Root Cause Analysis in Healthcare

A Case Study

ROOT CAUSE ANALYSIS

3 Basic Components of Root Cause Analysis

1. INVESTIGATION

- First Seek to Understand by Determining What Happened

2. ANALYZE

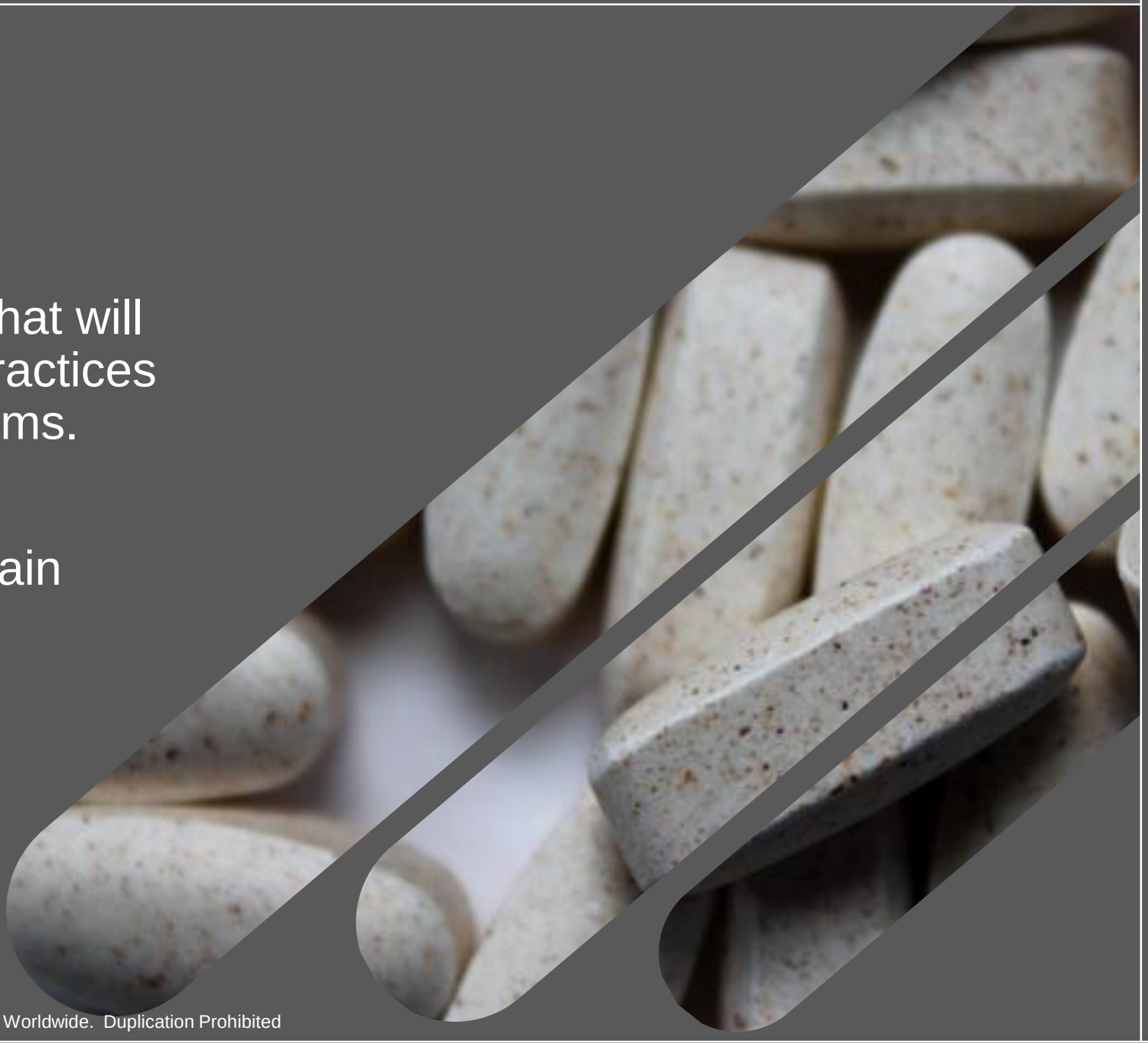
- Identify the mistakes, errors, and failures that directly led to the incident or failed to mitigate the consequences (Causal Factors).
- Effective root cause analysis for Causal Factor to find fixable root causes.
- Definition of a Root Cause :
  The absence of a best practice or knowledge that would have prevented the problem or significantly reduced its likelihood/consequences.

3. FIX

- Develop Corrective Actions that will introduce the missing best practices or knowledge into your systems.

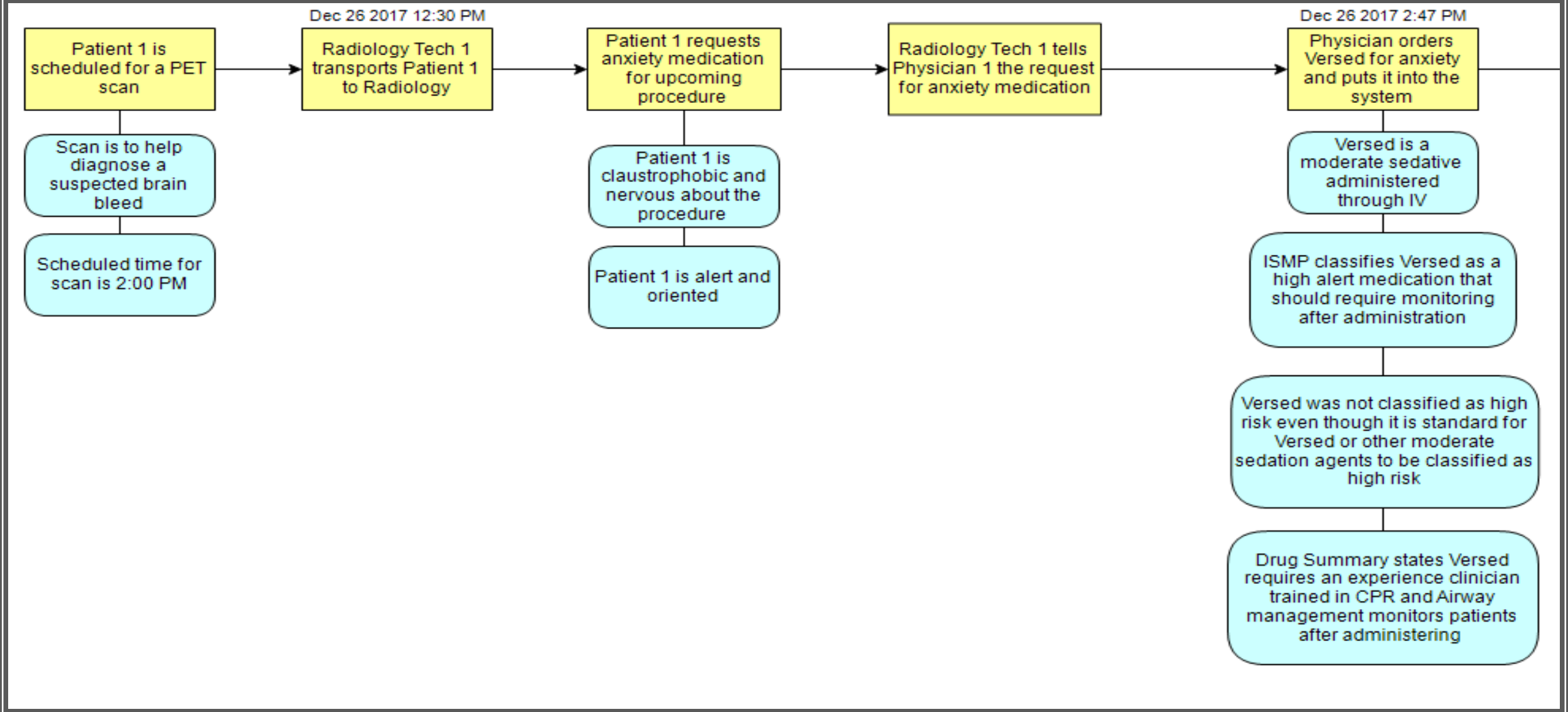
  Present to management to gain approvals necessary

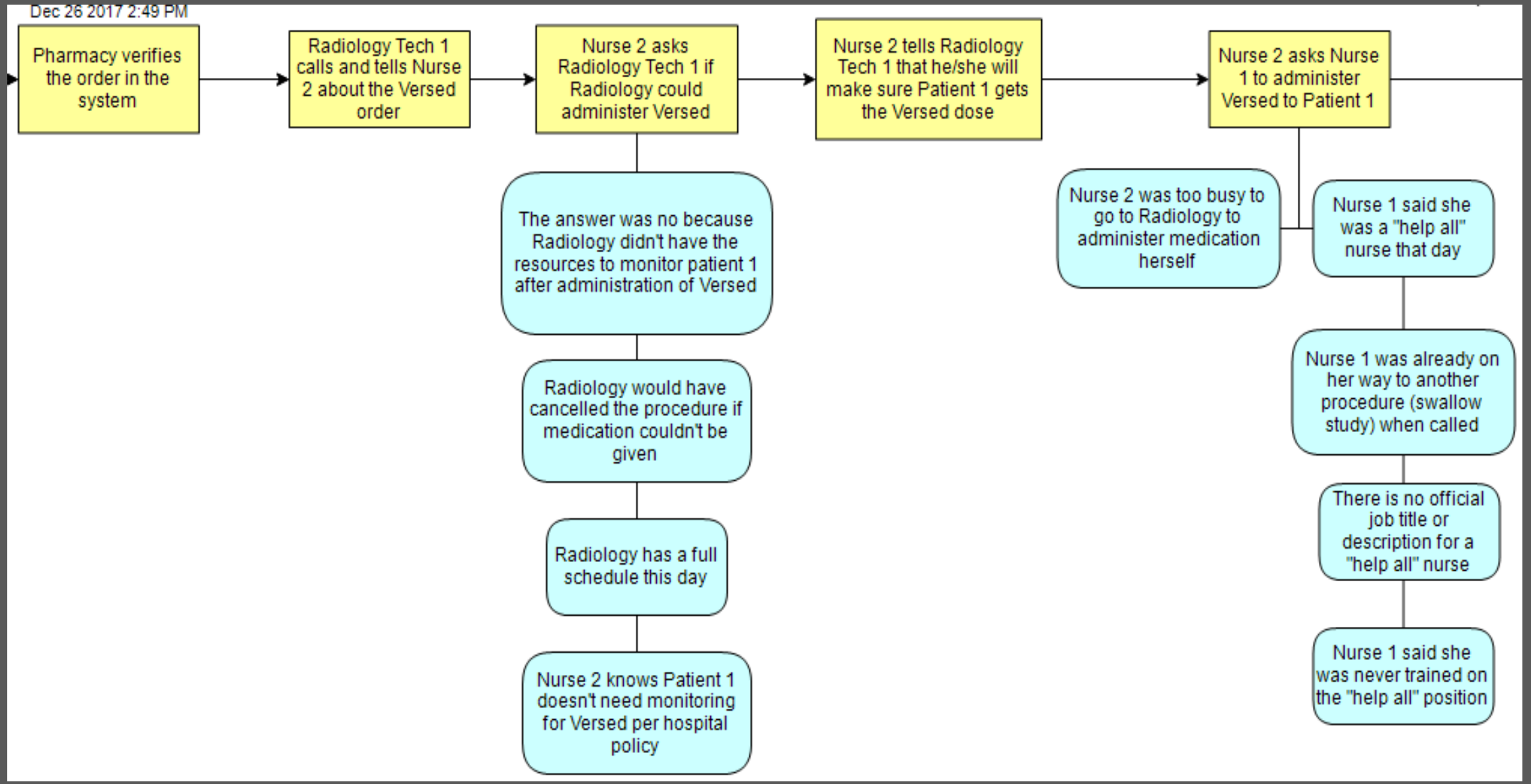
  Implement and track and measure effectiveness

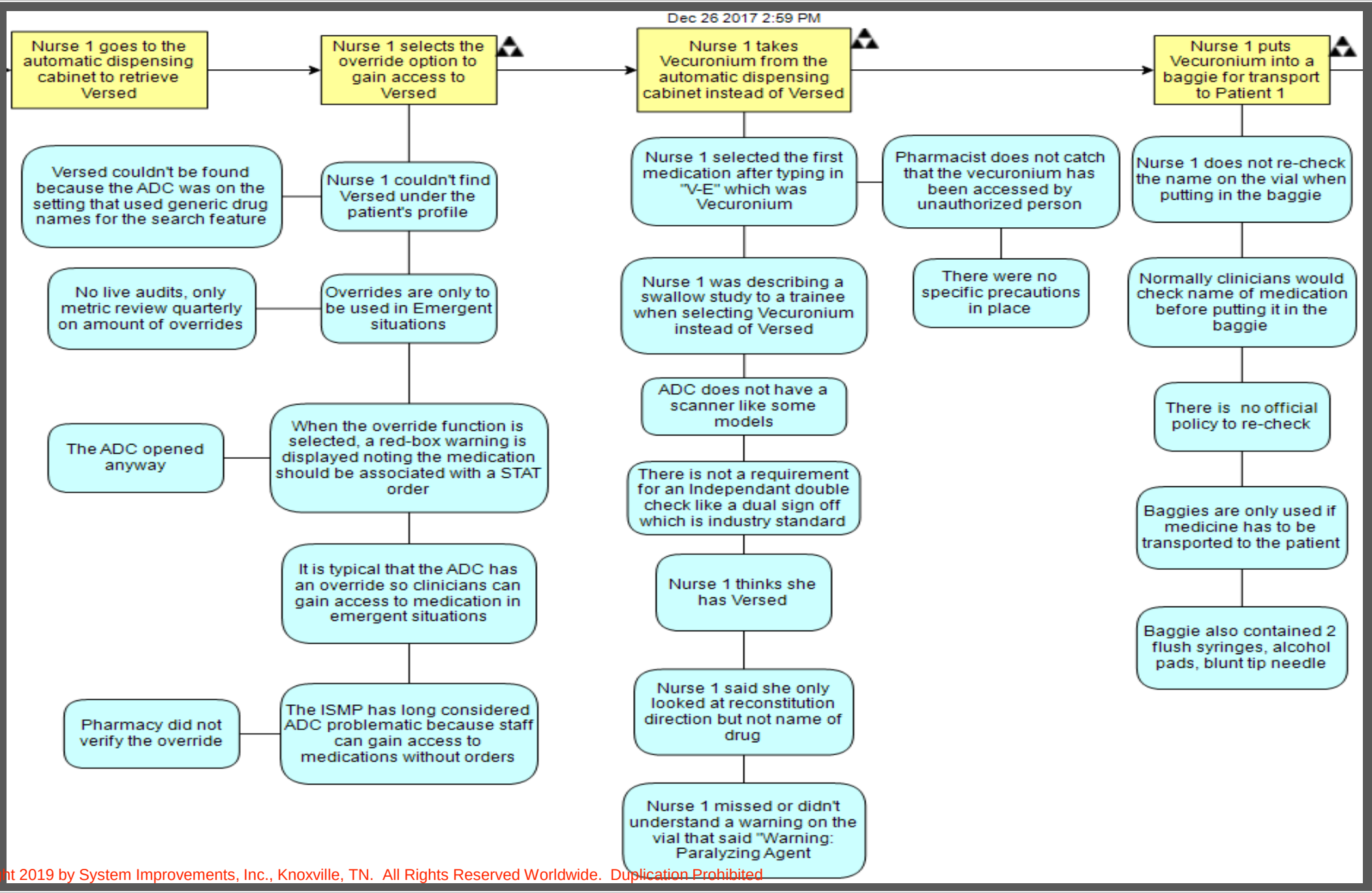


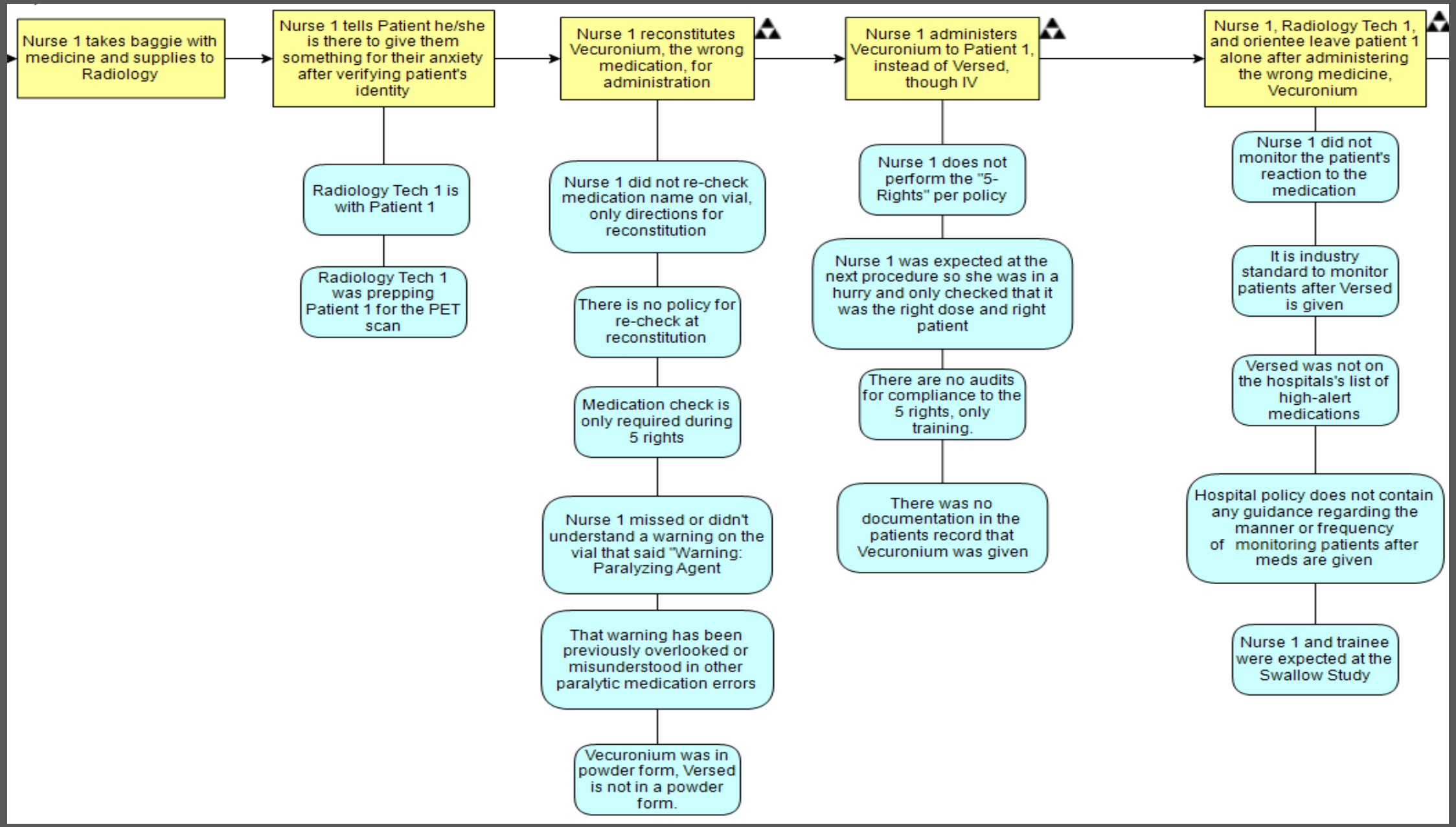
WRONG MEDICATION ERROR CASE STUDY

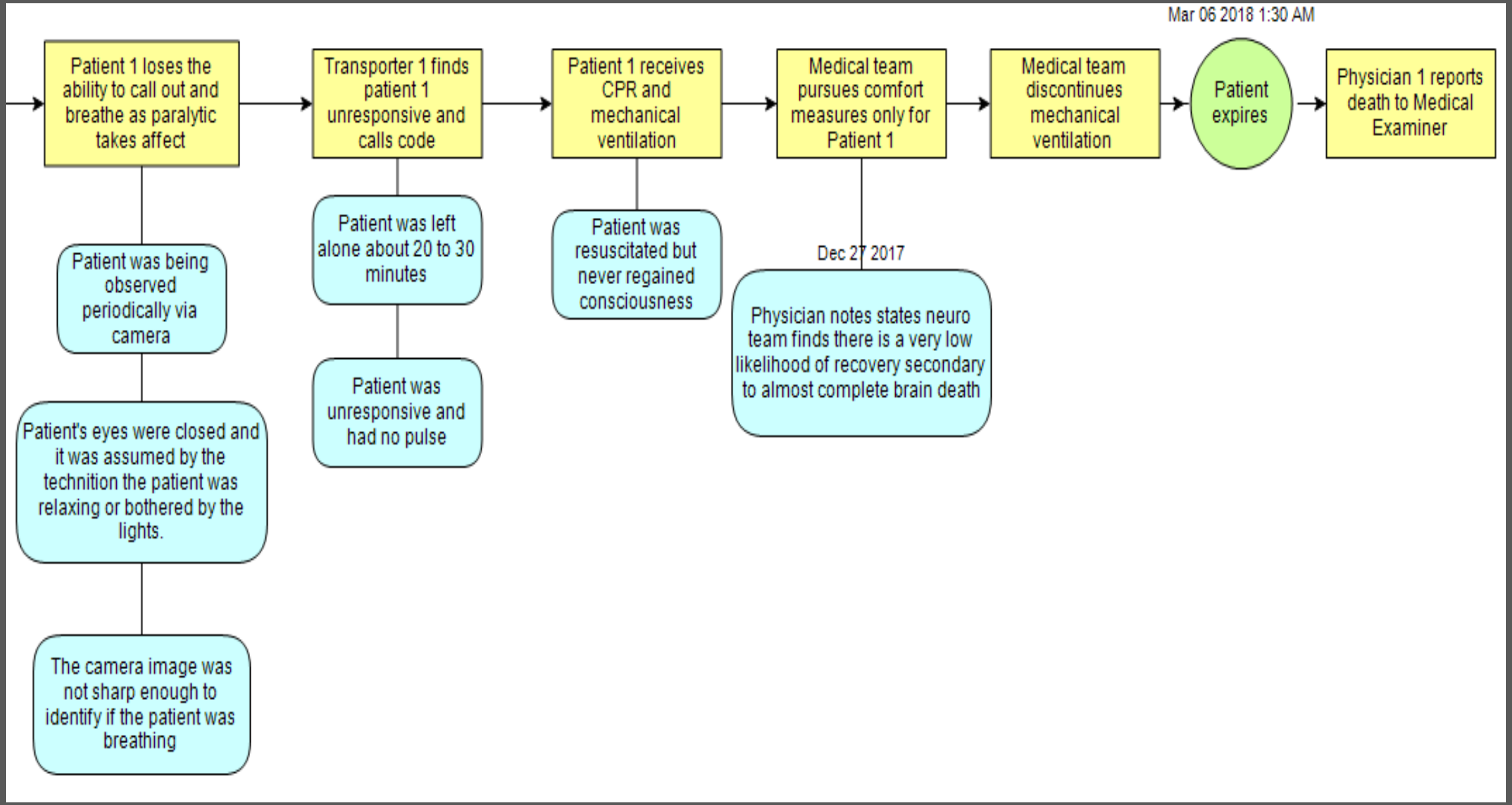
- First Step: Investigate and establish a sequence of events based on evidence (SnapCharT®)
- Information came from CMS unannounced onsite survey resulting from a complaint





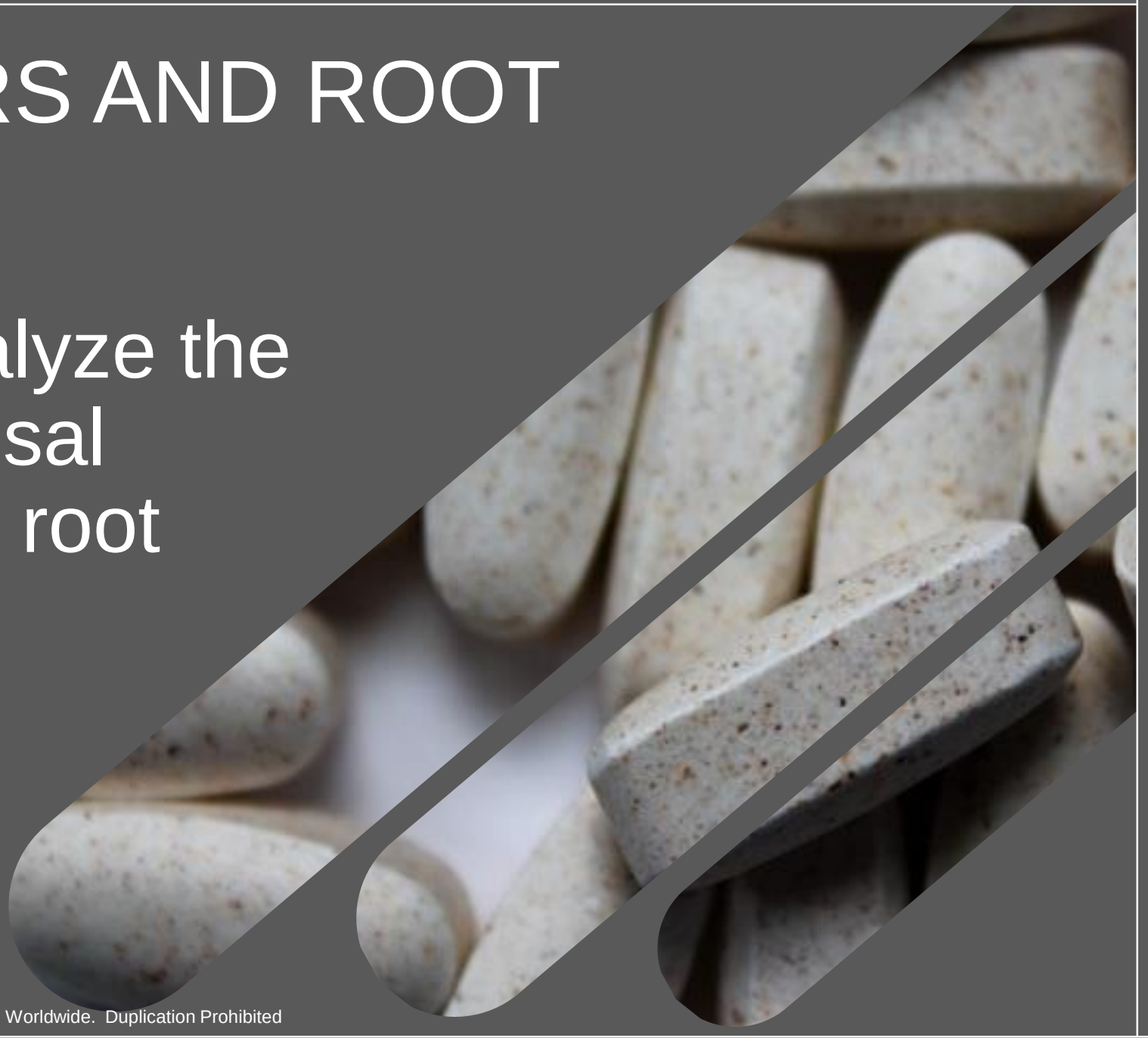






CAUSAL FACTORS AND ROOT CAUSES

2nd Step is to analyze the evidence for Causal Factors and their root causes.



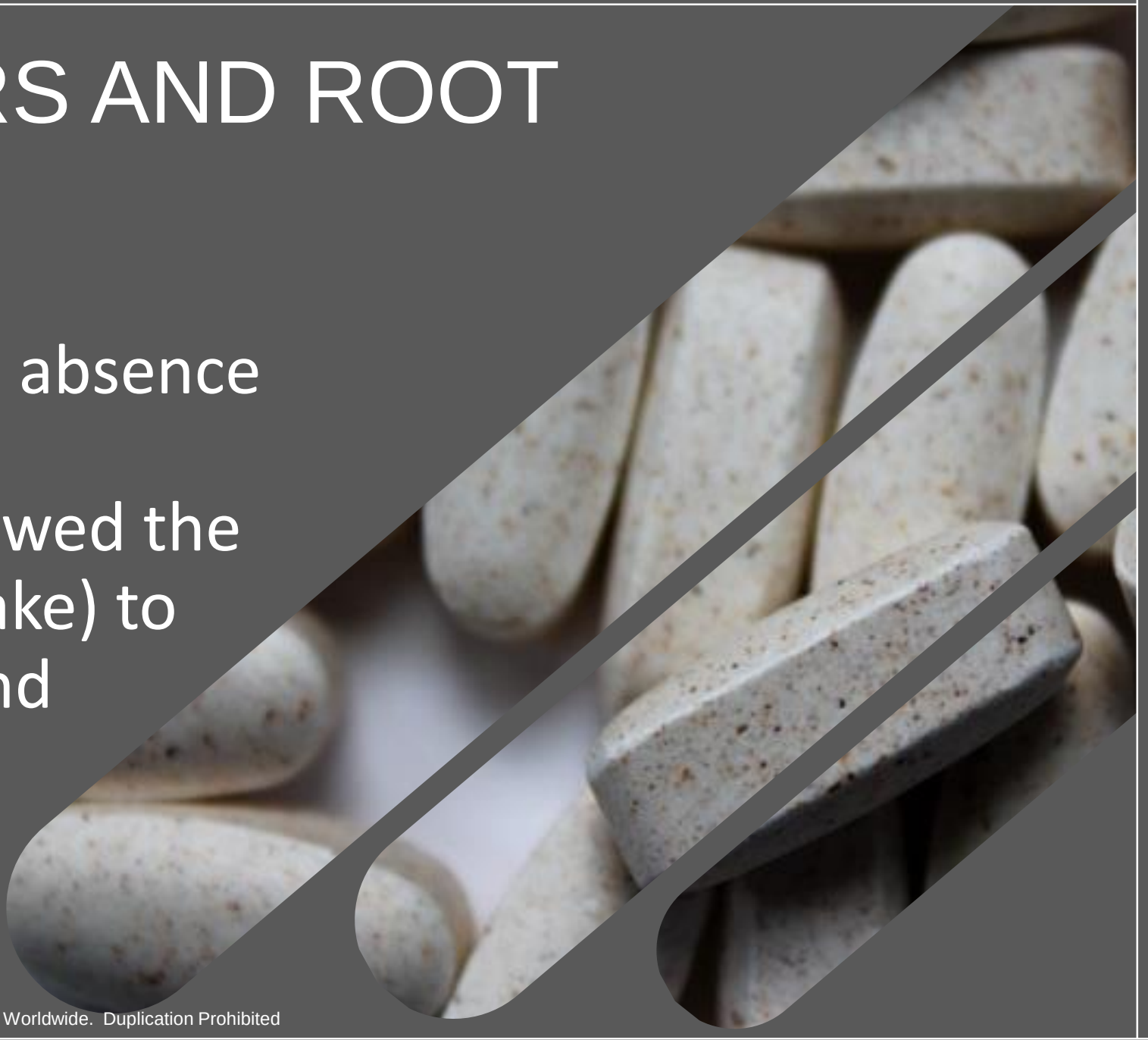
CAUSAL FACTORS AND ROOT CAUSES

Causal Factor Definition:

Mistakes, errors, or equipment failures that directly led to the incident or failed to mitigate the consequences of the incident.

CAUSAL FACTORS AND ROOT CAUSES

Root Causes are the absence of best practices or knowledge that allowed the Causal Factor (mistake) to reach the patient and cause harm.



CAUSAL FACTORS AND ROOT CAUSES

In every RCA, we can introduce the missing knowledge or best practices to achieve excellence rather than placing blame.

CAUSAL FACTORS AND ROOT CAUSES

The following RCA results were achieved using TapRooT's® guided RCA system for human performance and equipment difficulties

RCA Methodology

Focus on Systems and not individuals

Stresses Objectivity

Removes Bias by using a defined methodology that integrates expert guidance

ROOT CAUSES FOUND

CAUSAL FACTOR	ROOT CAUSE(S) IDENTIFIED AND DEFINED
Nurse selects the override option in non-emergent situation against policy	Enforcement Needs Improvement: Policy was not used because there isn't enforcement. It's become standard practice to use the shortcut.
	Accountability Needs Improvement: Staff thinks its okay to use the override function to get the job done because everyone else is doing it.
	Infrequent Audits & Evaluations: Audits should have been done so management would have had an opportunity to detect and correct the deviation from policy before the incident occurred.

ROOT CAUSES FOUND

CAUSAL FACTOR	ROOT CAUSE(S) IDENTIFIED AND DEFINED
Nurse takes Vecuronium (wrong med) from the automatic dispensing cabinet	Displays Need Improvement: ADC display did not have adequate instrumentation to catch the mistake of choosing the wrong, high-risk medication.
	Labels Need Improvement: Poor labeling of the high-risk medication led to the problem of the nurse taking the vial from the ADC and the problem of not catching the mistake at any point of the process before administering to the patient.

ROOT CAUSES FOUND

CAUSAL FACTOR	ROOT CAUSE(S) IDENTIFIED AND DEFINED
Nurse puts Vecuronium (wrong med) into baggie for transport	No SPAC (Standard, Policy, or Administrative Controls): There is no policy for double checking that the correct medication is packaged for transport.

ROOT CAUSES FOUND

CAUSAL FACTOR	ROOT CAUSE(S) IDENTIFIED AND DEFINED
Nurse reconstitutes Vecuronium (wrong med) for administration	Labels Need Improvement: Poor labeling of the high-risk medication helped contribute to the problem. The nurse didn't notice the wrong medication was being reconstituted during the process

ROOT CAUSES FOUND

CAUSAL FACTOR	ROOT CAUSE(S) IDENTIFIED AND DEFINED
Nurse administers Vecuronium (wrong med) to the patient	Enforcement Needs Improvement: Enforcement of the 5 Rights policy needs improvement
	Infrequent Audits & Evaluations: More frequent audits or evaluations should have been performed so deviation from the 5 Rights policy could have been detected and corrected.

ROOT CAUSES FOUND

CAUSAL FACTOR	ROOT CAUSE(S) IDENTIFIED AND DEFINED
Nurse, trainee, and Radiology Tech leave patient alone after administering medication	SPAC (Standards, Policy, and Administrative Controls) are confusing or incomplete: The policy for monitoring patients after administering medication needs to be made clearer or more complete to reduce the likelihood of the problem in the future

CORRECTIVE ACTIONS

What are the 3 most common corrective actions?

COUNSELING AND DISCIPLINE

- Pay Attention
- Tell them to be more careful
- Progressive discipline per company policy
- Termination

- Weakness: These “fixes” usually result in blame-oriented culture and people are reluctant to admit making a mistake. Because of the lack of cooperation in investigations, many incidents remain a mystery.

TRAINING

- Humiliation of being singled out to be re-trained (form of discipline?)
- Humiliation of being made to share their mistake as an example to others

- Weakness: If training didn't work the first time, why will it work a second or third time? The treat of sending someone back to training is a form of discipline that hurts a just culture.

PROCEDURES

- If you don’t have a procedure, write one
- If you already have a procedure, make it longer (add a caution or warning to the existing procedure.

- Weakness: Procedures can become to burdensome and effect productivity.

DO THEY WORK?

Yes, sometimes procedures are needed.
Sometimes training is a good idea.
And sometimes discipline is called for.

But we often see these corrective actions are applied when NOT needed and therefore they are NOT effective.

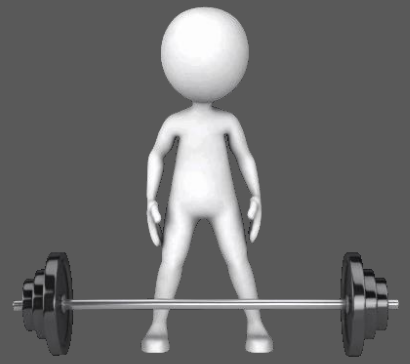
The investigation and time and effort implementing these corrective actions are wasted.

The corrective actions don’t fix the underlying problems (root causes).

The wasted time and effort is shocking.

BE ON ALERT FOR ”RE” CORRECTIVE ACTIONS

- Re-train
- Re-write policy and procedures without specific guidance on what to change
- Re-mind
- Re-emphasize (same as remind)
- Re-place
- Re-evaluate (why wait?)
- Re-view
- Re-qualify
- Re-peat anything



STRONGEST

WEAKEST

1. REMOVE / REDUCE THE HAZARD

2. REMOVE THE TARGET

3. GUARD THE TARGET

4. IMPROVE HUMAN PERFORMANCE with good Human Factors Design

5. IMPROVE HUMAN PERFORMANCE with Rules, Procedures, Signs…

6. IMPROVE HUMAN PERFORMANCE with Training, Supervision…

Control of Energy Keeps You Safe

Mechanical	 Wheelchair Brake	Electrical	 Pace makers
Chemical and gas	 Oxygen tank design	Biological	 Sharps Bins
Pressure	 Monitor force against blood vessels	Heat	 Ice packs
Radiation	 Time, Distance, Shielding	Height	 Fall Protection
Noise	 Hearing Protection	Muscle Power	 Lifting Training

Causal Factor: Nurse selects the override option in non-emergent situation against policy

ROOT CAUSES:	CORRECTIVE ACTION:
Enforcement Needs Improvement of the Override policy **Accountability Needs Improvement t**o the policy needs improvement because staff routinely use the override option in non-emergent situations. **Infrequent audits & evaluations** measuring compliance to the policy so management doesn't have data showing that the policy is not being followed routinely.	**CA-Override Audits**: Design and implement an audit of the use of overrides on all automatic dispensing cabinets. Report number of total overrides by clinician and unit per month to identify risk and improvement opportunities at the monthly QA meeting. Track number of overrides per month for trending. Monitor overrides daily for one month to verify appropriateness with required clinician follow up for documented education.

NOTE: ***Enforcement NI*** and ***accountability NI*** are easy to confuse. Accountability (as defined for use with the Root Cause Tree®) has to do with the ability of management and the people involved to clearly identify who is responsible and answerable for a particular SPAC. Enforcement has to do with management's actions to exercise control and ensure that the person who is responsible actually follows the SPAC. Therefore, if you can't tell who is responsible (or answerable), or if the only way you can tell is for an accident to occur, then consider ***accountability NI***. If, on the other hand, accountability is clear, but management is not taking action to ensure that the SPAC is being used, then consider ***enforcement NI***. Occasionally, an investigator can find that both accountability and enforcement are root causes. In that case, both ***accountability NI*** and ***enforcement NI*** root causes should be recorded.

Causal Factor: Nurse takes Vecuronium (wrong med) from the automatic dispensing cabinet

ROOT CAUSES	CORRECTIVE ACTIONS
Labels Need Improvement on the vials, container, and drawers so staff have a way to avoid or catch mistakes when they take the wrong medication. **Displays Need Improvement** on the ADC to help staff prevent taking wrong medication from the cabinet.	**CA-Added Warning Labels** - Place warning labels on storage locations for paralytic medications in the ADC so they are easily seen when removing medication. In addition, affix auxiliary warning labels directly on the vial s or containers **CA-Bar Code Scanning**: Implement bar code scanning to verify correct medication and dose is removed from ADC to reduce/eliminate dosing and wrong medication errors Or **CA-High Alert Medication** witness sign off: Create a double check policy and require the ADC software to generate witness sign off document that states they double checked the medication and dose for the patient is correct when High Alert Medication Lists are removed from the ADC.

Causal Factor: Nurse Puts wrong medication into a baggie for transport

ROOT CAUSE:	CORRECTIVE ACTION:
NO SPAC (Standards, Policies, and Administrative Controls) for double checking that the right medication is packaged for transport.	Team decided it is not necessary to introduce a policy to double check mediation when packaging for transport because the risk of the incident is much less with the other corrective actions. The extra work is not necessary.

Causal Factor: Nurse Reconstitutes wrong medication for Administration

ROOT CAUSE:	CORRECTIVE ACTION:
Labels Need Improvement on the vials, container, and drawers so staff have a way to avoid or catch mistakes when they take the wrong medication.	**CA-Added Warning Labels**: Place warning labels on storage locations for paralytic medications in the ADC so they are easily seen when removing medication. In addition, affix auxiliary warning labels directly on the vial s or containers. **CA-Bar Code Scanning:** Implement bar code on labels to enable scanning to verify correct medication and dose is removed from ADC to reduce/eliminate wrong medication errors.

Causal Factor: Nurse administers Vecuronium (wrong med) to the patient

ROOT CAUSE:	CORRECTIVE ACTION:
Infrequent audits & evaluations (a & e) of the 5-Rights Policy **Enforcement Needs Improvement** of the 5-Rights Policy Note: Accountability Needs Improvement wasn't found because there was no evidence to suggest others were not following the 5 Rights Policy.	**CA-5 Rights Audit:** Design and implement an audit for 5 Rights with positive incentives and report ratio of successful completion of 5 Right to total number of audits performed. The audit results will allow management to detect and correct deviations from the policy. Note: If there was already an audit in place and you found the 5 Rights policy was adequately enforced, the corrective actions would have included using the organization's progressive discipline policy.

Causal Factor: Nurse, trainee, and Radiology Tech leave patient alone after administering medication

ROOT CAUSE:	CORRECTIVE ACTION:
Confusing or Incomplete policy on monitoring patients after administering medication. There was no guidance on the frequency or manner for monitoring.	**CA Monitoring Patient after Administering Medication:** Update policy and procedure for monitoring patients for adverse effects after drug administration. Include guidance regarding the monitoring manner and frequency after medications are given

THANK YOU!

- More discussion?
  Drop by our booth!

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