NHS Improvement

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Root cause analysis using five whys

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Root cause analysis using five whys

What is it?

By repeatedly asking the question 'why?' (use five as a rule of thumb), you can peel away the layers of a problem to get to the root cause.

Five whys can help you determine the relationship between different root causes of a problem. It is a simple tool and can be completed without statistical analysis.

When to use it

You can use this tool either in isolation or to complement a root cause analysis. Because it quickly helps identify the source of an issue or problem, you can focus resources in the correct areas and ensure you are tackling the true cause of the problem, not just its symptoms.

How to use it

1. Write down the specific problem. This helps you formalise the problem and describe it accurately. It also helps a team focus on the same problem.
2. Use **brainstorming** to ask why the problem occurs then, write the answer down. If this answer doesn't identify the source of the problem, ask 'why?' again and write that answer down. Loop back until the team agrees that they have identified the problem's root cause. This may take fewer or more than five 'whys?'

The **cause and effect (fishbone) diagram** helps you explore all potential or real causes that result in a failure or problem. Once you have established all the inputs on the cause and effect diagram, you can use the five whys technique to drill down to the root causes. The key is to avoid assumptions and encourage the team to keep drilling down to the real root cause.

If you try to fix the problem too quickly, you may be dealing with the symptoms not the problem, so use five whys to ensure that you are addressing the cause of the problem.

Remember, if you don't ask the right questions, you won't get the right answers.

Examples

An example of root cause analysis using five whys would be:

The patient was late in theatre, it caused a delay. ***Why?***

There was a long wait for a trolley. ***Why?***

A replacement trolley had to be found. ***Why?***

The original trolley's safety rail was worn and had eventually broken. ***Why?***

It had not been regularly checked for wear. ***Why?***

The root cause is that there is no equipment maintenance schedule. Setting up a proper maintenance schedule helps ensure that patients are not late due to faulty equipment.

Another example of root cause analysis using five whys would be:

The patient's diagnosis of skin cancer was considerably delayed. ***Why?***

The excision biopsy report was not seen by the surgeon. ***Why?***

The report was filed in the patient's notes without being seen by the surgeon. ***Why?***

It was the receptionist's job to do the filing. ***Why?***

The junior doctors were busy with other tasks. ***Why?***

The root cause is that the doctor's other tasks were seen as more important than filing. The system has now been changed. A copy of all biopsy reports are sent to the consultant surgeon responsible for the patient and no reports are filed unless they have been signed by a doctor.

What next?

Once you have identified the root cause of the issue, the next suggested step is to complete a **cause and effect (fishbone) diagram**. **Brainstorming** can help you identify potential solutions.

You will need to communicate the outcomes to others to ensure that the root cause of the problem is understood and that everyone is focused on working on the correct problem area, not treating its symptoms.

Additional resources

Bicheno, J (2008) *The Lean Toolbox: The Essential Guide to Lean Transformation*, PICSIE Books: 4th edition

Liker, J (2004) *The Toyota Way Fieldbook: A Practical Guide for Implementing Toyota's 4Ps*, McGraw-Hill

Mannon, M and Collins, D (2015) *Quality Management in a Lean Health Care Environment*, Business Expert Press, New York

Background

Five whys was devised by Toyota as they developed their manufacturing methodologies. It forms a critical component of their problem solving training and is part of the induction into the Toyota production system. It is used in the 'analyse' phase of Six Sigma (define, measure, analyse, improve, control).