Cause and Effect Diagram

Overview

A Cause and Effect Diagram (also called a fish bone diagram or Ishikawa diagram) is an effective tool that allows people to easily see the relationships between factors to plan and study processes and situations.

A Cause and Effect Diagram provides a visual display that identifies and organises possible causes of problems to help ensure the success of a project or activity.

When to use it

Use this tool when you are trying to determine why a particular problem is occurring. It will help you to better understand the issue and to identify a wider range of possible underlying factors – not just the most obvious.

A Cause and Effect Diagram should be completed with diverse people who are affected by the identified problem or 'head event' as part of a collaborative brainstorming and discussion activity. This type of diagram is useful in any analysis, as it illustrates the relationship between cause and effect in a rational manner.
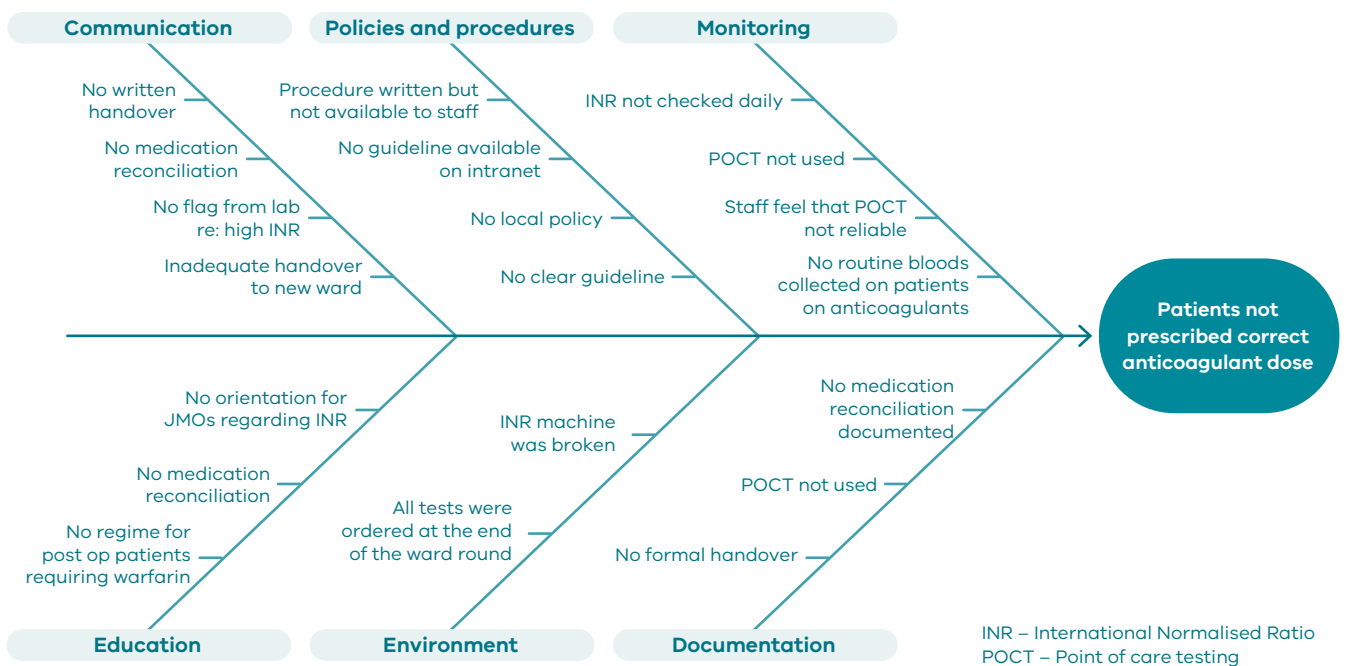
Communication
- No written handover
- No medication reconciliation
- No flag from lab re: high INR
- Inadequate handover to new ward

Policies and procedures
- Procedure written but not available to staff
- No guideline available on intranet
- No local policy
- No clear guideline

Monitoring
- INR not checked daily
- POCT not used
- Staff feel that POCT not reliable
- No routine bloods collected on patients on anticoagulants

Patients not prescribed correct anticoagulant dose

Education
- No orientation for JMOs regarding INR
- No medication reconciliation
- No regime for post op patients requiring warfarin

Environment
- INR machine was broken
- All tests were ordered at the end of the ward round

Documentation
- No medication reconciliation documented
- POCT not used
- No formal handover

INR – International Normalised Ratio
POCT – Point of care testing

Figure 1: Example of a Cause and Effect Diagram: Reasons why patients are not on a standardised anticoagulation pathway.

How to create a Cause and Effect Diagram

1. Identify the problem you are trying to solve, describe it in detail (who is involved, when and where it occurs), write the problem in a box and draw an arrow pointing towards it.

2. Decide on five or six categories of causes for the problem or effect. You can develop your own or use the following traditional categories:
   - Materials
   - Methods
   - Equipment
   - Environment
   - People

3. Draw diagonal lines above and below the horizontal line to create 'fishbones', and label each line at the end with one of the categories you have chosen. Draw a box around each label.

4. For each category, generate a list of the causes that contribute to the effect. List the causes by drawing 'branch bones'. Draw additional branch bones from the causes to show sub-causes as needed.

Tip: Develop the causes by asking 'Why?' until you have reached a useful level of detail — that is, when the cause is specific enough to be able to test a change and measure its effects

Remember: It's unlikely that a single individual has a clear view of an entire complex system. When developing a Cause and Effect Diagram, enlist the help of team members who are familiar with the problem and different aspects of the system under review.

Template

To help get you started with developing a Cause and Effect Diagram, you can find a basic template on the SCV Quality Improvement Toolkit. This has not been designed for complex projects.

It is recommended that project teams initially draft Cause and Effect Diagrams collaboratively, using whiteboards or wall pads and post-its. The diagram can then be transcribed electronically.

Additional resources

To learn more about Quality Improvement you can access the following resources:
- SCV Quality Improvement Toolkit
- Institute for Healthcare Improvement website
- NSW Clinical Excellence Commission Quality Improvement Tools

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