

2.0 ROOT CAUSE ANALYSIS (RCA) methodology¹

RCA is a technique which can be used to uncover the underlying causes of an incident. Reviews should focus on improving **systems** which can then be reviewed for their effectiveness.

When an incident occurs the important issue is not “who is to blame for the incident?” but “how and why did it occur?”

RCA is a systematic investigation technique that looks beyond the individuals concerned and seeks to understand the underlying causes and environmental context in which the incident happened. It is designed to identify the sequence of events, working back from the incident. This allows the real causes of an incident to emerge so that organisations can learn and put remedial action in place. As well as human behaviours, other factors such as organisational or cultural factors can contribute to an incident which may cause harm. These are all known as contributory factors, and the main ones are as follows:

Patient Factors

These are unique to the patient(s) involved in the incident, such as the complexity of their condition or factors such as their language or age.

Individual Factors

These are unique to the individual(s) involved in the incident. They include psychological factors, home factors and work relationships.

Task Factors

These include aids that support the delivery of patient care, such as policies and procedures, guidelines. They need to be up to date, available, understandable, useable, relevant and correct.

Communication factors

These include communication in all forms; written, verbal & non-verbal. Communication can contribute to an incident if it is inadequate, ineffective, confusing or if it is too late. These factors are relevant between individuals, within and between teams, and within and between organisations.

Team & Social factors

These factors can adversely affect the cohesiveness of a team. They involve; communication within a team, management style, traditional hierarchical structures, lack of respect for less senior members of the team and perception of roles.

Education and training Factors

The availability and quality of training programmes for staff can directly affect their ability to perform their job or to respond to difficult circumstances. The effectiveness of training as a

¹ Root Cause Analysis (RCA) is a method of problem solving that tries to identify the root causes of faults or problems, and correcting them.

method of safety improvement is influenced by content, delivery style, understanding and assessment of skill acquisition, monitoring and updates.

Equipment and resources Factors

Equipment factors include whether the equipment is fit for purpose, whether staff know how to use the equipment, where it is stored and how often it is maintained. Resource factors include the capacity to deliver the care required, budget allocation, staffing allocation and mix.

Working conditions and environmental factors

These factors affect ability to function at optimum levels in the workplace and include distractions, interruptions, uncomfortable heat, poor lighting, noise and lack of or inappropriate use of space.

The root causes of an incident can be found in a broad mixture of interconnecting factors within a system (**similar to those described in the earlier “systems model”**).

Understanding why an incident has occurred is a fundamental part of the reviews – and key to ensuring that the incident is not repeated. Given that some incidents are about system failures, RCA attempts to dissect what may be a complex chain of events and the interaction between local conditions, human behaviour, social factors and organisational weaknesses.

2.1 Benefits of RCA

There are a number of benefits to undertaking reviews using this model. These include:

- Providing a structured and consistent approach to incident investigation across all care settings;
- Shifting the focus away from individuals and on to the system to help build an open and fair culture;
- Demonstrating the importance of reporting incidents;
- Focussing on the importance of learning.

2.2 Who should be involved in the RCA incident review?

The review team should include staff who represent a variety of groups and professions within an organisation. (Staff who lead a review/investigation team under this methodology should have an in-depth understanding of the RCA methodology and be able to apply the tools & techniques). For all incidents investigators need to be able to demonstrate competence, credibility, objectivity and a degree of independence.

There should always be the opportunity for the vulnerable adult and/or their family to be involved in the review. They should be asked for their view of events and given information about the review, the findings and the proposed remedial actions. (**see section 4.0 on Engaging with Adults at Risk during reviews for guidance**).

As a guide it has been suggested by the NPSA that the following types of incidents are worthy of a root cause analysis:

- All unexpected deaths that were directly related to an incident.

- All incidents that resulted in suspected permanent injury, loss of function or loss of a body part (NHS full RCA required)
- All incidents that were prevented (near miss) but considered by the investigator to be worth an in-depth review of not only what, why and how it happened but also what were the actions that prevented the incident from affecting the person.
- All incidents which trigger an external investigation such as a coroner's inquest, complaints, legal claims or criminal investigations.

2.3 What data is collected for RCA reviews?

There is a vast array of information and data surrounding any incident. Sorting out what is relevant and what is not can be difficult. The types of information required for a review include:

- Health & care records
- Clinical & diagnostic results such as recent blood screens, x-rays etc
- Current policies, procedures & protocols in place in the setting where the incident took place
- Staff rota's
- Staff training records
- The original alert form or other incident report form
- A written reports from staff who witnessed the incident

Interviews

Interviews should be held by the lead investigator to find out what happened & why it happened. This should be explained in detail to the interviewees or their representative, depending on their capacity to be involved (**see section 4.1 Mental Capacity**). The interview process should be supportive and non-judgemental, and should be conducted in private.

Interviews increase both the quantity & quality of information obtained from both witnesses and the adult at risk. It is useful to obtain from those involved, a chronology of events as they saw them happening. These can then be compared with each other to form a bigger picture of what happened. Questions should be typically open-ended to allow people to give their own interpretation of events.

Interviews with the adult at risk and/or their representative

The same types of questions should be used for both the staff and the adult at risk and/or their representative. However the level of involvement of the adult at risk will depend on the seriousness of the incident, but should include:

- Informing them that an incident has occurred;
- Informing them of the type of review and what this will entail;
- Asking for their perception of the events leading up to, and including the actual incident & identifying a chronology of events as they saw it;
- Advising them on the progress of the review;
- Involving them in the post-review meeting;
- Informing them of the findings of the process and providing a written report;
- Providing information of the proposed remedies that the organisation will be putting in place.

(All the above depends on the capacity of the capacity of the adult at risk which will have been assessed if necessary under the Mental Capacity Act 2005).

Care records

If an adult at risk is involved in an incident which results in an review, the details of the incident should always be recorded in their care records. Care records are also a useful source of information as they should show appropriate interventions/actions taken with the adult at risk and are an indicator of the type and level of care provided.

Equipment

Equipment that may have caused the harm or contributed to (eg hoists) should be preserved if at all possible in the state it was in at the time of the incident. It may need inspection by another agency such as Health & Safety.

Site Visits

A site visit can help the investigator to establish whether the physical environment was a contributory factor in the incident. The investigator should be shown round the site by a member of staff who was present when the incident occurred. Photographs, measurements or sketches of layout are useful records of the visit and can assist with later analysis.

Other data

An investigator may decide that various other pieces of evidence need to be collected, depending on the type of incident. Other data could include; switchboard/telephone records, audit reports, minutes of meetings, maintenance reports, safety accreditation information (for electrical equipment) and risk assessments.

2.4 Mapping the events

Once the investigator has collected the basic data about an incident, the input of the staff associated with the incident helps piece together the chain of events that led up to it. Involving the staff in this mapping exercise has been found to have a significant positive impact on the way a team works together and allows individuals to contribute to workable solutions. Ideally a full RCA team will include all the staff involved in the incident. They should consider the incident together rather than from separate or individual sides of the story.

1.5 Running the review team

The multi-disciplinary review team offers all members of staff involved in the incident the opportunity to contribute their account of the chronology and their view of the causes. This may be the first time that staff have been able to discuss the incident in detail and to hear what others involved are saying. It is important that they do not feel constrained from making a full and honest contribution to the review process. Time is precious for all staff working with vulnerable adults therefore any team review should be as short as possible with an agreed agenda, minute taker and clear record of outcomes. The following tools can be used to map and track the chronological chain of events:

- Traditional timeline;

- Tabular timeline;
- Time-person grids.

1.6 Analysing the information

Once the information about the incident has been gathered and mapped it needs to be analysed to identify underlying causes and lessons that can be learned. When carrying out this stage of the RCA the investigator should consider the circumstances that individuals faced at the time and the evidence they had before them, and not be biased by either the outcome or hindsight.

A number of analysis tools are available but the following have been shown to work well across different care settings. They can be used by an individual investigator or a review team and include:

- Brainstorming
- Brainwriting
- Nominal group technique
- Five why's

Brainstorming can be both unstructured and structured. With unstructured, everyone can freely verbalise ideas and be spontaneous, however this can lead to one person dominating the activity. Structured brainstorming allows each participant equal opportunity to offer ideas in turn. This can be more constructive and allows for more equal participation.

The object is to generate as many ideas as possible on a subject in a short amount of time. It can be used to identify the causes of an incident and/or solutions to those causes. There is no ideal group size although a manageable group of 5-12 is a good guide. Appoint a group member to capture the ideas on a flip-chart or post-it notes. Ideas can also be grouped and ordered into priority areas.

Brainwriting shares many features with brainstorming but ideas are proposed and written down anonymously and collected by the facilitator. The facilitator then transcribes the ideas onto a flip-chart and begins to generate a group discussion based on them. This often suits groups where there is a mix of senior and junior personnel, where some people may feel uncomfortable speaking out.

Nominal group technique is another structured method of generating ideas, prioritising the ideas and deciding which ideas to explore further. It is also used for consensus-building and for voting on ideas raised. Sometimes it is used following a brainstorming session.

Five why's involves a process of asking "why?" five times, or enough times in a row to detect the root cause of a particular incident. Its focus is to enable the RCA investigator to penetrate more deeply into the causes of the incident. After the gathering and mapping of information, which identifies problem areas, it asks why each problem occurred until the root cause is found. It allows staff to think beyond the immediate or obvious conclusions about who was responsible or why an incident occurred. The exact number of times to ask "why?" depends on the complexity of issues, five times is a useful guide.

1.7 Barrier Analysis

A barrier (or safeguard) is a control measure which, if in place, may prevent harm to a vulnerable adult. A barrier in health or social care is either an obstruction (e.g. locked controlled drugs cupboards) or preventative action (e.g. using a checklist). The fact that an incident has taken place means that one or more of the barriers have failed.

This stage of RCA is known as “barrier analysis” and is designed to identify:

- Which barriers should have been in place to prevent the incident;
- Why the barrier failed;
- Which barriers could be used to prevent the incident happening again;

There are four main types of barriers to consider, and there may be more than one which influenced the incident.

Physical barriers such as key-pad controlled doors, controlled drugs kept in double-locked cabinets which require two keys usually kept separately.

Natural barriers (time, distance, place) such as giving drugs on different days by different people, the system for checking prescriptions in community pharmacies ie a 10-minute break from first check to dispensing, pre-and post-operative swab counts.

Human action barriers such as checking the temperature of a bath before immersing an elderly person, checking patients identification with a staff member, surgical site markings.

Administrative barriers such as having access to the correct policies and procedures, being able to understand checklists, using computer systems.

When considering the different barriers you should always remember that humans are involved and an element of human error is acceptable.

1.8 Developing solutions and an action plan

RCA always concludes with a review report. This needs to be written as soon as possible after the review. Some basic guidelines for writing a report include:

- Keep it simple and easy to read.
- Start with a summary, describing in brief the incident, its consequences, the nature of the review, findings and recommendations.
- Use a contents list and clear headings that follow the relevant stages of the review.
- Include a title and always make it clear whether it is a draft or the final.
- Be clear about document control including version number and date, reference number, filepath, page numbering.
- Don't use any identifying information related to either the vulnerable adult or the staff involved – identify people by Mr A, Dr 1 etc.
- Include recommendations for change and identified solutions in the conclusion. This should also incorporate an action plan with named leads to be responsible for implementing the solutions, along with realistic timescales.

Action plans should be monitored by the relevant organisation on a regular basis to ensure timely implementation and there should be an element of challenge where actions are not being implemented.

For the purpose of this process, the report and regular updates on progress against action plans should also be presented to the Safeguarding Adults review group.

There is an example report template at **Appendix 5**, and example action plan templates at **Appendix 6**.

