Quality and Safety Series

Cause-and-Effect (Fishbone) Diagram
OBJECTIVES

• Identify a cause-and-effect diagram.
• Explore why an organization should use a cause-and-effect diagram.
• Discuss how to create and implement a cause-and-effect diagram.
Cause-and-Effect (Fishbone) Diagram

• Common names
  – Cause-and-effect diagram
  – Fishbone diagram
  – Ishikawa diagram

• Used as a visualization tool.
• Aids in organizing potential reasons or causes for a real or potential adverse event.
• Encourages broad thinking.
• Best used once you have a defined the problem.
• May also be used to prevent future problems.

https://asq.org/quality-resources/fishbone
Where to Begin

• Start with a **precise** problem statement.
• Use correlative data and information as the foundation of your problem statement.
• Use the “5 whys” to assist the team in drilling down to the root causes.
• Use “brainstorming.”
The Fishbone Diagram Template

Cause

- Equipment
- Process
- People

Secondary cause
- Primary cause

Materials
- Environment
- Management

Effect

Problem
Example of a Completed Fishbone Diagram

Data System Needs
- Identify trends for improvement
- Optimize the use of electronic information
- Identify readmissions concurrently
  - Multidisciplinary performance improvement (PI) workgroup
  - Adequate case management (CM)/social work staffing
  - Nursing/CM collaboration
  - Ongoing staff member education

Post-Acute Partnering Needs
- Skilled Nursing Facility (SNF)/Home Health (HH)/Rehabilitation/Primary Care Offices/Clinics
- Disease Networks
  - Community-based organizations (CBOs) for example: nutrition or transportation

Patient/Family Activation Needs
- Know worsening symptoms and who to call
  - Knowledge and use of medications
  - Teach-back for diagnosis/goals and change
  - Follow-up appointment made and confirmed
  - 72 hour post discharge call for high-risk (LACE)
  - Ensure durable medical equipment (DME) delivery
  - User friendly patient education handout

Hospital System Needs
- Effective handoff practices
  - Patient and family education/activation

Immediate Discharge Needs
- Assure appropriate medication available and provided
- Outpatient clinics/emergency department (ED) transition plans

Administrative Support Needs
- Key
  - = Linked Resources
The Fishbone Diagram

- The cause-and-effect (fishbone) diagram starts with the problem at the head of the fish.
- Under each general category of the fishbone, answer the question, “Why?” for the identified problem.
- Once the fishbone diagram is completed, the various causes are discussed to determine the root of the problem or the real reasons why the problem exists. It is from this discussion that the focus for the improvement plan begins.
What’s Next?

• Examine all causes and validate.
• Eliminate non-causes.
• Re-evaluate causes for likelihood of contribution.
• Gain team consensus on causes.
• Use a prioritization matrix/Eisenhower matrix to determine urgency and impact of a cause.
• Develop an action plan.
• Utilize rapid cycle improvement.
A prioritization matrix is a process improvement tool that helps teams identify areas of opportunity that are most important to address first. Rank is established by level of impact and difficulty of implementation. Use group-think and brainstorming techniques to rank each item. It is key to focus on the quick wins of high impact/low effort areas first, as well as eliminate or delay the time consuming low impact/high effort items.
# HSAG Action Plan

## Action Plan—Guidance

Use this form to develop your quality improvement plan. Clarification for each component is provided below and a blank template.

<table>
<thead>
<tr>
<th>ORGANIZATION NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>Action Plan for PROJECT</td>
</tr>
<tr>
<td>Initiated DATE—Updated DATE</td>
</tr>
</tbody>
</table>

**AIM Statement:** Clearly state the aim/goal that you are trying to accomplish. The aim should be S.M.A.R.T.:
- Specific
- Measurable
- Action-Oriented
- Realistic
- Time and Resource Constrained

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ROOT CAUSE</th>
<th>PLAN</th>
<th>RESPONSIBILITY</th>
<th>DATE DUE/COMPLETED</th>
<th>MEASUREMENT PLAN</th>
<th>STATUS</th>
<th>RESULTS/LESSONS LEARNED</th>
</tr>
</thead>
</table>
| Identify key areas for improvement. | Identify the root cause of the problem (findings of the Root Cause Analysis (RCA)). The root cause is the factor that when fixed prevents the problem from re-occurring. | Identify plan for accomplishing the improvement in each area identified for change. | Identify project leader and/or team. Make sure to include individuals that directly work in the area that is under improvement. Assign clear responsibilities to each team member. | Set deadlines. Identify when completed. Due (D) Completed (C) D = xx/xx/xx C = xx/xx/xx | Describe the plan to collect information to evaluate the results and to monitor progress. | Describe the status of progress over time. | Plan-Do-Study-Act (PDSA)  
- Record what you have learned  
- What has worked/not worked  
- Identify changes you would make to your project plan and plans you have moving forward.  
- Identify potentials to spread good practices across your organization. |

Key Take-Aways

- Cause-and-effect/fishbone diagrams can be used as part of a root cause analysis.
- A precise problem statement serves as the foundation and is based on data.
- Create with a group—brainstorm.
- Prioritize the results.
Thank you!

Questions: hospitalquality@hsag.com