

ED PIP: Diagnostic Phase

Tools: Root Cause Problem Solving – Fishbone Diagram

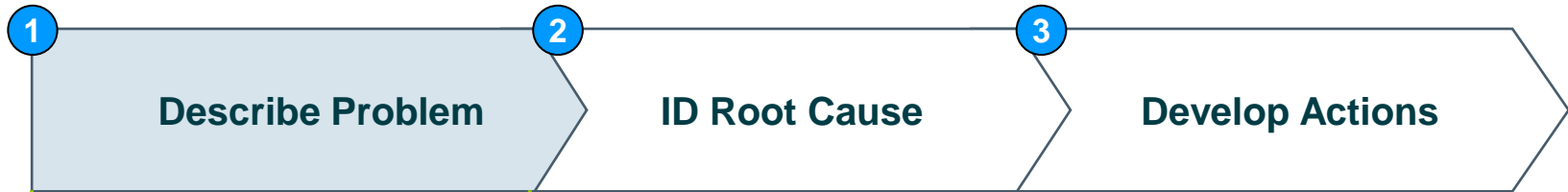
Root Cause Problem Solving: Fishbone Diagram – Overview

Outcome	<ul style="list-style-type: none"> Understand the underlying causes of issues or effects
Definition: 'What is it?'	<ul style="list-style-type: none"> An analysis tool that provides a systematic way of looking at issues and effects and potential causes that may cause or contribute to the issue Also known as a 'cause and effect' diagram
Objectives: 'What is it used for?'	<ul style="list-style-type: none"> To assist teams in categorizing and/or organizing the many potential problems of issues or problems Identify root causes of the issues identified
Benefits:	<ul style="list-style-type: none"> Cause and effect analysis identifies core problems which, when modified, may significantly impact a process and its' outcomes Whenever multiple possible explanations exist for a single issue, root cause analysis enables the team to better understand the issues and prioritize their improvement efforts Generates a large quantity a variable ideas in a short space of time May identify foci for data collection
When to use	<ul style="list-style-type: none"> Need to understand why a process is not performing properly or producing the desired or intended results

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*
- Root Cause Problem Solving in general is the technique of identifying what is causing symptoms to present themselves. Sometimes the Root cause is many steps removed from the actual problem*
- Using Fishbone diagrams help to understand specific things that have a direct effect on the problem*

Fishbone Diagram Instructions For Use (1/4)

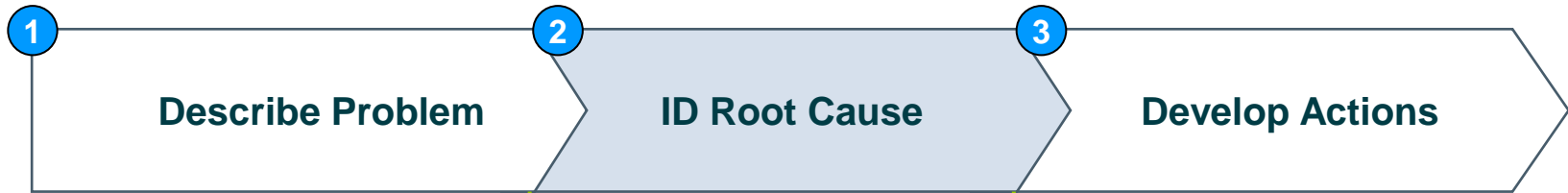


1. As a general guideline, the team can use the following questions to formulate their initial discussion:
 - What is the problem?
 - Why does the problem need to be fixed?
 - Where is it occurring (e.g. which department)?
 - Who is involved? (e.g. doctors, nurses, staff)?
 - When has this occurred?
 - How often does it occur?
 - How have you validated the problem exists?
 - Who needs to buy into the solution?
2. The team should make sure they document in writing the description of the problem and scope of the possible solution space (See Template at end of Root Cause Problem Solving Section of Toolkit)



- In the long run, the team will benefit from developing a clear description of the challenge. They should make sure to:
 - Identify the problem – often, it relates to quality, service delivery and/or cost
 - Make sure the problem exists
 - Gather the necessary information (facts)

Fishbone Diagram Instructions For Use (2/4)

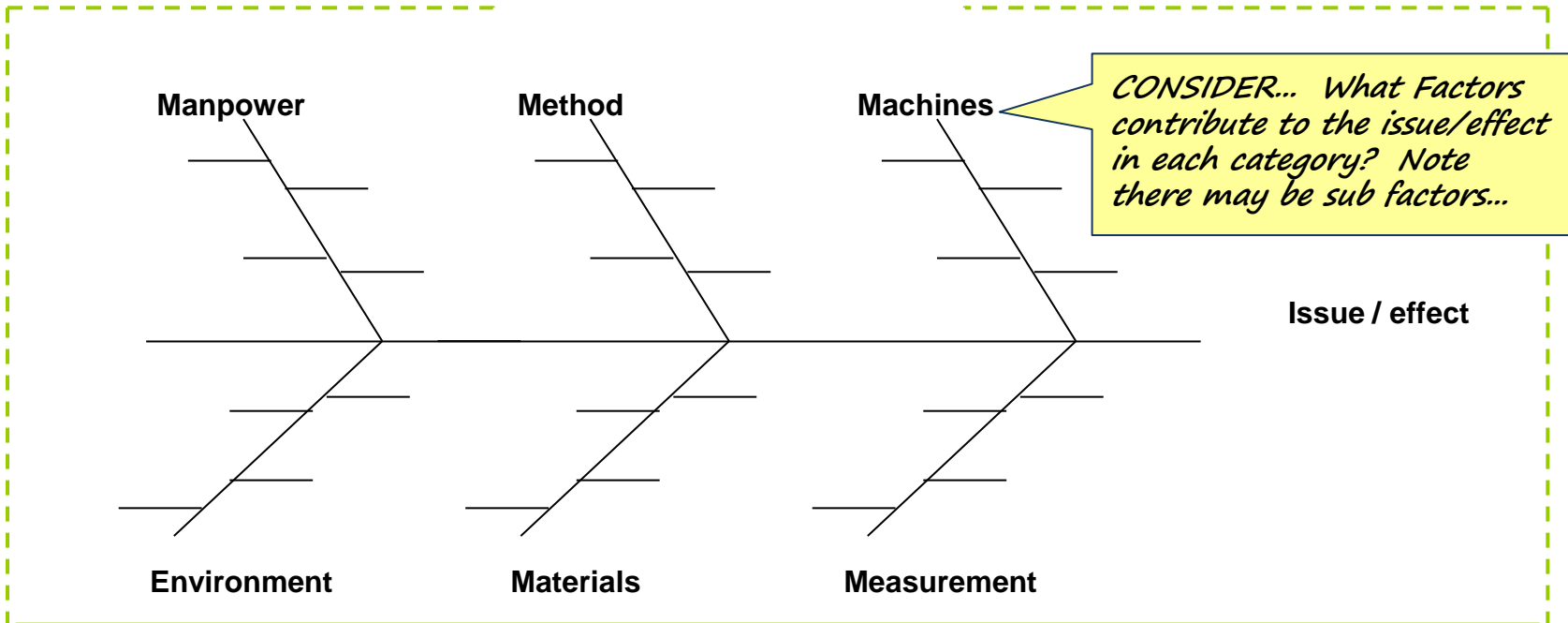
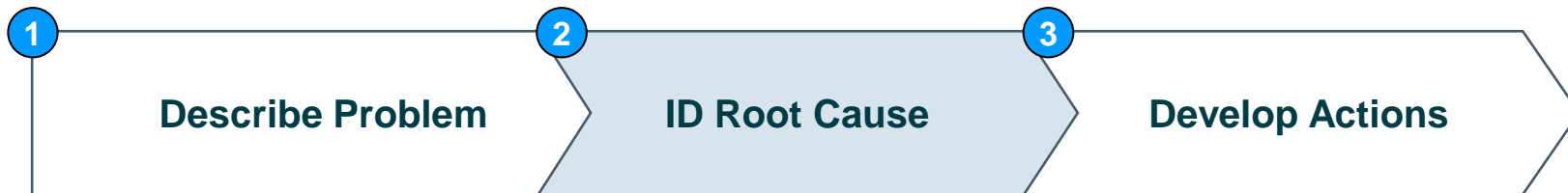



1. Assemble necessary resources and supplies:
 - flip chart, white or black board, writing utensils,
 - data and information required to support discussion
2. Draw the fishbone diagram:
 - List the problem or issue at the 'head' of the fish
 - Label each 'bone' of the fish with the following categories – manpower, materials, machines, methods, measurement and environment (more categories can be added to address the issue)
3. Use an idea generating technique (e.g. brainstorming) to identify the factors in each category that may be contributing to the issue or effect being studied
4. For each category, ask what may be causing or contributing to the issue
 - For example, what machine related issues are we having? Answer: not reliable, breaking down, can find them, not capable, etc...
5. Repeat this procedure with each factor and create sub-factors by asking 'why is this happening?'.
 - Continue until you no longer get useful responses to the question...5 why's. Add sub-factors to the appropriate 'bone'



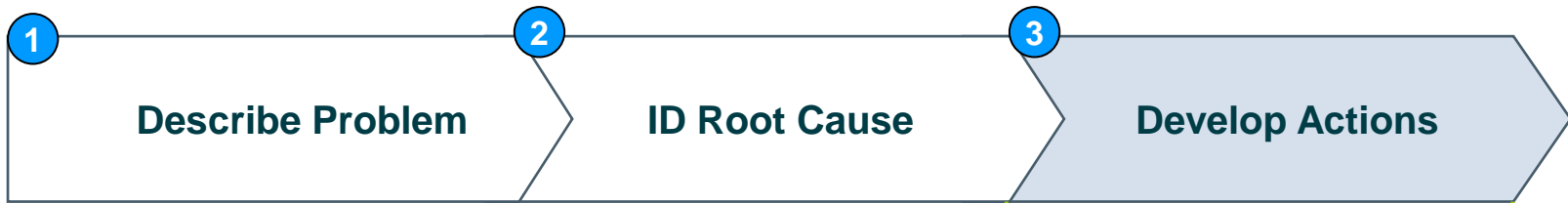
- The fishbone diagram can be thought of as a visual representation of the information generated during a 5 why's exercise. In fact, 5 why analysis forms the basis of constructing a fishbone diagram

Fishbone Diagram Instructions For Use (3/4)



-  Consider the use of ground rules for the team. Dialogue should be: Respectful, Non-judgemental, Objective, Open, Honest, Blame-free, Pertinent and Factual
- Hint: The team may not have to ask why five times to identify the root cause. In some cases, teams may have to ask why nine times and in other cases they may only have to ask why three times

Fishbone Diagram Instructions For Use (4/4)



1. Analyse the fishbone diagram:

- Look for themes or causes that appear in more than one column (e.g. a lot of time spent looking for people or things, training) as these are the ‘most likely causes’
- List ‘most likely causes’ and determine which ones are the actual likely causes; you and the team may need to gather more information about these potential causes by observing the process as it occurs
- In many cases, a large number of the sub-factors are relevant and need improvement. Prioritise these based on impact versus effort

2. Prioritise improvement work based on the list of ‘actual’ and ‘most likely’ causes of the issue

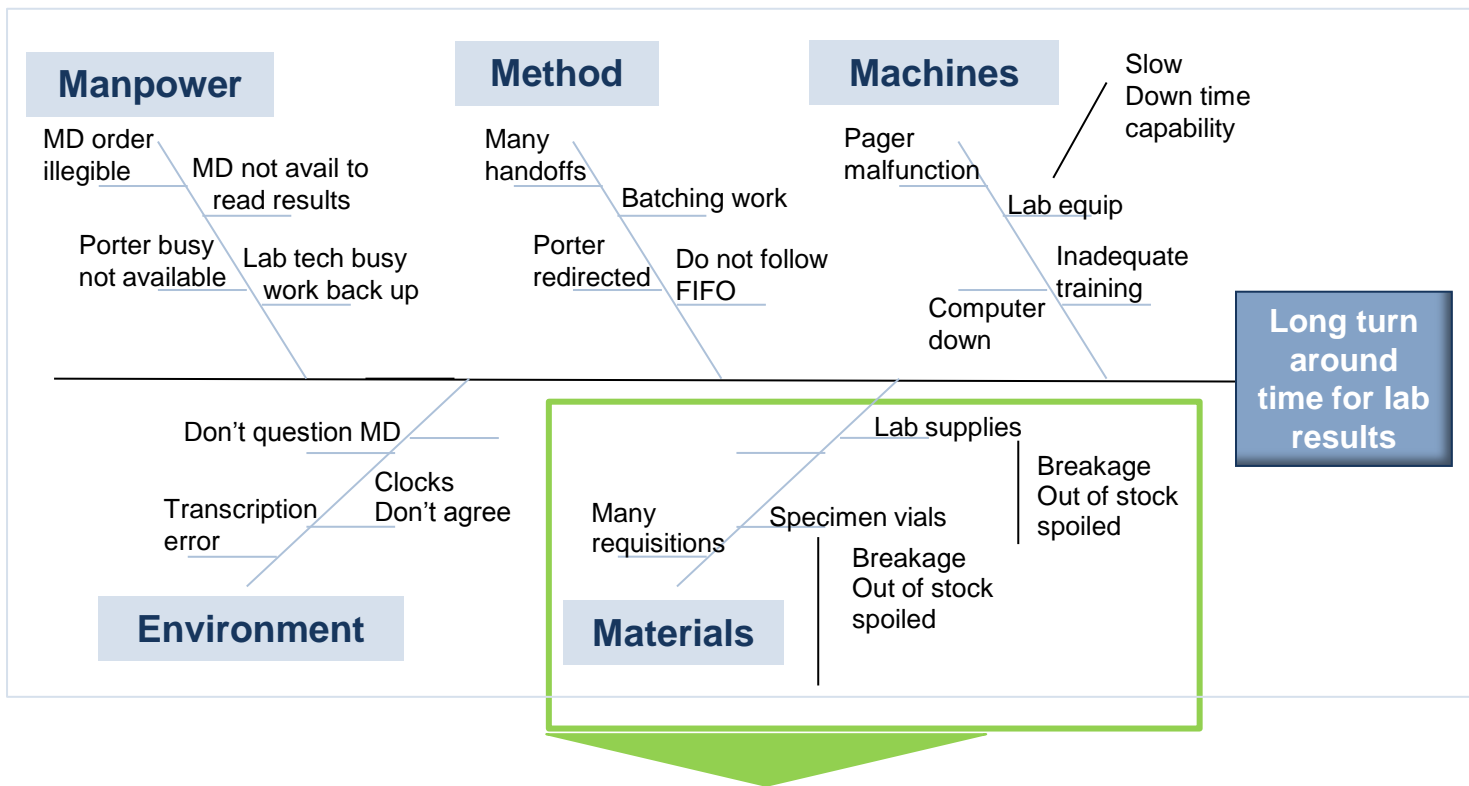
3. Create written and detailed action plans for improvement work



- Decision matrices that incorporate impact and effort are simple and useful tools to prioritise improvement work (e.g. high impact/ low effort causes would be a priority while low impact/ high effort would not)

Let's use an example to help illustrate how fishbone diagrams help identify the root causes...

Fishbone diagram for Lab Turn Around Times



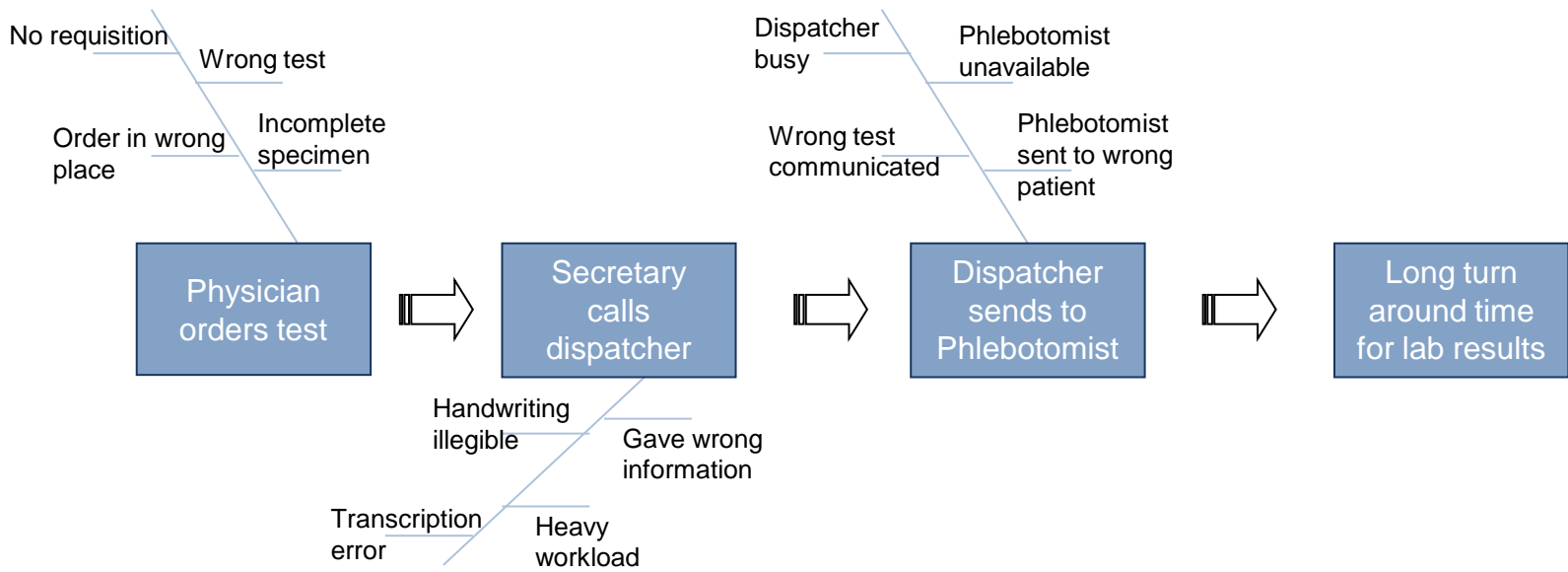
Interpretation...

Based on this interpretation, the team can prioritize appropriately

- Using the Materials “bone” of the fish as an example, it says that the reason there are long turn around times for lab results related to materials are:
 - There is a supply issue (caused by breakage, out of stock or spoiled materials)
 - There are specimen issues (caused by breakage, out of stock or spoiled materials)
 - There is a high volume of requisitions.

In some cases, you may find that using a process to understand root cause using the fishbone diagram tool is more intuitive for the team members to discuss

Fishbone diagram for Lab Turn Around Times



Tips & tricks for fishbone diagrams

- Establish and use a parking lot to address problems or issues that are identified but out of scope for the current root cause analysis
- Remember to use the 5 why technique to create the sub-factors in a fishbone diagram



- Establish team norms and rules before embarking on root cause analysis – specifically, teams must resist the temptation to assign blame, intent or emotion
- Stay focused – it is very easy for individuals and teams to ‘go on tangents’