**Implementation tool for**

 **the NCEPOD report**

**‘Making the Cut?’**

Failure Modes and Effect Analysis (FMEA) diagrams

<https://www.ncepod.org.uk/2023crohnsdisease.html>

**Failure Modes and Effects Analysis (FMEA)**

Failure Modes and Effects Analysis (FMEA) is a tool for conducting a systematic, proactive analysis of a process in which harm may occur. In an FMEA, a team representing all areas of the process under review convenes to predict and record where, how, and to what extent the system might fail. Team members can then work together to prioritise and develop improvements to prevent particular failures.

The FMEA tool prompts teams to review, evaluate, and record the following:

* Steps in the process
* Failure modes (What could go wrong?)
* Failure causes (Why would the failure happen?)
* Failure effects (What would be the consequences of each failure?)

Teams use FMEA to evaluate processes for possible failures and to prevent them by correcting the processes proactively rather than reacting to adverse events after failures have occurred. FMEA is particularly useful in evaluating a new process prior to implementation and in assessing the impact of a proposed change to an existing process.

We have produced an example of how FMEA can be used. A blank table has also been provided to be copied and adapted to your organisation’s needs.

For more information on quality improvement please see the following sources or contact your local Quality Improvement department:

**Instructions**

At the top of the table (below) identify a process identified in the study. In the left column, input steps involved in the process.

* **Failure Mode** [*What could go wrong?*]: List anything that could go wrong during that step in the process.
* **Failure Causes** [*Why would the failure happen?*]: List all possible causes for each of the failure modes identified.
* **Failure Effects** [*What would be the consequences of the failure?*]: List all possible adverse consequences for each of the failure modes identified.
* **Likelihood of Occurrence** (1–10): *On a scale of 1-10, with 10 being the most likely, what is the likelihood the failure mode will occur?*
* **Likelihood of Detection** (1-10): *On a scale of 1-10, with 10 being the most likely NOT to be detected, what is the likelihood the failure will NOT be detected if it does occur?*
* **Severity** (1-10): *On a scale of 1-10, with 10 being the most likely, what is the likelihood that the failure mode, if it does occur, will cause severe harm?*
* **Risk Profile Number (RPN):** For each failure mode, multiply together the three scores the team identified (i.e., *likelihood of occurrence x likelihood of detection x severity*). The lowest possible score will be 1 and the highest 1,000. To calculate the RPN for the entire process, simply add up all of the individual RPNs for each failure mode.
* **Actions to Reduce Occurrence of Failure**: List possible actions to improve steps in the process, especially for failure modes with the highest RPN)Tip: Teams can use FMEA to analyse each action under consideration. Calculate how the RPN would change if you introduced different changes to the system.

**Use RPNs to plan improvement efforts.**

Failure modes with high RPNs should be prioritised as the most important parts of the process to focus improvement efforts. Failure modes with low RPNs are not likely to affect the overall process much, even if eliminated completely, and they should therefore be at the bottom of the list of priorities.

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| Plan for the postoperative discharge of patients with Crohn’s disease |
| **Steps in the process** | **Failure Mode** | **Failure Causes** | **Failure Effects** | **Likelihood of Occurrence (1-10)** | **Likelihood of Detection****(1-10)** | **Severity****(1-10)** | **Risk Profile Number (RPN)** | **Actions to Reduce Occurrence of Failure** |
| 1. Handover care to the inflammatory bowel disease/ gastroenterology team who will look after the patient’s ongoing medical care | Patients are not seen by the IBD team | IBD team unaware of the admission | Medications may not be properly reconciled/ restarted following surgeryIBD team not involved in the discharge planning/ follow up Disjointed working between specialties  |  |  |  |  | More joint/ parallel Colorectal surgical/ gastrointestinal clinicsPolicy that supports the co-ordination of care between medical and surgical teams/ support for the multidisciplinary team process |
| 2. Undertaking a medication review\*  | Not undertaking a medication review post operatively  | No pharmacist reviewNo IBD team review | Delay in restarting Crohn’s disease medications Unchecked immunosuppression may occur if restarting medications postoperativelydetails of medications prescribed not being given to patients at discharge |  |  |  |  | Carry out a medications review post-operatively (by IBD team and/ or pharmacist) Structured discharge summary -include medications prescribed |
| 3. Providing information to the patient on how to access to psychological support if needed | Patient does not get psychological support for what is major maybe life changing surgery No information given to patients at discharge about how to access psychological support | Lack of referral to clinical psychologists during IBD team review Lack of local availability of clinical psychologists | Poorer patient reported outcomes following surgeryPoorer patient quality of life  |  |  |  |  | Develop Trust/ Health board policy that incorporates screening and access to psychological support for patients who require itTrusts/ Health boards to employ sufficient WTE psychologists to implement policy (above)An information leaflet that includes information on how to access psychological support should be issued to Crohns patients at discharge following surgery |

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| **Crohn’s disease study:** |
| **Steps in the process** | **Failure Mode** | **Failure Causes** | **Failure Effects** | **Likelihood of Occurrence (1-10)** | **Likelihood of Detection****(1-10)** | **Severity** **(1-10)** | **Risk Profile Number (RPN)** | **Actions to Reduce Occurrence of Failure** |
| 1 |  |  |   |  |  |  |  |  |
| 2 |  |  |  |  |  |  |  |  |
| 3 |  |  |  |  |  |  |  |  |