**5 Whys**

A tool to assist in ascertaining the underlying or root cause of a problem

**WHY**

Understanding and addressing the root instead of a superficial cause is preferable because:

* Addressing a superficial cause will likely result in the issue resurfacing repeatedly
* Eliminating the root cause will likely result in a lasting solution

**WHEN**

* In the analyze phase, before attempting to resolve the issue
* When there is a need to resolve simple to moderately difficult problems

**HOW TO**

1. Begin with the problem statement.
2. Ask Why is this problem occurring? Cause 1, the most proximate to the problem, may also be obtained by studying the Cause & Effect Diagram or one of the tall bars on the Pareto Chart.
3. Ask, Why does this outcome occur? The answer, Cause 2, forms the basis for the next question and the activity continues on in similar fashion.
4. Continue to ask Why iteratively (multiple times in succession) until you have arrived at a potential root cause

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| **TIPS**   * Use this simple tool first whenever a process or system is not working properly, before moving to a more in-depth analysis such as root cause analysis (RCA) or Failure Modes Effects Analysis (FMEA) * The root cause may be reached in 3 Whys or 7 Whys, there is nothing scientific or magic about the number 5 * Search deeper for system issues instead of blaming a person * Stop when the team has reached a root cause that they will be able to act upon * Do not fall into the trap of always identifying the last Why as “Lack of People/Staff” or “Lack of Resources” |

**Resources:**

* The 5 Whys Problem Solving MethodVideo - [www.mindtools.com](http://www.mindtools.com)

**Template:**

* 5 Whys

**5 WHYS**

**Cause & Effect Diagram (Fishbone)**

A tool to brainstorm/identify possible ***causes*** of a problem and to sort the ideas into useful categories.

**WHY**

* A visual way to look at and organize critical thinking about potential causes
* To identify that there may be multiple causes to one effect or problem

**WHEN**

* In the analyze phase, before attempting to resolve the issue
* When a more structured approach is needed to assess contributing causes for a problem of greater complexity

**HOW TO**

1. Engage the team in brainstorming about potential causes of the problem.
2. Using the template, write the problem statement (effect) at the mouth of the “fish”.
3. Agree on the categories that are appropriate for the particular problem. The 6 standard manufacturing categories include the 6 “M”s, but may be modified as noted in the parentheses for health care:
   * Man (People)
   * Machines (Equipment)
   * Methods (Policies/Procedures)
   * Mother Nature (Environment)
   * Material (Supplies)
   * Measurement (Process)
4. Brainstorm about all the possible causes, creating branches from the appropriate major category/ies
5. Sub-branches from the causes may be created, if needed, to probe for the underlying or root cause/s

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| **TIPS**   * Keep focused on causes of the problem, not symptoms * The Fishbone can be combined with the 5 Whys tool, continuing to explore root causes |

**Resources:**

How to Use the Fishbone Tool for Root Cause Analysis

<https://www.cms.gov/medicare/provider-enrollment-and-certification/qapi/downloads/fishbonerevised.pdf>

IHI Videos: Cause & Effect Diagram and The Science of Improvement on a Whiteboard

**Template:**

* Fishbone

**Cause & Effect Diagram (Fishbone)**

**Materials / Supplies**

**Process**

**People**

**Effect (Problem)**

**Equipment**

**Policy /**

**Procedure**

**Environment**

**Pareto Diagram**

A combined bar & line graph used to determine the frequency and/or significance of problems or causes of problems

**WHY**

Identifying the major contributing causes of the problem allows the improvement focus to be on those causes that will yield the biggest gains, if addressed

**WHEN**

Analyzing data, especially when there are many different causes to a problem, in order to focus on addressing the most significant causes

**HOW TO**

1. Determine the categories into which the data will be divided – can be errors or defects or causes of errors or defects
2. If data must be collected, create a Data Collection Plan
3. Create a Pareto Diagram
   1. Tabulate the Scores 🡪 Populate the template table:
      1. Sort data into pre-determined categories; Sub-total each category
      2. Tabulate the total number of causes or errors
      3. Rank/order the categories from most to least
      4. Calculate the percentage of each category and the cumulative percentages
   2. Create the diagram/graph:
      1. Complete the bar graph portion of the Pareto Chart
         1. The left vertical axis – Order the frequency of each category starting with the tallest bar (most frequent) on the left and proceeding to the shortest bar (least frequent) on the right. If there are several smaller categories, combine them all into an “Other” category
      2. Then complete the line portion of the Pareto chart
         1. The right vertical axis (Scaled from 0-100%) – Using the percentages, create the line to represent the cumulative percentage of all the causes as it tracks across the graph from left to right (reaching 100% at the right axis)
4. Interpret a Pareto Diagram - Resulting graph will visually demonstrate the most significant causes; A Pareto effect will be seen when the few significant causes are responsible for approximately 80% of the problem (80/20 Rule)
5. Acting on a Pareto Diagram - Addressing these few most significant causes will likely solve the problem

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| **TIPS**  The tabulations can be calculated and charted using the Template Table or the chart can easily be created in Excel. |

**Resources:**

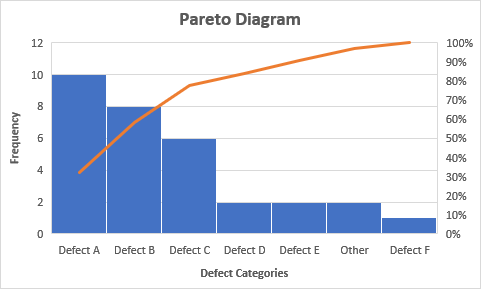
* Pareto Chart <http://asq.org/learn-about-quality/cause-analysis-tools/overview/pareto.html>

**Template:**

* Pareto Chart Table
* Excel Spreadsheet - Enter data - categories (text) and subtotals (numbers) in two columns and select both columns 🡪 Choose Insert 🡪 Select the “Statistical Chart” icon 🡪 Select Histogram 🡪 Select Pareto Chart

**Pareto Diagram Table**

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| **Category of Defects** | **Frequency** | **Percentage (%)\*** | **Cumulative %\*** |
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|  |  | \*May be calculated to create Diagram | |



**Pareto** **Diagram**

Easily created using an Excel spreadsheet