Minimum Scope of Root Cause Analysis for Specific Types of Sentinel Events (per Joint Commission) [1]

Detailed inquiry into these areas is expected when conducting a root cause analysis for the specific type of sentinel event. Inquiry into areas not checked (or listed) should be conducted as appropriate to the specific event under review.

	Suicide (24 hr. care)	Medication Error	Procedural Complication	Wrong site surgery	Treatment delay	Restraint death	Elopement death	Assault/ rape/ homicide	Transfusion death	Patient abduction	Unanticipated death of full term infant	Unintended retention of foreign body	Fall related
Behavioral assessment process (1)	X					X	X	X					
Physical assessment process (2)	X	X	X	X	X	X	X				X		X
Individual identification process		X		X					X				
Individual observation procedures	X				X	X	X	X	X		X		X
Care planning process	X		X			X	X				X		X
Continuum of care	X	X			X	X							X
Staff levels	X	X	X	X	X	X	X	X	X	X		X	X
Orientation & training of staff	X	X	X	X	X	X	X	X	X	X	X	X	X
Competence assessment / credentialing	X	X	X	X	X	X	X	X	X	X	X	X	X
Supervision of staff (3)	X	X	X		X	X			X			X	
Communication with individual/family	X	X		X	X	X	X			X			X
Communication among staff members	X	X	X	X	X	X	X	X	X	X	X	X	X
Availability of information	X	X	X	X	X	X			X		X		X
Adequacy of technological support		X	X										
Equipment maintenance / management		X	X		X	X					X		X
Physical environment (4)	X	X	X	X		X	X	X	X	X			X
Security systems and processes	X					X	X	X		X			
Medication Management (5)		X	X		X				X		X		X

(1) Includes the process for assessing patient's risk to self (and to others, in cases of assault, rape, or homicide where a patient is the assailant).
(2) Includes search for contraband.
(3) Includes supervision of physicians-in-training.
(4) Includes furnishings; hardware (e.g., bars, hooks, rods); lighting; distractions.
(5) Includes selection & procurement, storage, ordering & transcribing, preparing & dispensing, administration, and monitoring.

[1] Joint Commission Hospital Sentinel Event Policies and Procedures. Jan. 2011
From http://www.jointcommission.org/assets/1/6/2011_CAMH_SE.pdf

Questions on the Joint Commission's Root Cause Analysis Tool Guide can be used as prompts during your discussion of causal factors[2]

Process or activity in which the event occurred

- Were there any steps in the process that did not occur as intended?
- Were all processes in place?
- Were all processes implemented by staff?
- What other steps did not occur as intended?
- Any other contributing steps?

Human factors

- What human factors were relevant to the outcome? For example: fatigue of staff, personal problems, inability to focus on task, complex critical thinking skills needed, failure to follow established policies/procedures, substance abuse, boredom, rushing to complete task, etc.

Equipment Factors

- How did the equipment performance affect the outcome? For example:
  - Were biomedical checks done/up to date?
  - Was the equipment available?
  - Was the equipment where it was supposed to be?
  - Was staff in-serviced on the equipment? How long ago?
  - Were alarms, displays, controls etc. identifiable and operating properly?

Controllable environmental factors

- What controllable environmental factors affected the outcome?
- Were there any environmental factors within the organization's control that affected the outcome? For example, site marker washed off during prep, overhead paging cannot be heard in physician offices, safety risks, risks including activities of visitors etc.
- Were there any safety risks and or security risks involved?

Uncontrollable environmental factors

- What uncontrollable external factors influenced the outcome? For example, natural disasters.

Human resource factors

- Was staff properly qualified and currently competent for their responsibilities?
- Was staff orientation/training adequate?
- Was staff competency assessments up to date?
- Was anyone on a performance plan?
- Was anyone performing beyond their scope of practice?
- Was anyone using equipment they were not trained to use?
- Were physicians properly credentialed?
- Were there any physician performance issues?

[2] The Joint Commission's sentinel event root cause analysis tool guide (updated 1/6/07) can be found on their web site at: http://www.jointcommission.org/SentinelEvents/Forms/

- How did actual staffing compare with ideal levels?
- Were contingencies used to deal with short staffing a factor in this event? For example, were agency/float staff adequately oriented to the area? Were competencies up to date? Were they familiar with all equipment?
- Did staff performance during the event meet expectations? Did they follow policy/procedures?

Information management factors

- To what degree was all the necessary information available when needed? Accurate? Complete? Unambiguous?
- Was patient related information (assessments, medication lists, orders, etc.) available, accurate, complete and unambiguous?
- Was the level of automation appropriate?
- Did staff have access to policies and procedures?
- Was communication among participants adequate?
- Was information timely, effective and adequate?
- Were there any misunderstandings due to language barriers, abbreviations?

Environment factors

- Was this the appropriate physical environment for the processes being carried out (i.e., level of care, space, privacy, safety, ease of access, etc.)?
- Was work performed under adverse conditions (i.e. heat, humidity, improper lighting, construction, cramped space, noise, etc)?
- Was the environment appropriate to support the function it was being used for?
- What systems are in place to identify environmental risks?
- Was there an environmental risk involved in the event that was not previously identified?
- Did any emergency or failure-mode response play a role in the outcome of the event?

Leadership Issues (Latent Conditions)

- Does the overall culture encourage change, suggestions, and warnings from staff regarding risky situations or problematic behaviors?
- Are there barriers to effective communication among caregivers? e.g. residual intimation or reluctance to report co-worker activity?
- Is prevention of adverse events and outcomes communicated throughout the organization as a high priority?

Issues to consider in identifying latent conditions:

Resource management
- Inadequate management of human resources
- Inadequate management of monetary resources
- Inadequate design and maintenance of facilities
- Excessive cost cutting

Organizational climate
- Adequacy of organizational structure
- Adequacy of safety culture
- Adequacy of promotion and firing policies
- Inadequate delegation of authority and/or accountability

Organizational process
- Adequacy of established conditions of work
- Adequacy of established procedures
- Adequacy of oversight
- Adequacy of promotion and firing policies

Inadequate supervision
- Failure to provide guidance
- Failure to provide oversight
- Failure to confirm/track qualifications
- Failure to confirm/track performance

Planned inappropriate operations
- Failure to provide correct information
- Failure to procedure adequate break time
- Improper staffing
- Adequacy of operational procedure or plan

Failure to correct a known problem
- Failure to correct document in error
- Failure to identify at-risk behavior
- Failure to initiate corrective action
- Failure to report unsafe tendencies

Supervisory violations
- Authorized an unnecessary hazard
- Failure to enforce rules and regulations
- Authorized unqualified staff

Compliance/Noncompliance Analysis

The compliance/noncompliance root cause analysis technique is useful when the investigation team suspects individual non-compliance to be a causal factor. This technique compares evidence collected against three categories of noncompliance to determine the root cause of a noncompliance: "Don't Know," "Can't Comply;" and "Won't Comply." Lines of questioning pertaining to three compliance/noncompliance categories:

Don't Know: Questions focus on whether an individual was aware of or had reason to be aware of certain procedures, policies, or requirements that were not complied with.
Can't Comply: This category focuses on what the necessary resources are, where they come from, what it takes to get them, and whether individuals know what to do with the resources when they have them.
Won't Comply: This line of inquiry focuses on conscious decisions to not follow specific guidance or perform according to a certain standard.

Although the compliance/noncompliance technique is limited in applicability, by systematically following these or similar lines of inquiry, investigators may identify root causes.

The basic steps for applying the compliance/noncompliance technique are:
1. Have a complete understanding of the facts relevant to the event.
2. Broadly categorize the noncompliance event.
3. Determine why the noncompliance occurred (i.e., the subcategory or underlying cause). For example, the team may use this technique to determine whether a staff person was aware of particular procedure and if not, why he or she was not (e.g., the person didn't know about the procedure, forgot, or lacked experience).
4. If the individual was aware but was not able to comply, a second line of questioning can be pursued. Perhaps the individual could not comply because the facility did make the information available to him/her. Perhaps the individual would not comply because they did not feel the procedure or guideline was relevant in this situation.
5. Lines of inquiry are pursued until the investigation team is assured that a root cause is identified.

By reviewing collected evidence, such as procedures, witness statements, and interview transcripts, against the three categories, the investigation team can pursue suspected compliance/noncompliance issues as causal factors.

Causes of Noncompliance

"I DIDN'T KNOW"		"I COULDN'T COMPLY"		"I DON'T WANT TO COMPLY"	
Never knew	This is often an indication of poor training or failure in a work system to disseminate guidance to the working level.	Scarce resources	Lack of resources/funding is a common rebuttal to questions about noncompliance. However, resource allocation requires decision making and priority setting at some level of management.	No reward	There may be no incentive for the individual to comply.
Forgot	This is usually a local, personal error. May indicate a need to increase frequency of training or to institute refresher training. It may reflect a systemic if safeguards in the process failed to correct the error before an untoward event occurred.	Don't know how	This issue focuses on lack of knowledge, training or critical thinking skills.	No penalty	The organization may need to take action to enforce compliance with critical tasks.
Tasks Implied	This is often a result of lack of experience or lack of detail in guidance.	Impossibility	This may indicate that certain tasks cannot be completed as required. Given adequate resources, knowledge, and willingness to comply, are caregivers able to meet expectations?	Disagree	Some individuals refuse to comply with requirements that they disagree with or think unreasonable. Collect additional facts to determine if this may be the cause of noncompliance.

Occasional RCA Challenge: No Root Cause Identified

Patient developed nosocomial Serratia following open heart surgery.

Sequence of Events

Day 1	68 year old male admitted through the ED with chest pain. He was diagnosed with a subendocardial MI and underwent open heart surgery for a CBCG x 4. On ventilator post-op. Had chest tube.
Day 8 (3 days post-op)	In cardiac step-down unit, three days post-op patient developed C.diff. He was treated with oral Vancomycin and had no further symptoms of C.diff. Still on ventilator and chest tube still in place.
Day 14 (9 days post-op)	Patient found to have a small pericardial effusion and was seen by Infectious Disease physicians. Effusion tapped.
Day 17	Serratia was identified in the pleural fluid. Patient was started on extensive antibiotic treatment and underwent additional surgery to clean the sternal wound. Transferred to med/surg ICU after surgery. On ventilator.
Day 30	Patient expired from the Serratia infection.

Team: Cardiac surgeon chaired the team. Other team members included the Infectious Disease physician, the Infection Control Officer, the head of Respiratory Therapy, nurses from the telemetry unit and the cardiac step-down unit, and the nurse manager of the cardiac care unit.

Findings

- Unlikely the patient contracted Serratia in the cardiac OR. There were no Serratia cases prior or subsequent to this patient in the cardiac OR. According to logs, there were no breaks in equipment and environmental cleaning. Surgery was longer than most open-heart cases because of the radiofrequency maze ablation, however it was not considered extraordinarily long.
- No current or recently discharged patients in the cardiac step-down unit had nosocomial Serratia. For necessary clinical reasons, the patient had a chest tube in place for 6 days. Typically chest tubes are removed after about 2 days. Chest tube cleaning is limited to daily cleaning of the entrance site (consistent with the hospital policy and Perry & Potter protocol).
- Another hospitalized patient had nosocomial Serratia at the same time, however there was no evidence of opportunities for cross-contamination between these two patients.
- After this patient was transferred to the med/surg ICU, we had a small cluster of Serratia infections in this unit. It is speculated that this transmission to subsequent patients could have been through the ventilators. At the time of this cluster, when we used a nebulizer for ventilator patients, our process included breaking the circuit. This offers an opportunity for cross-contamination. However with continuous suction it is not clear how Serratia would have infiltrated the tube.

Root Cause

We were not able to definitively identify where or how this patient contracted Serratia. It is speculated that the chest tube is the likely conduit because it was in for a longer than average time. However, with continuous suction, it is not clear how Serratia could have infiltrated the tube.

Recommendations

Because we believe that this patient may have contaminated subsequent patients through ventilator related care, we have reduced potential sources of ventilator infections through our new nebulizer process that does not involve breaking the circuit.

Change Analysis

Steps in a Change Analysis

1. Describe the event situation and describe the same or similar situation that did not result in an undesirable event.

2. To expand the thinking of the team, these descriptions are categorized into major factors that influence performance. In this example, the categories are defined as: What, When, Where, Who, How, Leadership Issues, and Other.
   Note: The factors listed in this example are only guidelines. They may be useful in directing lines of inquiry and analysis. However, depending on the event being investigated, other factors may be listed by the Investigation Team.

3. For each factor that is thought to influence performance, describe the "Event-Producing Situation" relevant to that factor and the "Ideal or Event-Free" Situation. Issues to consider in each of the major factors:

WHAT
- What is the undesirable outcome?
- What occurred to create the undesirable outcome?
- What occurred prior to the event?
- What occurred following the event?
- What operational activities were under way when the tasks leading to the event occurred?
- What supplies/equipment were being used?
- What barriers should have been in place to prevent the undesirable outcome?
- What barriers were in place but failed to stop the undesirable outcome?

WHEN
- When did the activities leading up to the event occur?
- Was the facility on any special status at the time (e.g., fire drill, lock-down, emergency admission status, etc.)?
- Did the time of day have an effect on the event? Staff availability?
- Did the event occur at shift-change?
- For how many continuous hours had involved staff been working?

WHERE
- Where did the activities leading up to the event occur?
- What were the physical conditions in the area(s)?
- Where was the event first identified?
- Was location a factor in causing the event?

WHO
- Who were the direct/indirect people involved in the event?
- Which staff witnessed the event?
- Which staff reported the event?
- Which people were involved in caring for the client following the event?
- What was the training/qualifications of the people involved?
- Who was supervising the activities?

HOW
- Was the event caused by an inappropriate action?
- Did procedures exist for the activities/tasks involved?

- Did the procedures related to the tasks have sufficient detail?
- Did the procedure have sufficient fail-safe mechanisms?
- Did the procedure cover work tasks in proper sequence?

4. Once the "event situation" and the "event-free situation" are described, evaluate the differences or variances to determine each item's effect on the undesirable outcome.

Sample Change Analysis

Sentinel Event Being Investigated: Patient seen in ED with head injury. Physician did not recognize impending subdural hematoma and patient was discharged to his home where he lived alone. Patient deteriorated at home, was found in a coma by neighbors two days later, and was readmitted to the hospital with significant hematoma which ultimately led to his death.

Partially completed worksheet:

Factors	Describe the Event-Producing Situation	Describe the Ideal or Event-Free Situation	What is the Difference?	What is the Effect of this Difference?
WHAT				
WHEN	*Patient seen in ED at 3:00 pm. during shift change. Social work staff not available to see elderly patient with high risk diagnosis who lives alone.*	*Prior to ED discharge, social work staff evaluates high risk elderly patients who live alone.*	*No social worker intervention.*	*Social worker may have identified follow-up problems.*
WHERE				
WHO				
HOW	*Patient's old medical records not available to physician/nurse.*	*Patient's old medical records available to physician/nurse.*	*Old patient records not available.*	*Upon review of old patient records, physician and/or nurse may have known patient would be unable to care for self at home.*