QI Basics

**Cause and Effect Tool/Fishbone Diagram**

Use this analysis technique and tool to help identify the root cause of the problem.

## Cause and Effect Diagram

A cause-and-effect diagram, often called a “fishbone” diagram, can help in brainstorming to identify possible causes of a problem and in sorting ideas into useful categories. A fishbone diagram is a structured and visual way to discover all the possible causes of a problem and its root cause. The problem or effect is displayed at the “head” of the fish. Possible contributing causes are listed on the smaller “bones” under various cause categories. By directing a team to look at the categories and think of alternative causes, a fishbone diagram can help identify possible causes for a problem that might not otherwise be considered. For the best results, include team members with personal knowledge of the processes and systems involved in the problem or event to be investigated.

## How to Use

The team using the fishbone diagram tool should:

* Agree on the problem statement (also referred to as the effect). This is written at the “head” of the fish. Use the facts gathered during the preliminary investigation to help inform the development of your statement. Be as clear and specific as you can   
  about the problem. Avoid defining the problem as a solution (e.g., we need more   
  of something).
* Agree on the major categories of causes of the problem (written as branches from the central arrow). Major categories often include equipment or supply factors, environmental factors, rules/policy/procedure factors, and people/staff factors. You can be flexible with the categories you use – there isn’t a perfect set or number of categories. Give yourself plenty of room to identify causes and sub-causes.
* Brainstorm all the possible causes of the problem. Ask, “Why does this happen?” As each idea is given, the facilitator writes the causal factor as a branch from the appropriate category (places it on the fishbone diagram). Don’t agonize over how to categorize a cause. What is important is to consider a variety of potential causes across different categories.
* Again, ask, “Why does this happen?” about each cause. Write sub-causes branching off the cause branches.
* Continue to ask “Why?” and generate deeper levels of causes and continue organizing them under related causes or categories. This will help you to identify and address root causes to prevent future problems.
* Review the causes identified and come to a consensus on which the group thinks are root causes, which, if addressed, would likely prevent the issue from recurring.

# Example Cause and Effect (Fishbone) Diagram

**Problem Statement**

**Environmental**

**Equipment/Supplies**

**Rules/Policies/Procedures**

**Staff/People**

**Location, physical**

**layout, visibility**

**Building safety**

**Standards or   
compliance with standards**

**Document**

**issues**

**Lack of ability,   
supervision, scheduling**

**Lack of knowledge, information**

**Scheduling**

**Communication**

**Problem Statement:**

**A patient fell and was injured during a transfer from her wheelchair to the toilet while being assisted by   
an aide.**

**Environmental**

**Equipment/Supplies**

**Rules/Policies/Procedures**

**Lift battery and spare not charged.**

**Aide didn’t know patient was a 2-person transfer.**

**No process to timely   
update Aide cards.**

**Aide’s care card   
not current.**

**Staff/People**

**No process to ensure one battery/lift always charged.**

**Facts gathered during preliminary investigation:**

* **Time of fall**: change of shift from days to evenings
* **Location of fall**: patient’s bathroom
* **Witnesses:** patient and aide
* **Background:** the plan of care stipulated that the patient was to be transferred with two staff members, or with one staff member using a sit-to-stand lift.
* **Information from interviews:** the patient was anxious and needing to use the bathroom urgently. The aide was helping the patient transfer from her wheelchair to the toilet, without using a lift, and the patient fell, sustaining an injury. The aide stated she did not use the lift because the battery was being recharged, and there was no extra battery available. The aide stated she understood that the patient could be transferred with assist of one.