Agenda

• What is root cause analysis?
• Why use root cause analysis?
• How to use root cause analysis?
What is Root Cause Analysis?
Definition: Root Cause

root cause (ruːt kɔːz)

- Definitions

noun

the fundamental reason for the occurrence of a problem
Organizational Problems

• Every organization faces problems, adverse events, mistakes, and barriers to success.
• We **should** accept that there will continually be problems.
• We **should not** accept that these will be the same problems.

• Q: What is a burning problem that your team is currently facing?
Problem Solving

• Q: How do you typically solve problems?

• Standard problem solving procedure:
  • Identify the cause(s) of the problem.
  • Eliminate the cause(s).
Levels of Causes

- **Symptoms**: The signs of the problem, not the actual problem itself.
- **First-level/immediate causes**: The apparent, direct precursor and cause to a problematic incident.
- **Higher-level causes**: The cause of the first-level/immediate cause, not the direct cause of the problem.
- **Root cause**: The basic, underlying reason for a problem or event.
Cause & Effect

• All levels of cause interact as a chain reaction that leads to the visible problem itself.
Root Cause Analysis

• A systematic process to identify the “root cause” or underlying problem that has lead to a problem event.
• A core component of any effective problem-solving process.
Purpose of Root Cause Analysis

• Gain a full understanding of how a process, or processes operate.
• Identify the potential cause(s) of a variation or problem within that process.
• Make changes within the process to reduce the likelihood of the variation or problem from happening again.
Example: A Broken Wrist

- Immediate cause: Tripped on carpet
  - Solution based on immediate cause: Smooth carpet; walk more carefully

- Root cause: Shuffling due to feelings of unsteadiness and lack of balance
  - Solution based on root cause: Use walker; change medications that are causing dizziness
Process vs. Performance Error

- Problems and unexpected variations often attributed to human error.
- RCA challenges a deeper, systematic look at the processes and conditions in which human error occurs.
Brief History of RCA

• Originated in the engineering field.
  • The method is credited to the founder of Toyota, Sakichi Toyoda
• Now commonly used in numerous other fields.
• Different approaches to RCA:
  • Safety-based RCA
  • Production-based RCA
  • Process-based RCA
  • Failure-based RCA
  • Systems-based RCA
RCA in Healthcare

• Huge impact of adverse events in medical care.
  • 44,000-98,000 deaths related to preventable medical errors annually
  • $17-$29 billion annual cost related to preventable medical errors
    • *To Err is Human, Building a Safer Health System*, Institute of Medicine publication. (1999)

• Joint Commission added RCA as a required assessment tool for adverse event investigations.
  • Other regulatory bodies also now require use of RCA.

• RCA is now a fairly common tool in health care to solve issues of:
  • Patient safety
  • Process failures
  • Quality improvement
Why Use Root Cause Analysis?
Dandelion Analogy

• Dandelions are a problem in your garden—they are an eyesore and choke out the other plants.
• If you leave the dandelions alone they will grow unabated and ultimately take over the garden.
• If you cut the dandelions back at the surface, they will ultimately grow back.
• The dandelion’s roots must be removed to prevent it from growing back and spreading its seed.
Assumptions of RCA

• The most effective way to solve a problem is to address the root cause.
• Immediate causes are just “symptoms” of an underlying cause.

Root Cause Analysis Basics

  Above the surface (obvious)

- The Underlying Causes. “The Root”
  Below the surface (not obvious)

The word root, in root cause analysis, refers to the underlying causes, not the one cause.
Benefits of RCA

• Reveals the fundamental *why* of a problem.
• Develop effective corrective action to improve the current situation
• Prevention of future occurrences.
Benefits of RCA

• Reduces bias and blame.
• Builds a culture of improvement.
• Valuable investment of time and resources into addressing sources of problems saves time and resources over the long term.
“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.”
Uses of RCA

• Utilize with high performing teams to identify:
  • Strengths
  • Best practices

• Utilize with low performing teams to identify:
  • Source of problems
  • Potential solutions
How to use Root Cause Analysis
Steps in RCA

- Define the Event
- Find Causes
- Find the Root Cause(s)
- Find Solution(s) & Take Action
Define the Event
“If I had an hour to solve a problem I'd spend 55 minutes thinking about the problem and 5 minutes thinking about solutions.”

Albert Einstein
Identify RCA Team

• 3-6 members
  • Size will depend on the event

• Select members with:
  • Combination of knowledge about the event & about RCA
  • Directly or indirectly related to the event.
  • A variety of roles and perspectives.
  • Credibility and respect in the organization.
Describe the Event

• What happened or is happening?
• When did this occur?
• Where did the event occur?
• Who was involved in the event?
• Has this event occurred before?
• What are the specific symptoms or known consequences?
Tips: Describe the Event

• Be specific and objective in the description.
• Don’t speculate about causes—yet
• Everyone working on the RCA should agree to the problem definition.
• Writing a problem statement or description of the event may be helpful.
• Use multiple perspectives from early on in the RCA—this is a collaborative process.
Collect Data

• Using data will help eliminate bias in the RCA process
  • Emotions may run high

• Find evidence to help define the problem:
  • What proof do you have that the problem exists?
  • How long has the problem existed?
  • What is the impact of the problem?

• Data could include reports, patient health records, statements, audit tools, etc.
Event Description

- Accuracy and completeness is essential in event description as it will directly influence the causes identified.

- Q: How would you describe the event or problem that we have identified?
Find Causes
Finding Causes

• Create an extensive list of possibilities to ensure that all factors that may have lead to the event are considered.

• Include the perspectives of all key stakeholders and others impacted by, or who may have impacted the problem event.
Tools & Techniques to Find Causes

• Process mapping
• High-level mapping
• Brainstorming
Process Mapping

• Map the process the problem occurred within.
  • What is the sequence of activities the event was a part of?
• A flowchart is a helpful tool to document the process.
High-Level Mapping

• Summarize high-level factors that play a role in the process and/or event in a more indirect way.

• Stakeholder factors
  • Who are the stakeholders of this process?
  • What are there expectations of what should happen in this process?

• Contextual factors
  • What about the setting in which the event took place have an impact on it?

• Environmental factors
  • What are the factors in the environment that influence the process in which the event took place?
Brainstorm Ideas

• Widely used tool to come up with all potential causes of a problem.
• There is no bad idea in brainstorming.
• Write down all causes a team identifies
  • Do not yet evaluate or criticize ideas during brainstorming.

• Q: What are some ideas of potential causes for the problem we have identified Centerstone of Illinois is facing?
Find the Root Cause
Success in Finding the Root Cause

• Use analytical thinking vs. creative thinking
• Don’t declare success too soon—keep digging to ensure the true root cause is identified.
• Don’t resort to individual blame—what are the conditions and processes that lead to mistakes being made?
Categorize Causes

• Assess what categories might be relevant to a specific event that are not captured in brainstormed causes.
  • EHR-related? Training-related? People-related?

• Identify what categories the brainstormed causes fall into.
  • It is not uncommon to identify additional causes as categorization takes place.

• Can discuss and evaluate brainstormed causes as they are categorized to determine if they are realistic.

• Ask: Anything related to how _______________ works/worked that lead to this event?
Common Categories

- People
- Process
- Equipment
- Environment
  - Emotional environment
  - Physical environment
- Communication
- Technology
- Leadership
- External
Cause-and-Effect Diagram

Late for Work

People:
- Children
- Demotivated
- Tired
- Lazy
- Coffee Machine
- Car
- Train
- Alarm Clock

Method:
- Alarm Clock
- Waking Time
- Route to Work
- Distance to Work
- Traffic Jam
- Fog
- Rain
- Holiday

Measurement:
- Bonus
- Clocking In
- Incentive
- Late for School
- Food
- Clothes
- Petrol
- Electricity

Machine
Environment
Materials
DILBERT TEACHES "QUALITY" MANAGEMENT IN ELBONIA

THE FISHBONE DIAGRAM HELPS IDENTIFY THE ROOT CAUSE OF PROBLEMS.

IN YOUR CASE, THE ROOT PROBLEM SEEMS TO BE THAT YOU'RE A NATION OF IMBECILES...

TRUE, BUT YOU'RE THE ONE WHO HAD TO DRAW A DEAD FISH TO FIGURE IT OUT. YOU'RE IN THE CLUB! HERE'S YOUR HAT.
Tools to Find Root Cause

• Five whys
• Span of control analysis
• Centerstone Root Cause Analysis template
• Centerstone Hospitalization/ER Root Cause Analysis
Five Whys

• Very basic RCA tool
• Based on brainstorm and categorization identify a plausible root cause.
• Ask “why” this circumstance or context occurred, and document this.
• Continually ask “why” for each successive answer until no new answer is possible.
• Ask “why” a minimum of 5 times.
Span of Control Analysis

• Tool to contain the scope of RCA to those root causes that are within our control to fix or eliminate.

• Group causes by those that are within your:
  • Span of control
  • Sphere of influence
  • Outside of influence
Root Cause vs. Root Causes

• Many events have more than one root cause.
• Assessing the level of control over these may indicate the root cause(s) it will be most effective to target change efforts at.
Discussion

• Q: What steps can you take to solve problems that are outside of your immediate span of control?
Find Solutions & Take Action
What is a Solution?

- New routine or process
- Technological upgrades/changes
- New competence or skill
- Increased accountability
- New quality system
- Fool-proofing device
Plan Implementation of Solutions

• Scope of implementation plan will vary.
  • Trigger a full-scale project
  • Simple fix
Implementing Solutions

- At minimum identify:
  - The root cause(s)
  - Proposed solution(s) to address the root
  - Who is responsible for implementing the solution?
  - What is the timeline for implementing the solution?
  - What is the resolution or outcome?

<table>
<thead>
<tr>
<th>Root Cause</th>
<th>Proposed Solution</th>
<th>Who Responsible</th>
<th>When Due</th>
<th>Resolution</th>
</tr>
</thead>
</table>

CENTERSTONE
“For the want of a nail the shoe was lost, 
For the want of a shoe the horse was lost, 
For the want of a horse the rider was lost, 
For the want of a rider the battle was lost, 
For the want of a battle the kingdom was lost, 
And all for the want of a horseshoe-nail.”
Benjamin Franklin