

ED PIP: Diagnostic Phase

Tools: Pareto Analysis

Pareto Analysis – Overview

Outcome	<ul style="list-style-type: none"> ▪ Critical issues are identified and prioritized using the 80/20 rule
Definition: 'What is it?'	<ul style="list-style-type: none"> ▪ The Pareto chart is a bar chart where the values are arranged in descending order with the largest contributors listed first ▪ Pareto analysis is used after the improvement team have identified all the inputs in the process and are ready to sort out the 'vital few'
Objectives: 'What is it used for?'	<ul style="list-style-type: none"> ▪ The Pareto Principle/Chart <ul style="list-style-type: none"> – The Pareto chart is a fast way to identify significant contributing factors from the insignificant ones (Also known as the 'vital few' and 'insignificant many') – It helps the improvement team to determine which areas will have the most impact on affecting change and making improvements to the process – Progress is measured in a highly visible format that provides incentive to push for more improvement – It identifies areas where the team is not going to devote their time as a result of the data showing little opportunity of impacting the outcome
Benefits:	<ul style="list-style-type: none"> ▪ It is often used with other process improvement tools, such as fishbone diagrams, to identify and prioritize key issues
When to use	<ul style="list-style-type: none"> ▪ The Pareto principle is employed whenever quality defects are shown to have multiple causes and prioritization is required to determine which issues to address first

Tip for integrating Lean principles into healthcare:

- *Part of successfully implementing Lean in healthcare is adopting common language that may have originated in manufacturing and internalizing how it is used in a healthcare environment*
- *A Pareto Analysis is a statistical term and will help prioritize areas that have the highest likelihood of creating a positive impact*

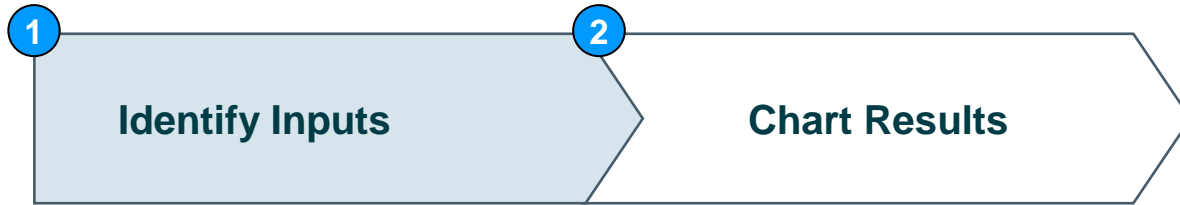
Pareto Principle

Rule of Thumb: 80% of the problem is due to 20% of the causes, otherwise known as the 80/20 rule.

Examples

- 80% of the warranty claims occur in 20% of the product line
- 80% of sales is generated by 20% of the product line
- 80% of a company's quality costs come from 20% of its quality problems
- 80% of company's revenue is generated by 20% of its customer base
- 80% of a nurse's time is spent with 20% of her patients
- 80% of Emergency Department delays are a result of 20% of the causes
- 80% of medication errors are a result of 20% of the causes

Pareto Analysis - Instructions For Use (1/2)

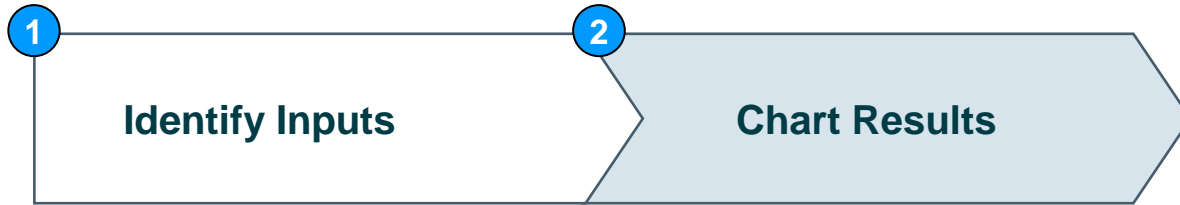


1. Determine whether the improvement team are looking at defects or causes of defects. From the data which the team has already captured, stratify the data into different categories of defects or causes of defects
2. Understanding the local context, select a timeframe that that is relevant to the problem being studied. This decision should be sure to allow enough data to be effectively stratified across the different categories
3. Calculate the total number of occurrences (frequency count) for the categories created by the improvement team. Plot the data into a table, in descending order. From this table, calculate the percent frequency and the cumulative frequency



- Root cause analysis, using either a fishbone diagram or 5 Whys technique, are useful tools to consider prior to initiating a Pareto analysis
- The team will require sufficient data to stratify the causes among different groups effectively. Ideally, 60 observations or more would be preferred
- Note: An example excel template is available at the end of this section

Pareto Analysis - Instructions For Use (2/2)



1. Plot the data on a bar chart, where each vertical bar represents an individual cause of defects or defect. The bars should be ordered from most to least frequent. The (left) vertical axis represents the number of defects or causes of defects
2. Identify the vertical bar where the cumulative frequency is greater than or equal to 80%
3. Develop an action plan which addresses the 20% of the causes which result in 80% of the problems



- After determining the 'vital few' causes, the team should make sure their initial efforts are directed towards issues which they have the ability (authority) to address

Pareto Analysis – Healthcare Example

Reasons for Discharge Delay

