

# Root cause analysis (RCA) and Risk reduction action plans (RRAP)

## Clinical risk management (CRM)

### What is an RCA?

RCA is a process analysis method, which can be used to identify the factors that cause adverse events. The RCA process is a critical feature of any safety management system because it enables answers to be found to the questions posed by high risk, high impact events—notably, what happened, why it occurred, and what can be done to prevent it from happening again.

Risk managers and other health care personnel use RCA analytical methods to investigate ('drill down' into) serious incidents (including near misses) to identify the underlying causes and to guide solutions to address safety system failures.

### When should RCA be undertaken?

RCA is normally only performed on high risk, high impact events, such as sentinel events or incidents that have an incident severity rating of one (ISR1) in the Victorian health incident management system (VHIMS). The RCA process should not be performed for incidents involving criminal acts or requiring disciplinary action. The *Victorian health incident management policy* and policy guide outline the relationship between process and analysis method in detail, these can be accessed at <http://www.health.vic.gov.au/clinrisk/vhims/>.

### What are the timelines for RCA?

The RCA investigation process should be instigated as soon as practical after an incident. The more time elapsed, the less reliable the account of events by people involved and important information might no longer be available.

- A RCA team should be convened as soon as practical to the incident occurring.
- The RCA report should be signed off within 2 calendar months of commencing the investigation.

Public hospitals and public health services are funded by the Department of Health on the condition that they will:

- notify the department of the occurrence of all sentinel events by completing the sentinel event notification form
- report the investigation findings and risk reduction action plan within 2 calendar months to the Department of Health.

### RCA investigation principles

The main principles of a RCA investigation are to:

- focus on systems and processes, not individual performance
- be fair, thorough and efficient
- focus on problem solving
- use recognised analytical methods

- use a scale of effectiveness to develop recommendations.

## Attributes of a RCA investigation

The four major attributes of a RCA investigation are:

1. thoroughness: a complete review of all possible causes is required
2. fairness: in terms of involvement of all staff associated with the incident
3. efficiency: the time taken to undertake the investigation should be consistent with the significance of the problem being investigated
4. independence: including independent team members will reduce the impact of bias and overcome the fear of having to present information others might not want to hear.

## Major steps in a RCA investigation

The major steps in a RCA investigation are:

1. verify the incident and define the problem
2. commission the RCA investigation
3. map a timeline (event and causal factor chart)
4. identify critical events
5. analyse the critical events (cause and effect chart)
6. identify root causes
7. support each root cause with evidence
8. identify and select the best solutions
9. develop recommendations
10. write and present the report.

Defining the problem provides a clear understanding of:

- the problem the RCA team is required to address
- the scope of the investigation
- the consequences of the incident.

## Writing root cause statements (conclusions/casual statements))

Root cause statements are written as conclusions. Conclusions can be either:

- cause and effect statements
- prophetic statements (predictions).

An example of each is given here.

Cause and effect:

The lack of staff training on the management of patients with chest pain resulted in the patient being discharged without appropriate investigations being completed, which contributed to the patient's readmission and subsequent cardiac arrest

Prophetic:

The unavailability of guidelines for the management of chest pain in the emergency department will continue to contribute to the delivery of sub-optimal care.

## **The five rules of causation**

1. Causal statements must clearly show the 'cause and effect' relationship. When describing why an event has occurred, show the link between the root cause and the undesirable outcome.
2. Negative descriptors are not used in causal statements. To force clear cause and effect descriptions (and avoid inflammatory statements) do not use negative descriptors.
3. Each action cause must have a corresponding conditional cause. For every human error in the causal chain, there must be a corresponding condition cause that combined to contribute to the undesired effect.
4. Each procedural deviation must have a preceding cause. Identify the cause of a procedural violation, not the violation.
5. Failure to act is only causal when there was a pre-existing duty to act. The duty to perform might arise from standards and guidelines for practice or other duties to provide patient care.

## **Preparing recommendations and reports**

The RCA team will need to consider who to consult when developing recommendations and be aware of the wider system implications of actually putting recommendations in place.

To be credible, recommendations should be evaluated against:

- the root cause (conclusion) statement
- the level of associated risk
- the hierarchy of control / scale of effectiveness
- achievability
- the perceived value to the organisation.

## **Writing a RCA report**

Reports are written to communicate to management the findings, conclusions and recommendations pertaining to the initial problem the RCA team were requested to investigate. The report is written after recommendations have been evaluated for effectiveness.

The report should include the following elements:

1. executive summary
2. event map
3. cause and effect chart
4. conclusions, supporting evidence
5. recommendations.

The report's comprehensiveness depends on the significance of the investigation findings.

## **Developing the risk reduction action plan**

The causal statements developed in the RCA investigation need to be converted into risk statements. This should be done in conjunction with staff responsible for organisational risk management. It requires an assessment of the level and analyses of the risk.

The risk reduction action plan should include a description of:

- who is accountable for the risk
- what action is to be taken

- who is responsible the action
- when the action is to be completed by
- a measurable performance target.

Completed RCA reports should be endorsed by the health service overarching clinical governance committee. This ensures identified risks and the treatments of these specific risks are communicated to the health service executive and board of management.

### **RCA document management**

Keeping a RCA investigation register will provide a record of the investigations undertaken, when they were done, what problem they were commissioned to solve, and which staff participated.

Keeping a copy of all completed reports, risk reduction action plans and the outcomes achieved is necessary in case a similar problem occurs and the organisation needs to identify which strategies were ineffective.

Documenting risk reduction action plans in a risk register or other action tracking system is necessary to ensure the monitoring and outcome loop is closed.

### **Post-RCA investigation responsibilities**

The RCA facilitator/program coordinator has responsibility for:

- arranging for the findings to be presented to the people involved in the incident
- ensuring organisational reporting requirements are met
- completing Department of Health reporting requirements.

The sponsoring executive is responsible for:

- ensuring a risk reduction action plan is prepared and implemented
- monitoring the progress and outcomes of risk mitigation strategies.

### **For more information**

For more information visit the CRM website at <http://www.health.vic.gov.au/clinrisk/index.htm>