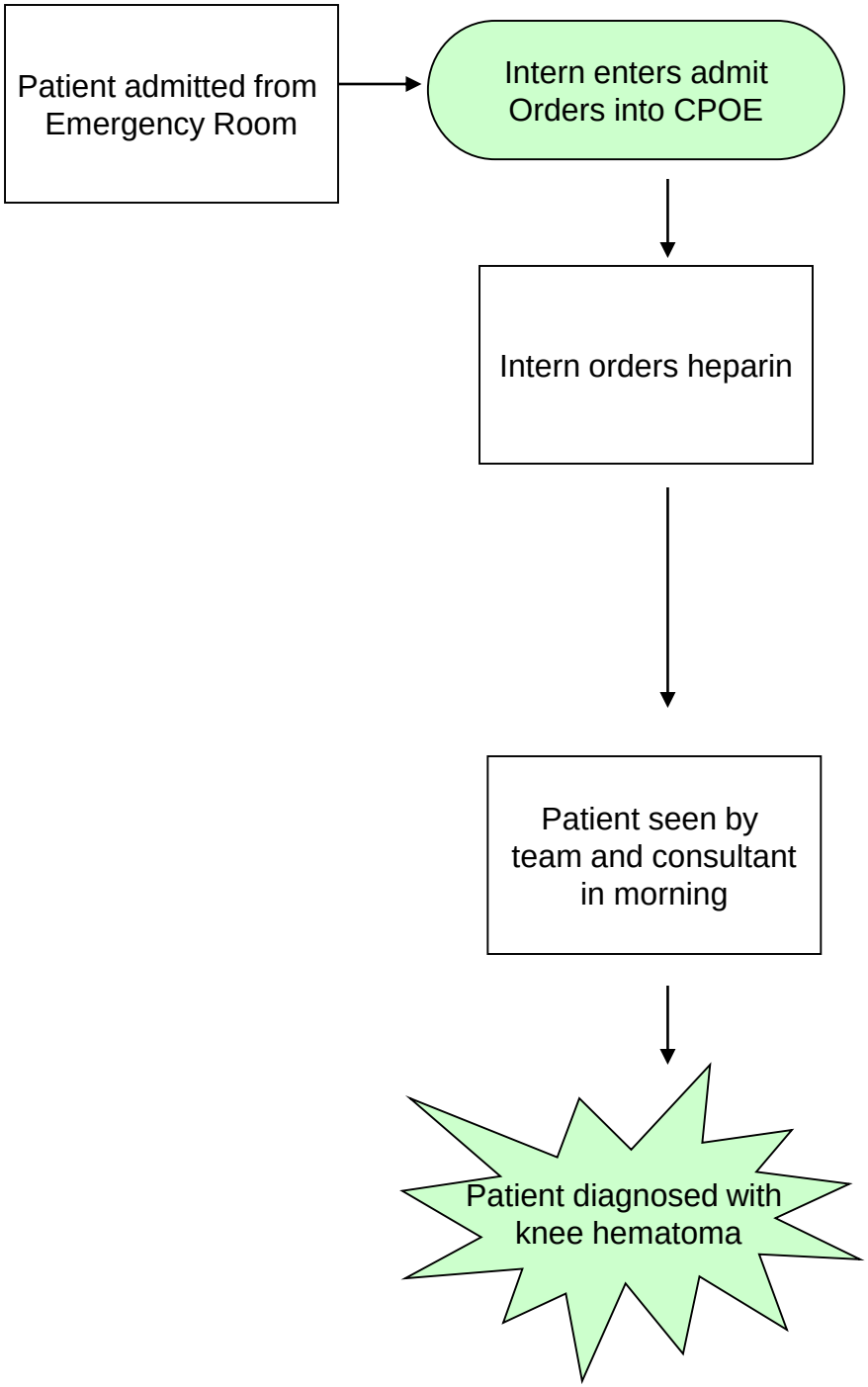
1. Decision to Review
2. Select People and Gather Data
3. Determine Incident Chronology
4. Identify Care Delivery Problems
5. Identify Contributory Factors
6. Making Recommendations & Developing an Action Plan

Back to the Case

1. Decision to Review
   - Patient safety officer
2. Select People and Gather Data
   - Team vs. interviews
   - Charts, orders, patient data, process data

3. Determine Incident Chronology

- Flowchart
- Lists of events
- Time points



What do we know so far?

Interview with intern:

“I opened the POE screen and filled out the computer protocol using her weight 220 lbs and my expected goal PTT of 60-90. I handed the printed sheet to the nurse to hang the drip and left to go admit the two other patients who were waiting for me. I was so busy. These long shifts can be crazy.”

Answer

SMITH, SALLY, 1327892 DOB 3/26/58 LOCATION: CC6

SERVICE: MED

For weight based algorithm fill in the information and click OK to enter order.

Order Type: ○ Renewal

◉ New Order

Diagnosis: Pulmonary Embolism

Weight: 200 kgs

kgs

lbs

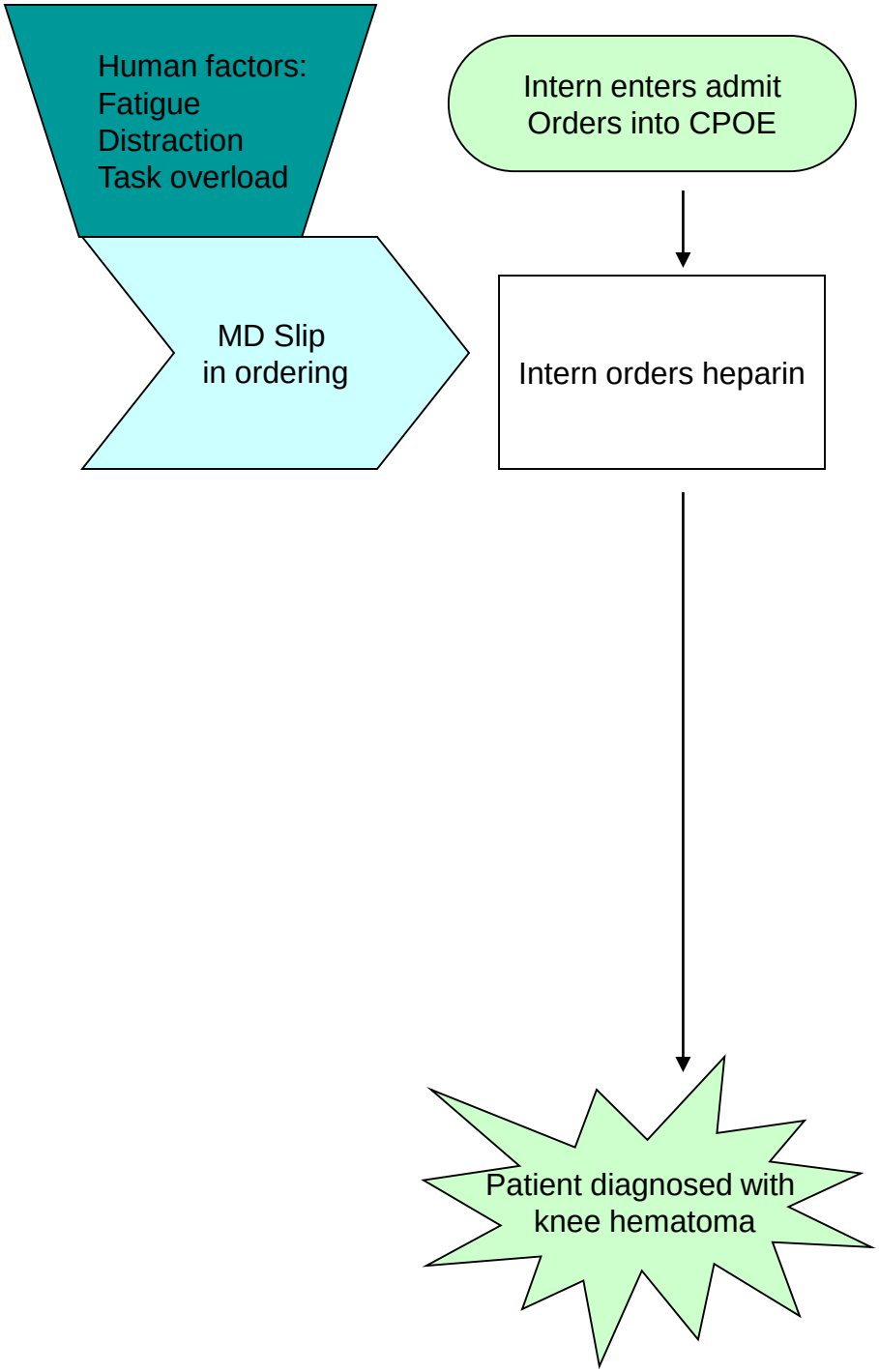
Entered kgs instead of lbs

OK Back Cancel

Follow-up interview with intern:

“Why did I click on kgs instead of lbs? Well I had just finished an ICU rotation and was pretty tired that day. I was also interrupted while typing the order when my pager went off for the other two admissions. Looking back, I guess I was distracted.

“Also now that I think back, when you look at the computer screen to order the drug and enter the weight, the way you pick lbs or kgs is in a drop down and it is easy to click on one when you mean the other.



Other frontline providers?

Interview with pharmacist

“I was new to the hospital when this happened. When I got the order I noted the bolus was too high and that the rate was well beyond what I have usually done. I tried to reach the resident but couldn’t reach him – never called back. I hadn’t been told how to get a hold of the floor staff. So I left a sticker on top of the bag for the RN to call the doctor.

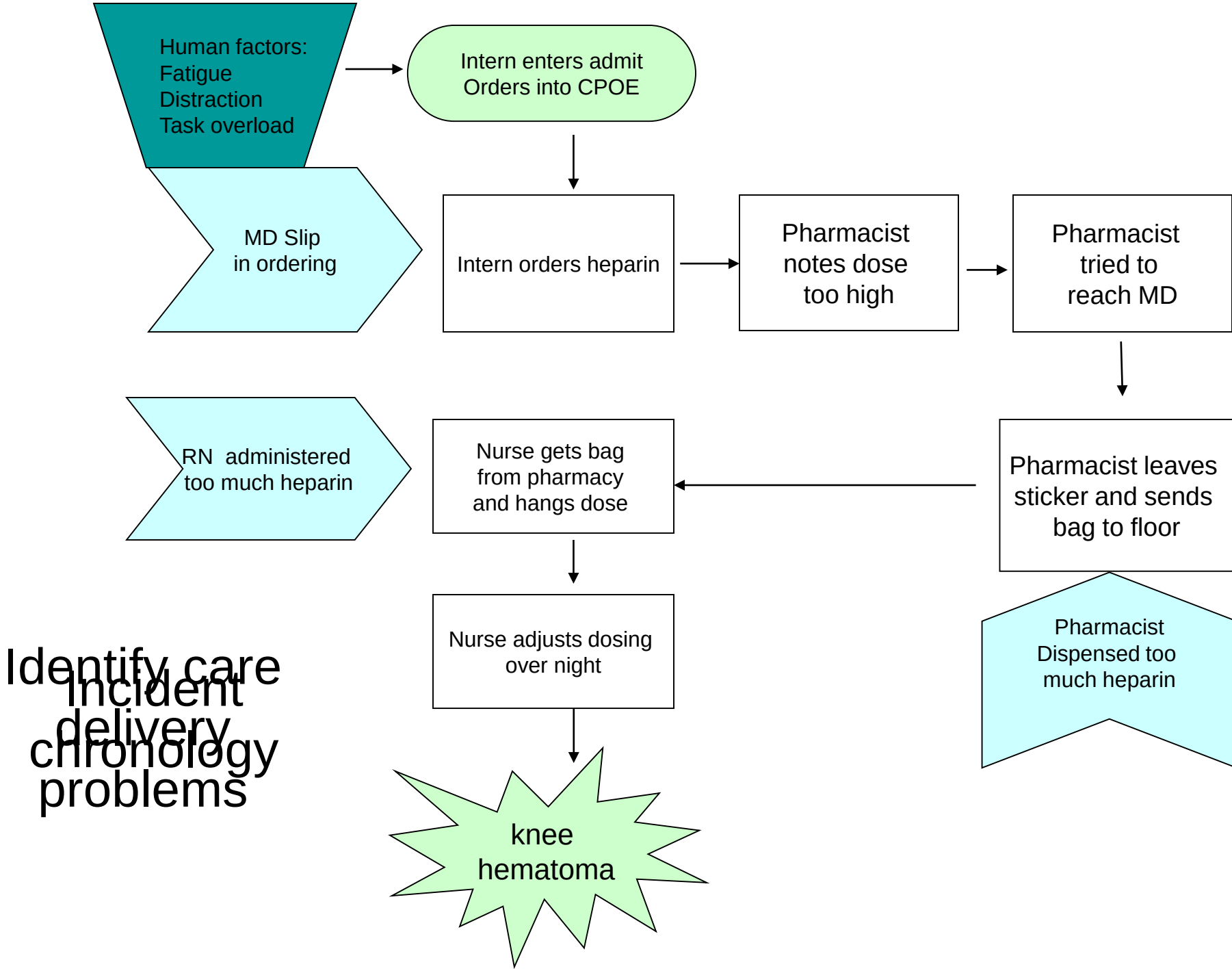
“I heard the next day she never saw the sticker and ran the heparin at the higher dose.”

Interview with RN

“The heparin bag was brought over by transport. I calculated the rate and administered the drip per the protocol.

Overnight the PTT’s were really high. I adjusted the dose down twice I was surprised to find out later it was too high but I wouldn’t have known – again, we don’t use heparin here that often.

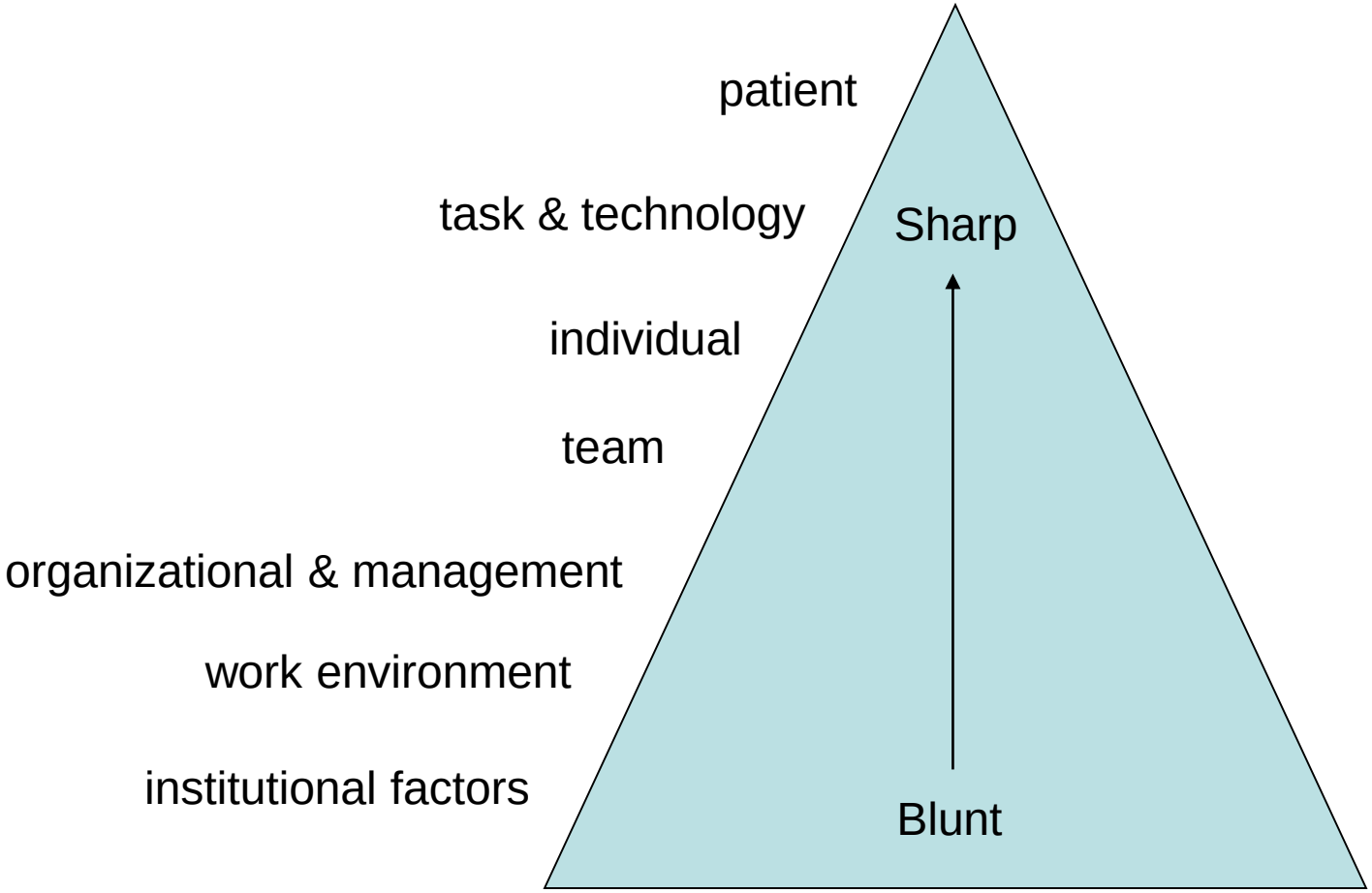
It has been a while since I have given it or had training as well.”

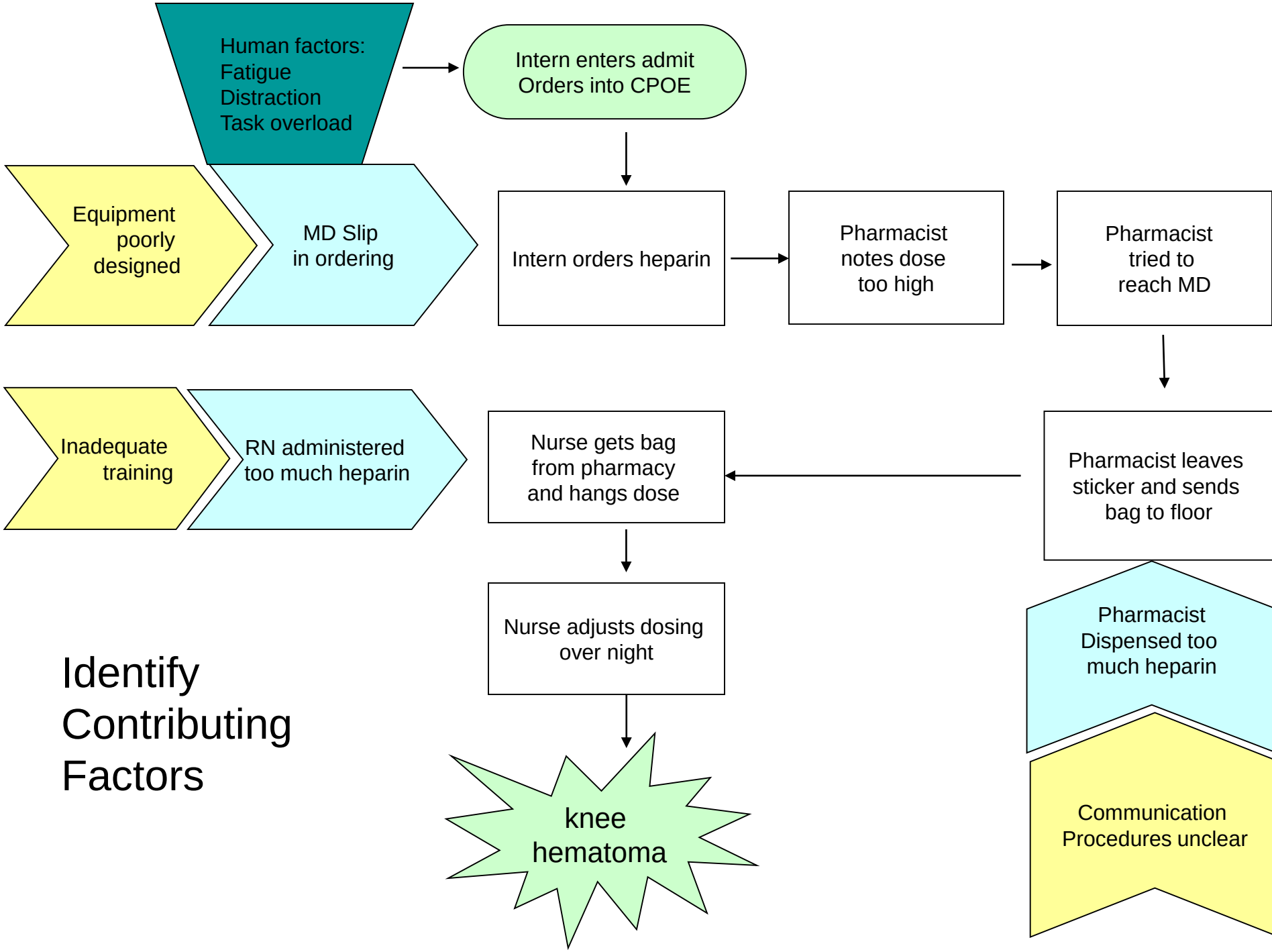

Human factors:
Fatigue
Distraction
Task overload
Intern enters admit Orders into CPOE
MD Slip in ordering
Intern orders heparin
Pharmacist notes dose too high
Pharmacist tried to reach MD
RN administered too much heparin
Nurse gets bag from pharmacy and hangs dose
Pharmacist leaves sticker and sends bag to floor
Nurse adjusts dosing over night
Pharmacist Dispensed too much heparin
knee hematoma
Identify care delivery problems
Incident chronology

System (latent) failures

- Arise from decisions that are made when systems are designed or evolve.
- Examples:
  - information or policies
  - environment or equipment design
  - communication failures
  - human resources including staffing and training
- Can lie dormant for years and only become evident when local circumstance conspire with an active failure of an individual and an accident occurs.
- Five why’s

4. Identify Contributory Factors



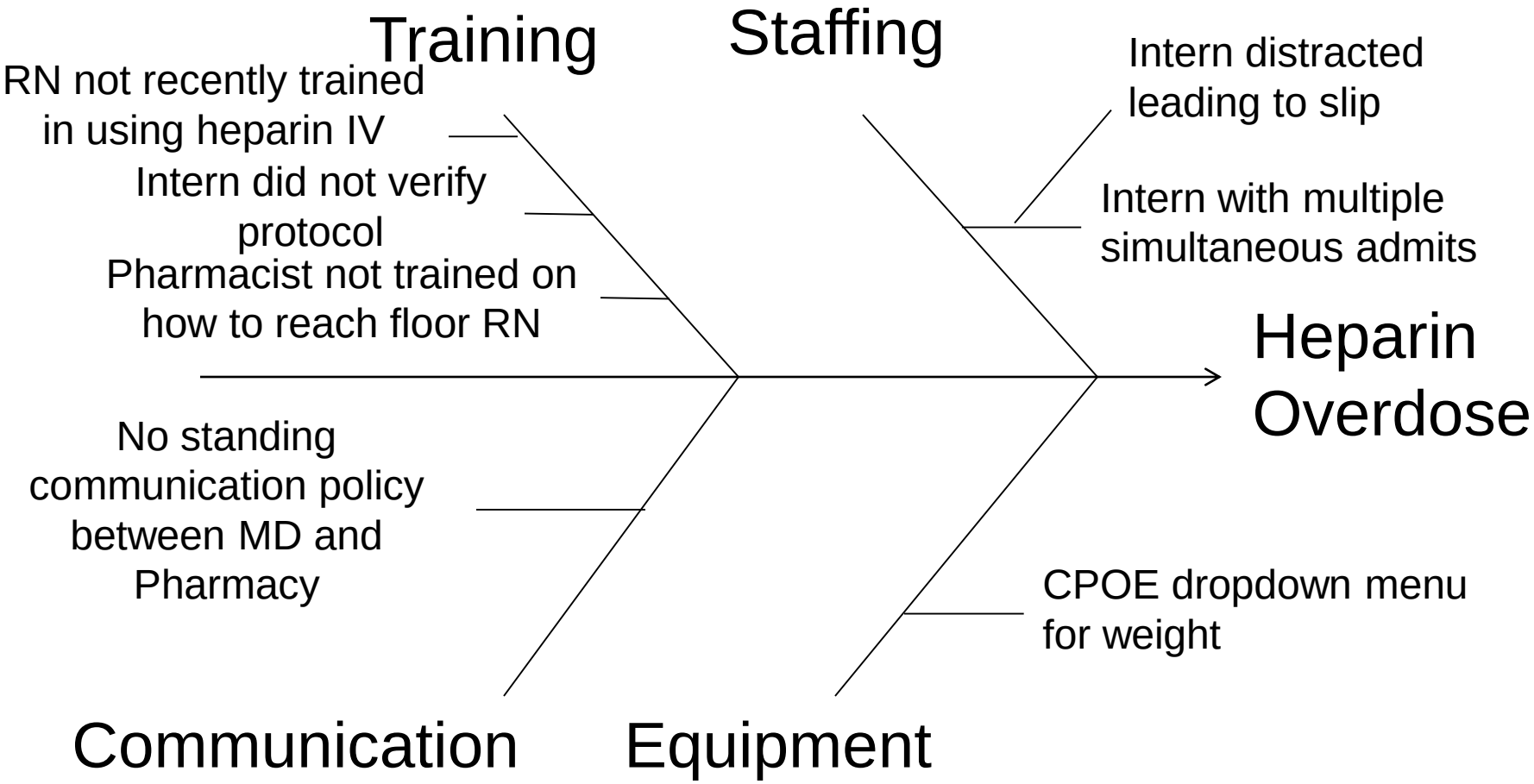


Identify Contributing Factors

Contributing Factor Analysis

Level	Characteristics from Vincent Model (1)	Analysis of heparin overdose
Patient	Complexity and seriousness of condition Language and communication Personality and social factors	Post op patient -> increased risk of bleed
Task or technology	Availability and use of protocols Availability and accuracy of test results	Intern did not review protocol before signing
Individual staff member	Knowledge and skills; Motivation and attitude Physical and mental health	Nurse not familiar with heparin
Team	Verbal and written communication Supervision and willingness to seek help; Team leadership	Pharmacist to MD/RN communication unclear Pharmacist not supervised
Work environment	Staffing levels and mix of skills Patterns in workload and shift Design, availability, and maintenance of equipment Administrative and managerial support	CPOE dropdown too easy to pick wrong dose Intern workload
Organization management	Financial resources and constraints Policy standards and goals Safety culture and priorities	Nurse did not think to ask supervisor for help
Institutional	Regulatory context; Medicolegal environment	

Cause-Effect Diagram*



* Also known as fishbone diagram

5. Making Recommendations & Developing an Action Plan

What do we need to think about here?

-Resources
-Feasibility
-Timeliness
-Effectiveness

Ranking the Effectiveness of Error-Reduction Strategies

Most Effective (Strong)

- Forcing functions and constraints
- Automation and computerization
- Standardization and protocols
- Checklists and double-check systems
- Rules and policies
- Education and information
- Exhortation: “Be more careful. Be vigilant.”

Least Effective (Weak)

Gosbee JW, Gosbee LL, eds. Human Factors Engineering to Improve Patient Safety. Oakbrook IL: Joint Commission Resources 2005

How do you prevent customers from leaving their ATM cards behind?

Strong Actions: Swipe card only
Intermediate Actions: Beeping
Weak Actions: Signs

Is Your Action Plan Strong, Weak, or Intermediate?

Action Plan	Weak	Intermediate	Strong
1. Write a new hospital policy about how to perform verbal handoffs at end of shift	X		
2. Redesign the med room to keep easily confused meds apart			X
3. Train staff in IV pump use	X		
4. Replace all defibrillators in the hospital with a single model			X
5. Add a checklist for a surgical procedure		X	

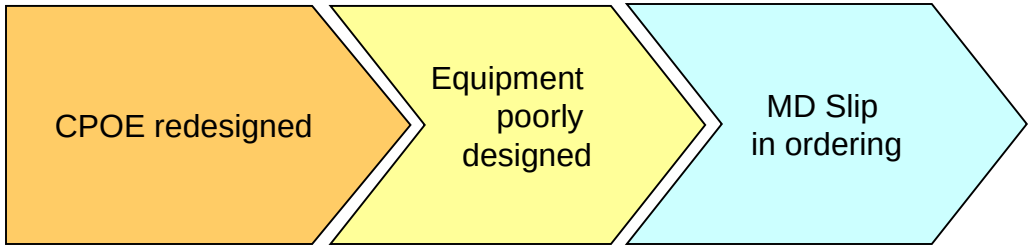
6. Making Recommendations & Developing an Action Plan

What system fix(es) might we propose?

Table Top Exercise
Debrief

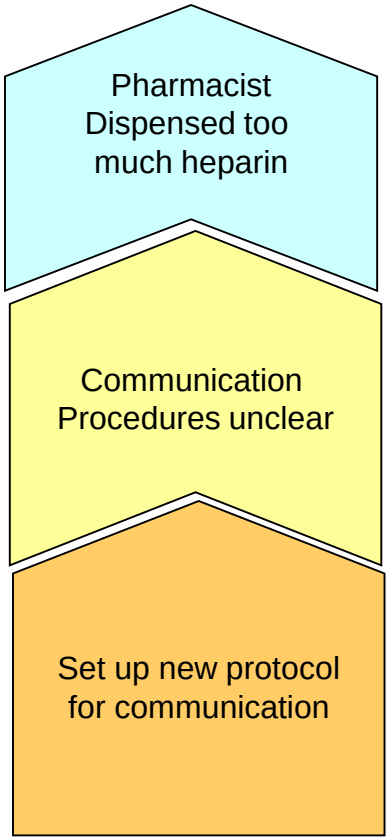
Interventions

What system fix(es) were proposed?

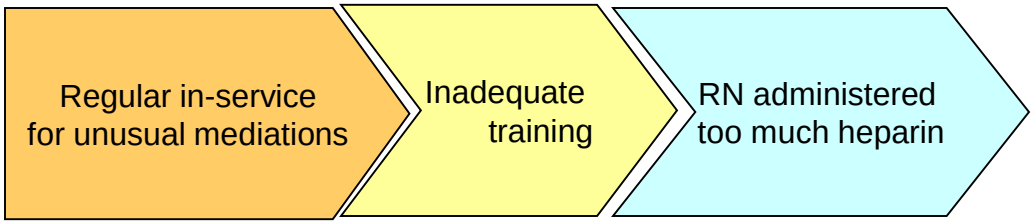


What about the other system failures?

2) Communication procedure unclear (communication failure)



3) Inadequate training/familiarity for heparin



The Balcony

Flipped
Classroom
CFA
Mapping
Vocabulary

Intern
Curriculum

Stoneman
Resident
Elective

Error Review
Mapping
CFA

Cases
Vocab
CFA
Fishbone

Weekly M&M

Quality and Outcomes Conf.

Solutions

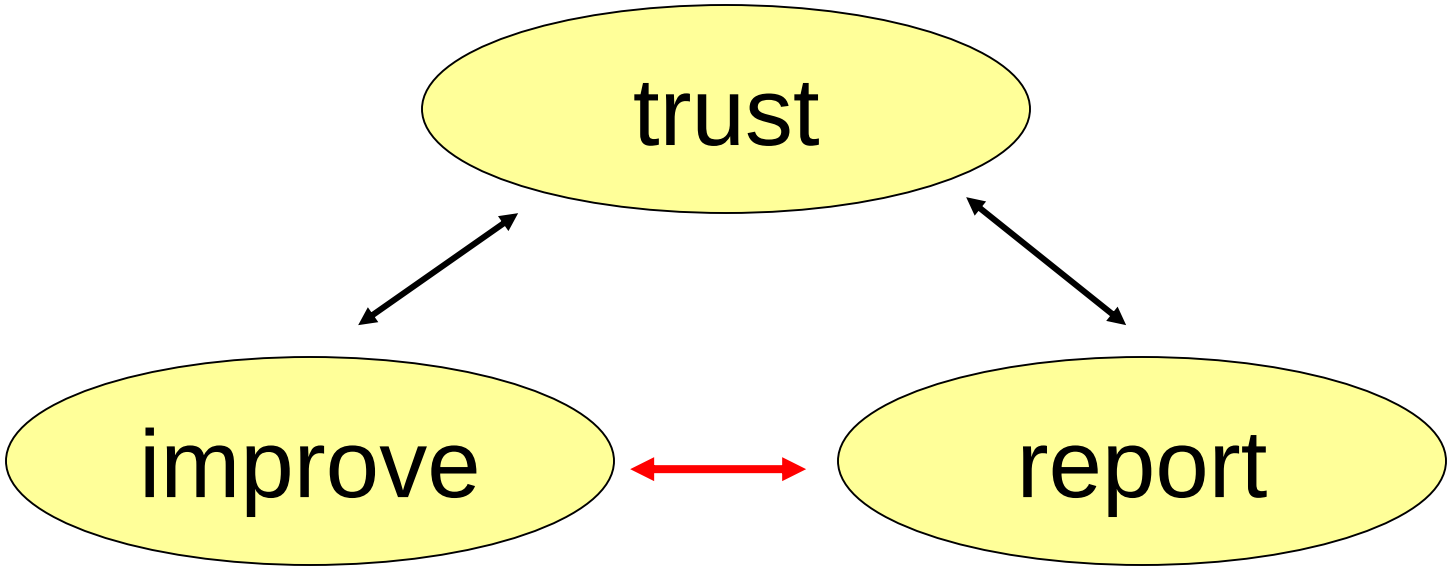
Classroom -> Clinical Learning Environment

Video

What Did You Learn About the Culture at that Hospital?

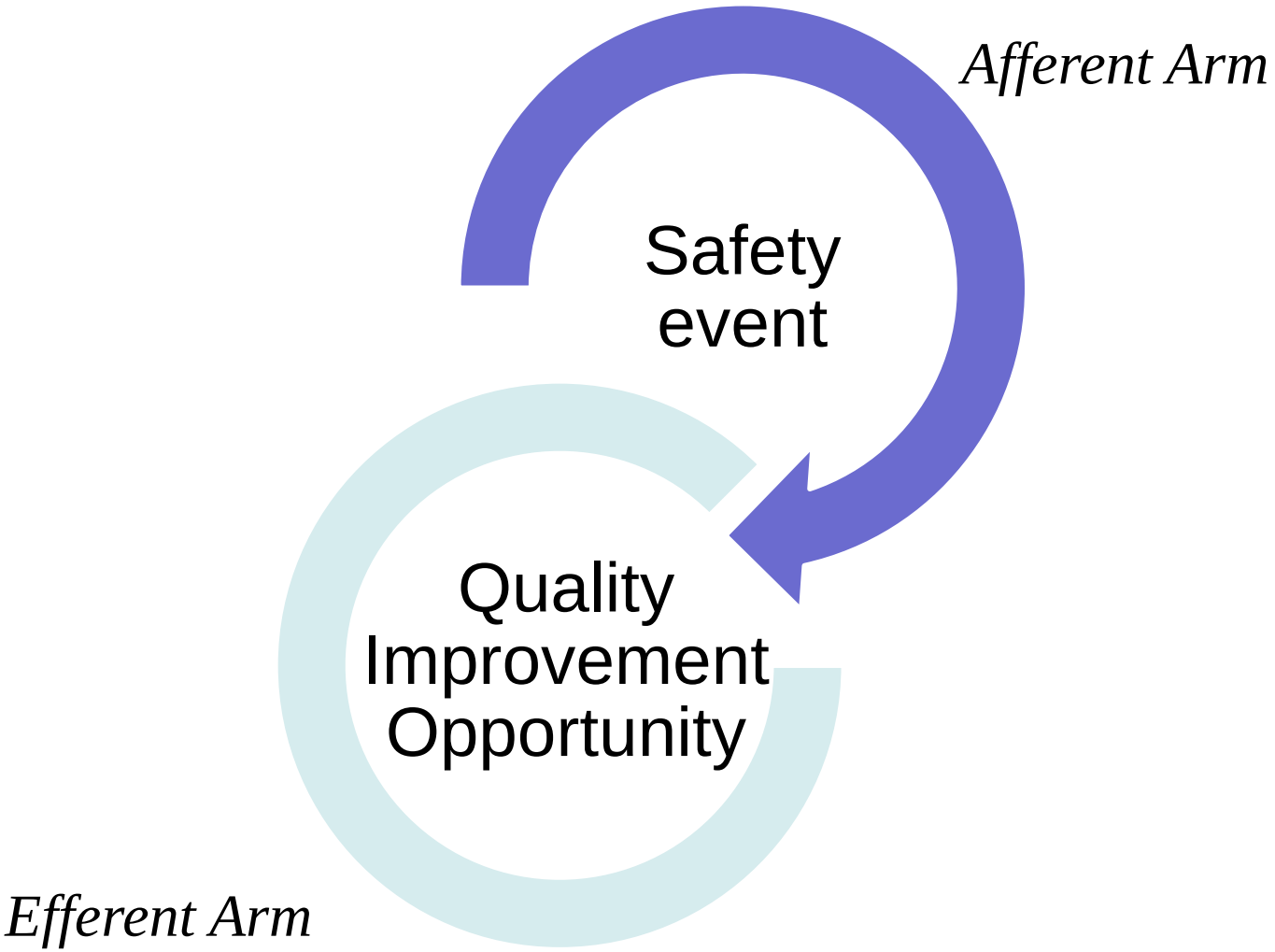
Let’s Watch Again

3 Imperatives of a Safety Culture.

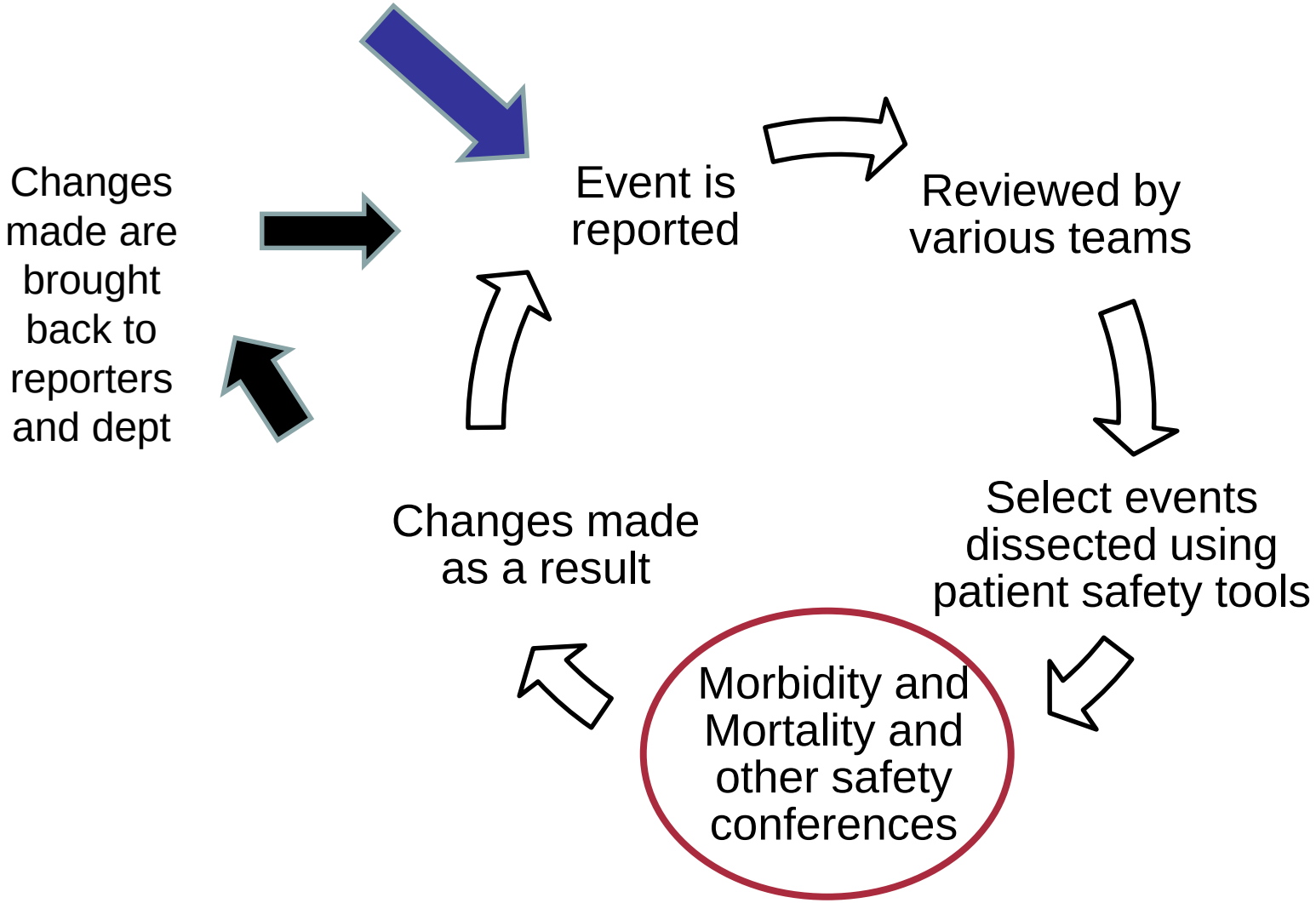


James Reason

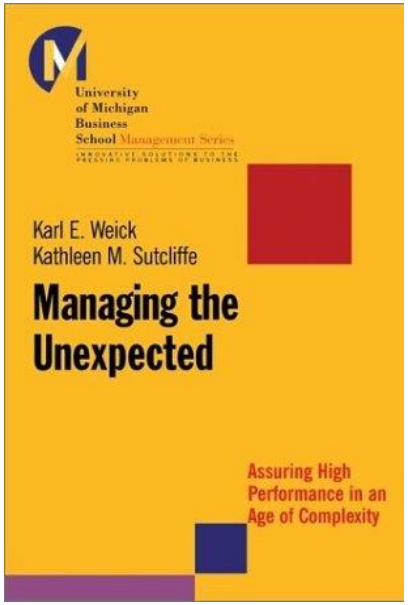
Safety & Quality are Connected



Circle of Learning from Medical Errors

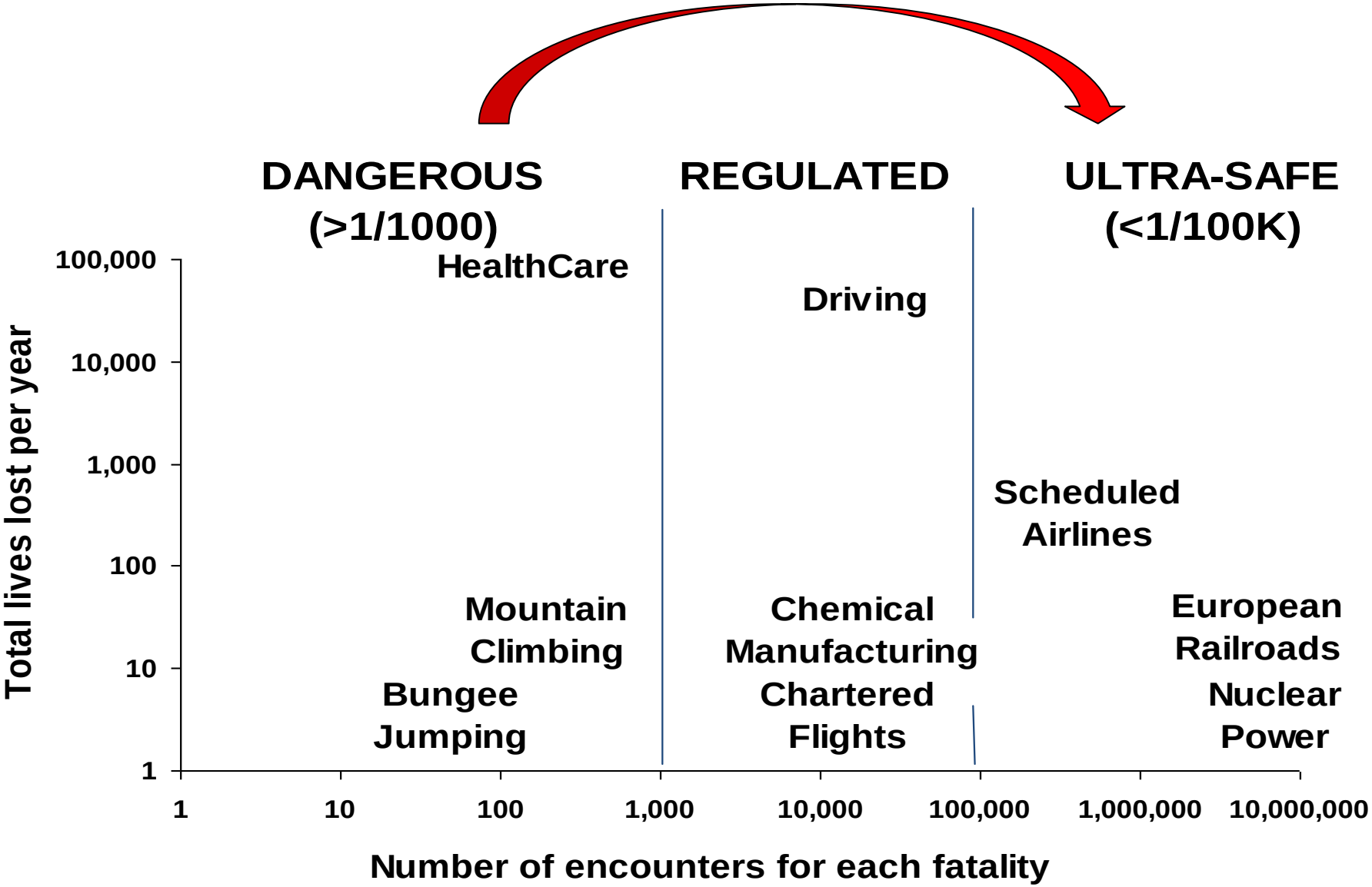


High Reliability Organizations (HROs) "operate under very trying conditions all the time *and yet manage* to have fewer than their fair share of accidents."



Managing the Unexpected
By Karl E Weick & Kathleen M Sutcliffe

How Do High Risk Industries Become High Reliability Organizations?



Is there a culture of patient safety in your Institution? Department? Training Program?

If not, why not?

5 Whys

- The simple idea is to keep asking "Why" (usually five times) to ensure that the root cause(s) to the effects are fully understood.

- The reasoning is that the result of each time the Why is asked gives a different answer, in essence peeling back the onion as follows:
  - First Why—Symptom
  - Second Why—Excuse
  - Third Why—Blame
  - Fourth Why—Cause
  - Fifth Why—Root Cause

Thursday May 7, 2015
Quality & Safety Educators Academy
Teaching Patient Safety – Table Top Activity #2

Instructions: Identify the top 2 reasons that you believe your residents are not engaged in patient safety and/or patient safety reporting. For each of reason, complete a "Five Whys Worksheet".

Five Whys Worksheet #1

List the Problem:_____

Why is it Happening?

Why #1_____ Why Is That?

Why #2 _____ Why Is That?

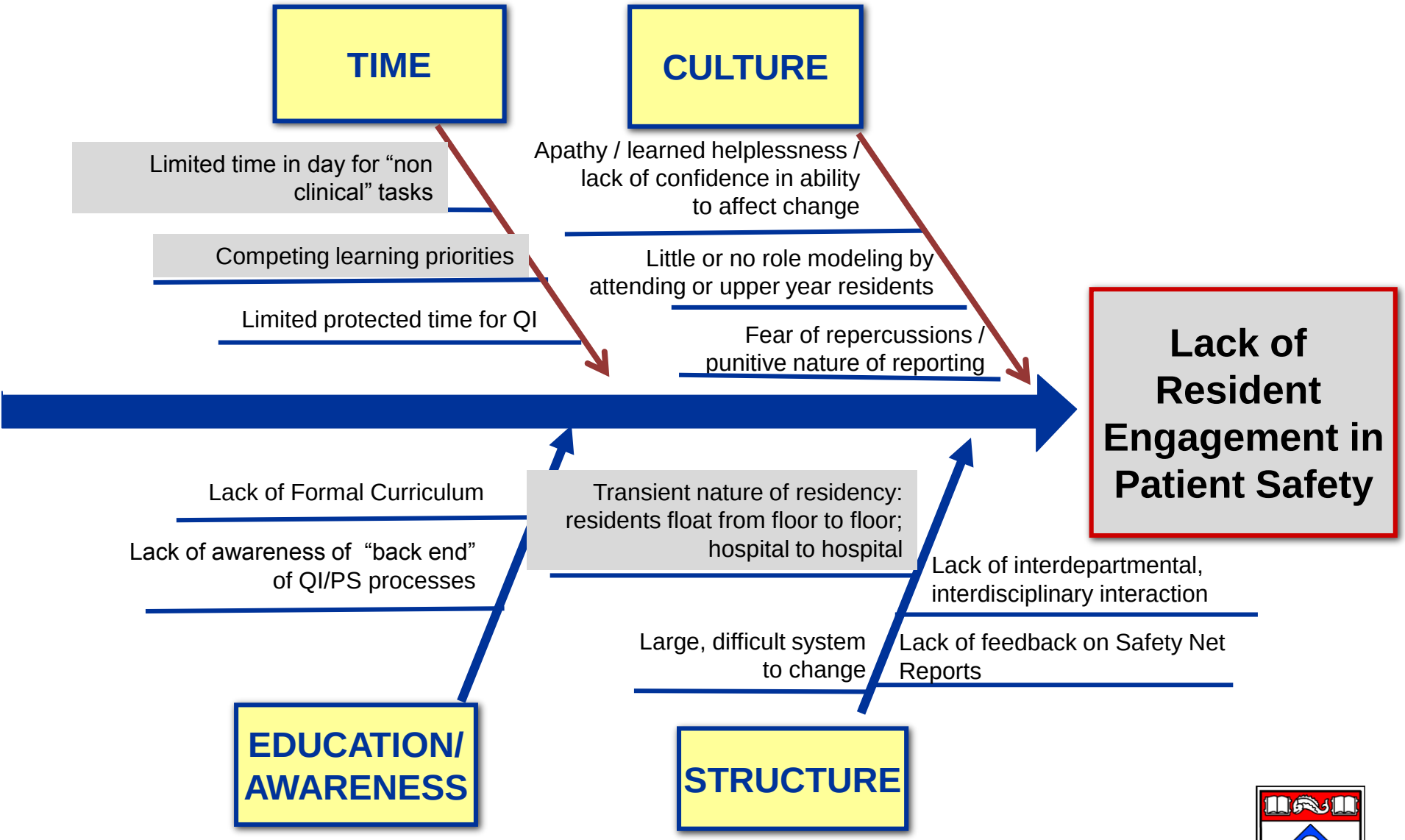
Why #3_____ Why Is That?

Why #4_____ Why Is That?

Why #5

What Do The Residents Think ?

Penn Medicine



Created by Penn Healthcare Leadership in Quality Track Residents (n=24); August 2013

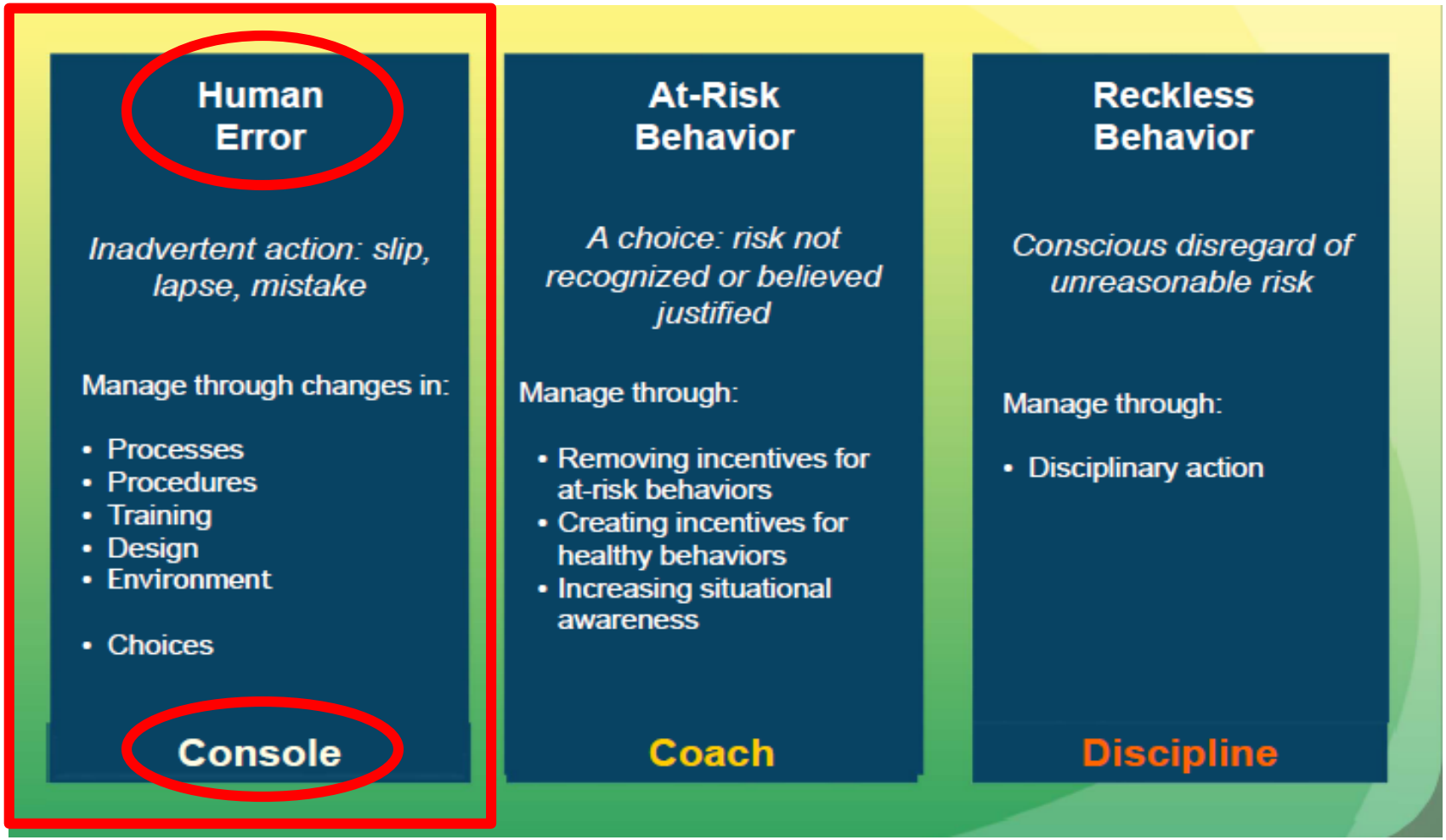
When you hear about a system error, near miss, or a process prone to error…

1) Acknowledge and appreciate the fact that your intern/resident brought it to your attention
2) Together, decide on next steps (out loud)
   - Submit an event report
   - Bring to attention of unit director or chief resident/program director
3) Probe: Any safety behaviors to use next time? What safety prevention ideas do they have?

Hindsight Bias

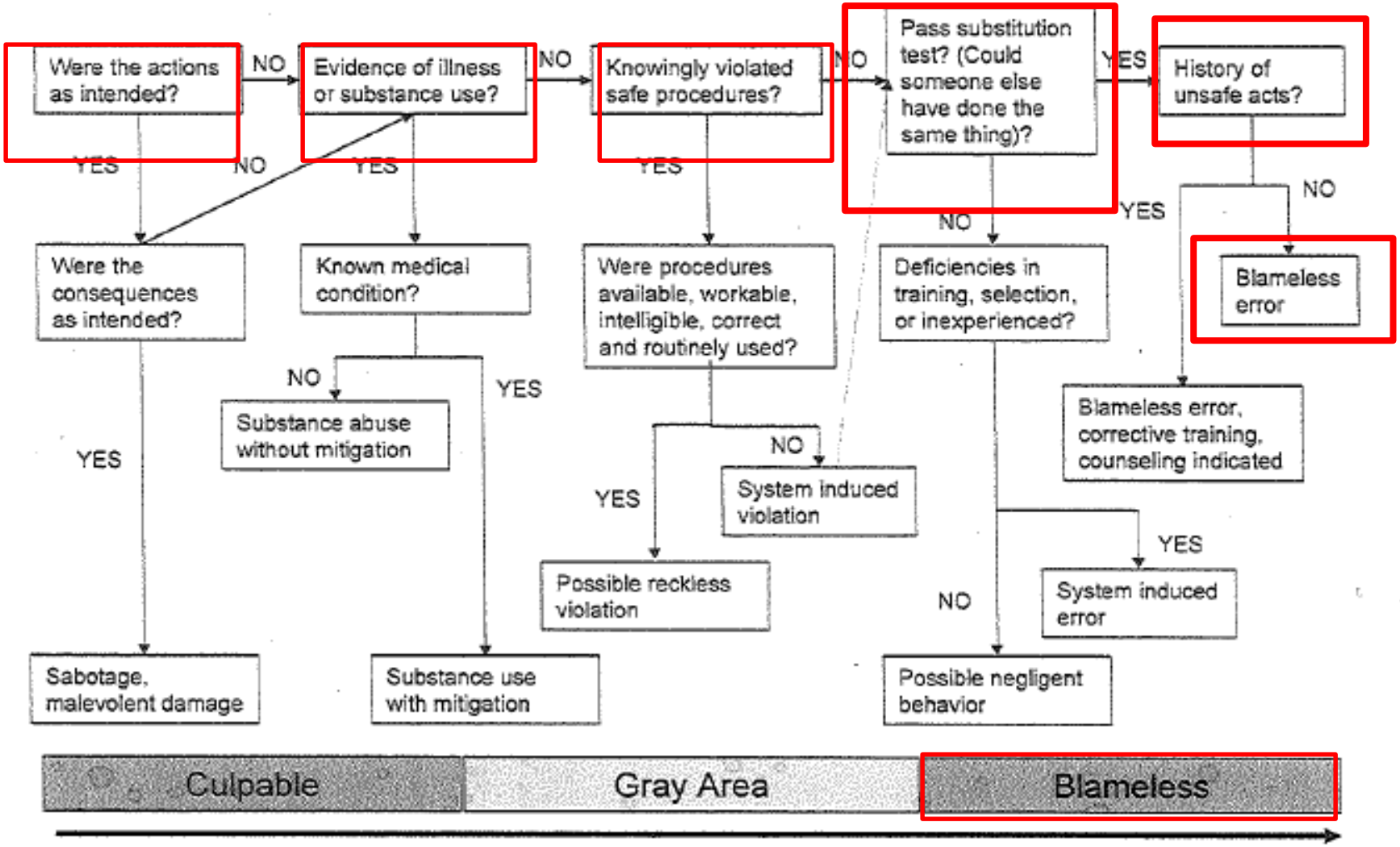
The tendency for people with knowledge of the actual outcome of any event to believe falsely that they would have predicted the outcome.

Just Culture Model



David Marx. Just Culture

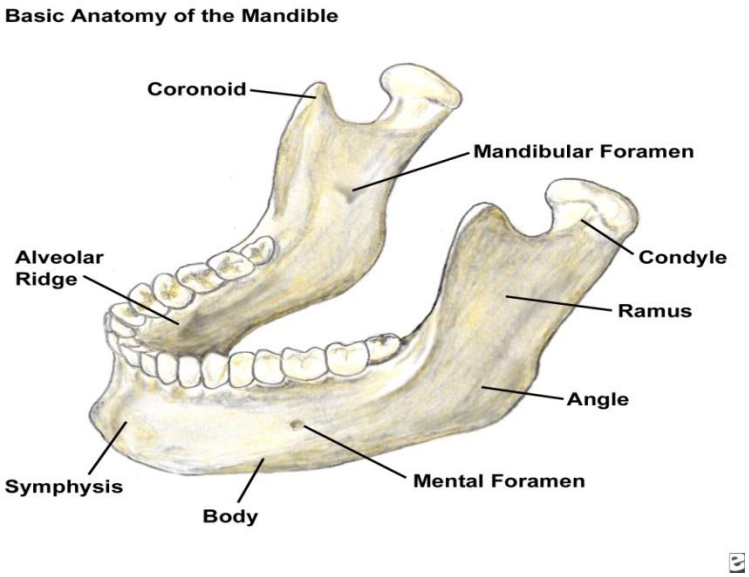
UNSAFE ACTS ALGORITHM

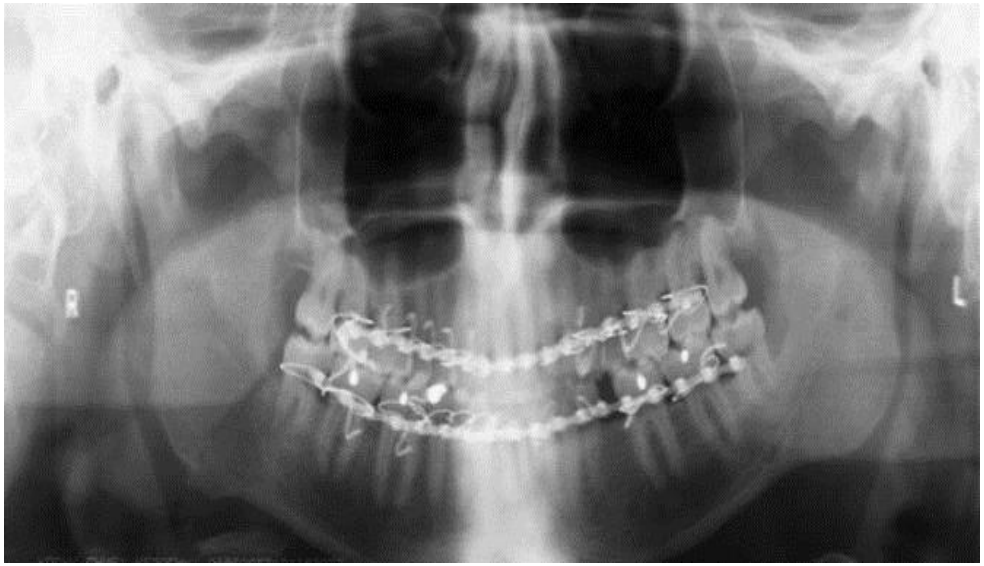


Adapted from James Reason. (1997). Managing the Risks of Organizational Accidents.

A large majority of medical errors meet the definition of “blameless error”

Case


Basic Anatomy of the Mandible
Coronoid
Mandibular Foramen
Condyle
Alveolar Ridge
Ramus
Angle
Symphysis
Mental Foramen
Body


R
L

NDC 0071-2214-20
8 fl oz (237 mL)
Rx only
Dilantin-125®
(Phenytoin
Oral Suspension, USP)
125 mg per 5 mL potency
IMPORTANT–SHAKE WELL
BEFORE EACH USE
NOT FOR PARENTERAL USE
Pfizer
Parke-Davis

What caused this error?

a) Poor systems
b) Lack of knowledge
c) Poor judgment
d) “Bad intern” gene

Categories of Error

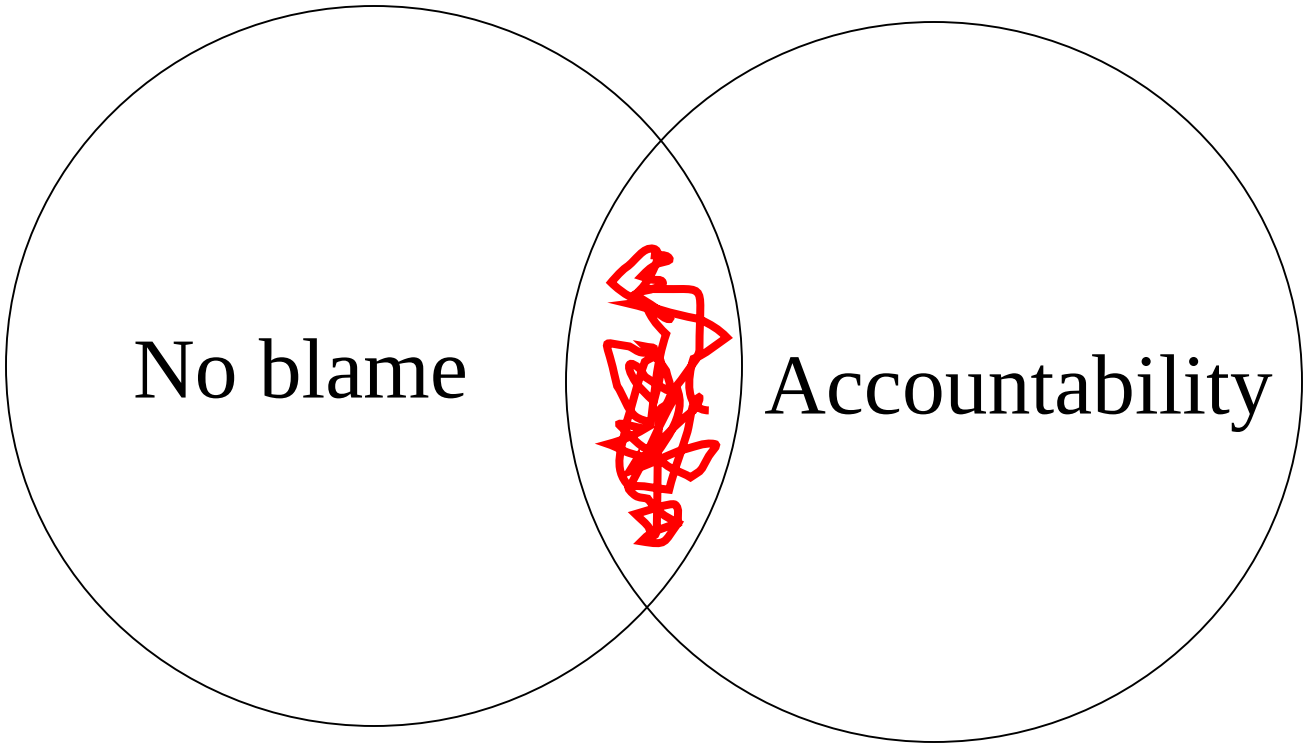
<u>System Related</u>

- Design
- Environment
- Policies/Procedures
- Workload
- Supervision
- Communication

<u>Individual</u>

1) Technical Error
2) Knowledge Error
3) Clinical Reasoning Error (aka cognitive error)
4) Poor Judgment
5) Lack of Accountability or Responsibility

Difficult Conversations



We are not trying to reduce individual accountability.
Instead, we are trying to create a safety net underneath individuals who work in a high-risk job.

Just Culture Model

David Marx. Just Culture

Do You Drive Over the Speed Limit on the Highway?

At Risk Behavior:
Exceeding the Speed Limit by 15.

Action: Coach

Reckless Behavior:
Driving intoxicated

Action: Disciplinary Action

But What About the Resident…

The Second Victim

“Virtually every practitioner knows the sickening feeling of making a bad mistake. You feel singled out and exposed — seized by the instinct to see if anyone has noticed. You agonize about what to do, whether to tell anyone, what to say. Later, the event replays itself over and over in your mind. You question your competence but fear being discovered. You know you should confess, but dread the prospect of potential punishment and of the patient's anger.”

Wu, JGIM, 2000

Mistakes That We Have Made

- Keeping a resident “out” of the error/event conversation
- Using email as the primary communication vehicle related to events that involve residents
- Requiring a resident to participate in a root cause analysis or case review
- Not understanding how action plans for safety events get assigned and followed up on at your institution
- Not understanding the difference between a safety conference for education and a safety meeting for error analysis and action planning
- Trying to fix too much, too quickly (think small wins)

Top 5 “Minimum” Requirements for building a safety culture in your training program

1. Basic curriculum in patient safety
2. Training in safety event reporting – the what, why, how, and what happens next
3. Forum to discuss safety events and the improvements that have resulted or are being planned
4. Shared understanding among faculty and chief residents about the second victim phenomenon (care for the care provider or similar program)
5. Leadership and faculty serve as role models and do not tolerate faculty behavior that supports blame

Questions