CAUSAL ANALYSIS:
GETTING TO THE ROOT OF THE PROBLEM

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OBJECTIVES FOR LEARNERS

1) To understand when and why to complete a root cause analysis.

2) To understand root cause analysis as a procedure for ascertaining and analyzing the causes of problems.

3) To have a working knowledge of a Root Cause Analysis tool for a Level II fall.
“To address this mistake we need to utilise our thorough system of root cause analysis. I will begin, if I may, by pointing out that it’s not my fault.”
OVERVIEW

• What is RCA?
• When and why do an RCA?
• Tool to assist with completing a fall RCA
• Case study

“Quality is not an act, it is a habit.” - Aristotle
WHAT IS ROOT CAUSE ANALYSIS? (RCA)

• Process for identifying contributing/causal factors that underlie variations in performance associated with ADVERSE EVENTS OR CLOSE CALLS

• Process that features interdisciplinary involvement of those closest to and/or most knowledgeable about the situation
RCA

• Focuses on prevention, not blame or punishment
• Focuses on system level vulnerabilities, not individual performance

- Communication
- Environment/Equipment
- Training
- Rules/Policies/Procedures
- Fatigue/Scheduling
- Barriers
RCA PURPOSE

1. What happened that day?
2. What usually happens? (NORMS)
3. What should have happened? (POLICIES)
4. Why did it happen?
5. What are we going to do to prevent it from happening again? (ACTIONS/OUTCOMES)
6. How will we know that our actions improved patient safety? (MEASURES/TRACKING)

HTTPS://PSNET.AHRQ.GOV/PRIMERS/PRIMER/10/ROOT-CAUSE-ANALYSIS
WHEN TWO PLANES NEARLY COLLIDE, THEY CALL IT A “NEAR MISS.” IT’S A NEAR HIT. A COLLISION IS A “NEAR MISS.” BOOM! “LOOK, THEY NEARLY MISSED!”

GEORGE CARLIN

THE ABSURD WAY WE USE LANGUAGE<WWW.GEORGECARLIN.COM>
WHEN IS AN RCA DONE?

• For any adverse event or close call*
• For all Level II designated events

*Close calls occur dozens to hundreds of times more frequently than the adverse event they are the harbinger of … it makes sense to learn from close calls, instead of waiting for a catastrophe to occur.

https://dmao.lmi.org/dmaomailbox/dmaopaceHome.aspx
WHY IS AN RCA IMPORTANT?

IT’S A METHOD THAT HELPS TO:

• Keep our focus on safety for all participants and staff, rather than modifying an individual’s performance … it moves us beyond blame

• Stay honest about safety as a real priority -- not just an “official” priority -- through the strength of actions taken and outcomes measured
WHY USE A PARTICULAR METHOD?

• Because none of us can think of all the questions relevant to complex systems on our own

• Because we each bring our own personal and professional knowledge and biases to the table

• Why reinvent the wheel every time?
OVERVIEW OF STEPS

1. Identify the event to be investigated and gather preliminary information
2. Select team facilitator and team members
3. Describe what happened
4. Identify the contributing factors
5. Identify the root causes
6. Design and implement changes to eliminate the root causes
7. Measure the success of changes
1. IDENTIFY THE EVENT

- Events that may be investigated using the RCA process can be identified from many sources.

- High priority should be given to events that resulted in significant harm or death and other events that are required by regulation to investigate.

- Also consider doing an RCA for “near miss” or “close call” events that could have resulted in harm to the participant, but did not, either by chance or timely intervention.

- Write an effective problem statement. It should objectively state what went wrong, not why or how.
PROBLEM STATEMENT

AN EXAMPLE OF AN EFFECTIVE PROBLEM STATEMENT

“PARTICIPANT X DROPPED TO THE GROUND AND HOYER LIFT FELL ON HIM DURING A WHEELCHAIR TO BED TRANSFER.”
2. SELECT TEAM MEMBERS

- **Top leaders** - the success of any and all patient safety initiatives depends upon visible leadership support

- **Advisor** - ensures a “no blame” approach, provides just-in-time training and ongoing consultation

- **Team leader** - keeps the team on task to ensure root causes are found and effective preventive actions are developed, on time

- **Recorder** - responsible for entering information into RCA document (live, real time documentation during team’s meetings)

- **Team members** - full and active participation and commitment to the RCA process (review documents and literature, conduct interviews, develop root cause statements and action plan, participate in leadership de-briefing)
3. DESCRIBE WHAT HAPPENED

- At the first meeting a time line of the event under review is created.

- The preliminary information gathered in step 1 is shared with the team and other details about the event are elicited from team members.

- If the people personally involved in the event are not part of the team, their comments about what happened are shared with team members.

- All of this information is used to create a time line of the event – the sequence of steps leading up to the harmful event.
TIMELINE

TIME LINE:

1. CNAs get Hoyer lift and position it by resident's bed
2. Resident is raised from wheelchair using the Hoyer lift
3. CNAs swing resident toward bed
4. Lift starts to collapse and tips to one side

EVENT:

1. Resident drops to ground and lift falls on resident
4. IDENTIFY THE CONTRIBUTING FACTORS

• “What was going on at this point in time that increased the likelihood the event would occur?”

• These are the contributing factors – situations, circumstances or conditions that collectively increased the likelihood of an incident.

• It is important to get the perspective of people personally involved in the event when identifying the contributing factors at each step.

• Be careful to avoid “hindsight bias” as knowing the outcome can influence how the team views activities that lead up to the event.

• Consider what P&P’s might not have been followed, or what “work-arounds” might have occurred.
## EXAMPLES OF CONTRIBUTORY CAUSES

### Contributing Factors

**Communication**
- With physician or RN practitioner
- Hand-offs or shift reports
- Involving resident transfers
- Available information
- Between departments
- Between healthcare personnel & resident/family
- With other organizations or outside providers
- Among healthcare personnel (includes temporary/agency staff)
- Hard to read handwriting/fax

**Organizational Factors**
- Overall culture of safety
- Unit staffing levels
- Shift leadership/management
- Adequacy of budget
- Systems to identify risks
- Internal reporting
- Commitment to resident safety
- Accountability for resident safety
- Staffing turnover
- Temporary staffing and lack of communication
- Staff assignment/work allocation

**Care Management**
- Developing a care plan
- Implementing a care plan
- Following a care plan
- Updating a care plan
- Availability of resources
- Responding to a change of condition
- Resident consent process

**Resident Factors**
- Language/culture
- Family dynamics/relationships
- Mental status
- Behavioral problems
- Sensory impairment
- Resident assumption of risk
- Underlying medical conditions
  - Pain
  - Neuromuscular
  - Orthopedic
  - Cardiovascular
  - Recent condition change
  - Dialysis
  - Neurological

**Equipment, Software, or Material Defects**
- Equipment meeting code, specifications, or regulations
- Defective/non-working equipment
- Software
- Equipment design (function, displays, or controls)

**Policies & Procedures**
- Absent
- Too complicated
- Outdated
- Not followed / Not compliant

**Training & Supervision**
- Job orientation
- Continuing education
- Staff supervision
- Skills demonstration
- Availability of training programs
- In service education/competency training

**Work Area/Environment**
- Work area design specifications
- Distractions
- Interruptions
- Relief/float healthcare staff
CONTRIBUTORY CAUSES

**TIME LINE:**
- CNAs get Hoyer lift and position it by resident’s bed
- Resident is raised from wheelchair using the Hoyer lift
- CNAs swing resident toward bed
- Lift starts to collapse and tips to one side
- Resident drops to ground and lift falls on resident

**CONTRIBUTING FACTORS:**
- CNAs had to hurry to find a lift so resident would not be kept waiting
- No sign on lift indicating weight limit
- Resident was moved rapidly toward bed because lift arm started to slip
- Sharp movement of resident by CNAs
- Facility’s one heavy duty lift was being used in another location
- CNAs unaware the lift they are using is not rated for use with very heavy residents
- CNAs not trained to respond to lift malfunctions
- Lift not strong enough to hold resident
5. IDENTIFY THE ROOT CAUSE

• All incidents have a direct cause.

• This is the occurrence or condition that directly produced the incident.

• In the example in step 3 – the tilting and collapsing Hoyer lift is the direct cause of the accident, but not the root cause.

• Contributing factors are not root causes.

• The team needs to review the contributory factors and find the root cause.

• This is done by digging deeper and asking more questions.
A resident fell and was injured during a transfer from her wheelchair to the toilet, while being assisted by an aide.

Equipment/Supplies
- No process to ensure 1 battery/lift always charged
  - Lift battery (& spare) not charged

Environmental
- Aide didn’t know resident was a 2-person transfer
  - Aide’s care card not current

Rules/Policies/Procedures
- No process to update Aide’s care cards timely

Staff/People
THE FIVE WHY’S

1. CNAs didn’t have the equipment needed to care for the resident
2. Needed equipment is sometimes hard to find
3. Not enough specialized equipment to care for residents with unique needs
4. The anticipated number of residents with unique needs and their equipment requirements are not known
5. The strategic planning and budgeting process does not include projections of the equipment needs of residents with unique physical and psychological needs
6. DESIGN AND IMPLEMENT CHANGES

- What safeguards are needed to prevent this root cause from happening again?

- What contributing factors might trigger this root cause to occur again?

- How can we prevent the contributing causes from happening?

- If an event occurred again, how could we stop the accident before harm to a participant happened?

- If harm did occur how can it be minimized?
STRONG ACTIONS

• Change the physical surroundings
• Usability testing of devices before purchasing
• Engineering controls into the system – force functions
• Simplify processes and remove unnecessary steps
• Standardize equipment or process
• Leadership support of patient safety is key to change
INTERMEDIATE ACTIONS

• Increase staffing/decrease in workload
• Software enhancements/modifications
• Eliminate/reduce distractions
• Checklist/cognitive aid
• Eliminate look alike or sound alike terms
• “Read back” to assure clear communications
• “Teach back” to assure a clear understanding
• Enhanced documentation/communication
WEAK ACTIONS

- Double checks
- Warnings and labels
- New procedure/policy
- Training
- Additional study or analysis
7. MEASURE THE SUCCESS

• Did the recommended corrective action actually get done?
• Is staff complying with the recommended changes?
• Have the changes made a difference?
• Include in QAPI plan if needed.
• Re-evaluate on a quarterly basis for at least one year.
ROOT CAUSE ANALYSIS TOOL

• Refer to the hand out

Fall investigation form

• Has various areas for discovery of contributory factors

• Participant specific information to review during initial RCA meeting
CASE STUDY

• **Age and gender:** 87 year old male

• **Enrollment date:** 1/1/2016

• **Significant diagnoses:** Parkinson’s, HTN with CKD stage 2, history of right temporal intracranial hemorrhage s/p fall 2012, pulmonary hypertension, spinal stenosis, pacemaker secondary to SSS, persistent A-fib, CAD, osteoarthritis, wheelchair bound, new dx DVT left leg 2/24/16

• **Summary of the care history:** Clinic following for Parkinson's and new diagnosis of DVT after ER visit 2/24/16 in the early morning. Pt was placed on anticoagulant therapy by ER and seen in the clinic post discharge the same day. **INR in clinic on 2/24/16 was 1.2 with MD note for INR, dig level and BMP in 2 days.**

• **Care included:** Lives alone in community shared aide model apartment, Day center 3x per week with home care for medication management and ADL assist. Home care services increased to meet medication administration orders after emergency room visit.

• **New medications:** Coumadin 5 mg daily and Enoxaparin 70 mg SQ q12h
“Participant had a major bleeding event s/p tooth extraction while being anticoagulated for DVT.”
Timeline leading up to the Event

Wed, February 24, 2016
- Pt discharged from ER – DVT on Lovenox and Coumadin

Wed, February 24, 2016
- Pt seen in clinic by PCP – INR 1.2, repeat labs ordered in 2 days

Fri, February 26, 2016
- Building where pt lives is kept home from Day Center d/t GI bug

Mon, February 29, 2016
- Pt seen in clinic for nurse visit for labs (only dig level and BMP drawn)

PROBLEM

At 1 pm, Pt is brought to his dental appointment for tooth extraction (medical records are sent with him)

At 7:30 pm, LPN arrived for Lovenox administration and observed pt with significant bleeding from tooth extraction site.
2/26/17
GI bug kept pt home due to outbreak in bldg (pt not sick)

2/29/17
Pt had a bleeding episode 5/17,
Pt - dental extraction

1/26/17

1. Order not processed
2. Clinic unaware of pt dental
3. Pt had 2 additional ER visits, 2/25 and 2/27; did not let PACE know
4. MD not informed of missed RN visit on 2/26/17; labs not drawn

12/5/17

1. DCC cancellation policy was followed on 2/16/17; processed properly
2. ER follow-up not done for visit over weekend

Pt/Equipment/Supplies

Pt/Environmental

Pt/Policies/Procedures

Pt/Staff/People
5 WHY’S

Participant with significant bleeding s/p dental extraction on 2/29/17.

WHY?
Dentist did not have current INR value.

WHY?
Labs never drawn as MD ordered on 2/26/17.
INR not drawn on 2/29/17 along with BMP and Dig level.
Clinic not aware of Dental Appointment.

WHY?
Provider not aware pt staying home on 2/26/17 visit rescheduled for 2/29/17.
INR order never processed by RN on 2/24/17.
No process for checking up-coming outside appointments during visits.

Why?
Day Center cancellation policy does not include reviewing RN visits
Request Review not checked by MD – order not complete
Workflow does not include checking upcoming appointments.

WHY?
In-house lab orders are processed in EMR different than other labs.

WHY?
EMR setting designated to that workflow
CHANGES IMPLEMENTED

• Day center cancellation policy updated to include a review nurse clinic visits as well as provider appointments.

• Nurse visit schedules to be reviewed and discussed with the provider for any visits that are “critical” when a participant cancels day center.

• Nurse/provider to check participant’s schedule while in clinic for any upcoming appointments and review for medical necessity and appropriateness -- added to workflow for rooming patients.

• EMR updated to support Coumadin alerts for nursing as it is for providers.

• EMR vendor to update workflow for in-house labs to remove request review requirement so order to automatically send to nurse clinic for scheduling.
QUESTIONS
