

## Combining Analytical and Narrative Techniques in Designing Reliable Care Processes – FMEA & Scenarios

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## The Use of Analytical Techniques – Process Mapping

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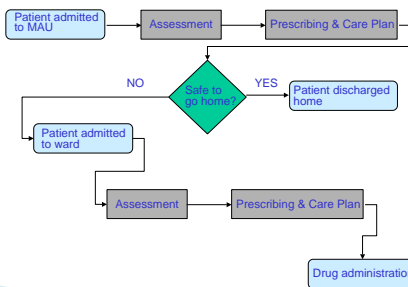
- Describes actual processes
- Generates a shared understanding
- Forms the basis for subsequent techniques
- Is still an abstraction of what really happens

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## Simple Process Map

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## Failure Mode & Effects Analysis (FMEA)

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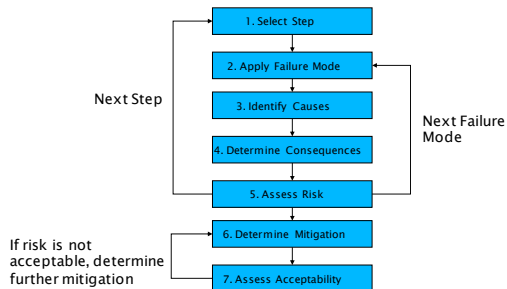
- Identification of major vulnerabilities
- Prioritisation of risks in order to focus on those situations that pose the highest risk
- Particularly useful to detect conditions where a single failure can lead to a dangerous situation

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## FMEA Process

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## Example

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Step	Failure Mode	Causes	Consequences	Risk Freq * Sev = Risk	Mitigation
3.1 Establish medication history	Failure to identify medicines patient is taking at home	Patient confused / incoherent Relatives not available Notes not available Patient did not bring in own drugs	Inappropriate medication or dose prescribed (including allergy) Omission of required medication	4 * 3 = 12	Raise awareness in the community forum / GP practices / local Pharmacies about importance of patients bringing in their own drugs

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## The Difficulty of Determining the Severity

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"Failure to establish medication history"

### Worst Case

• Patient dies from drug related side effect

### Credible Worst Case

• Patient has a serious drug related side effect

### Average Case

• The medication history will be filled in later.  
• Patient may suffer a drug related side effect but will be picked up quickly.

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## Failure Trajectories

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- ▶ FMEA sessions usually produce discussions around the consequences of failures that describe possible failure trajectories through the system
- ▶ This gets abbreviated into the quantitative risk rating

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## Possible Pathways

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- ▶ Patient is on anti-coagulant because he has an artificial heart valve. The dose is unknown. The "normal" dose may be too high can cause internal bleeding or it may be too low which may lead to blood clots on his artificial heart valve.
- ▶ Patient is known to have high blood pressure but the medication and dose he is taking are not known. It may be reasonable to wait until the next day when the family will bring in the tablets but in the meantime the blood pressure will go up which most of the time has no noticeable effects, but could lead to headache or even stroke.

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## Capturing Trajectories

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- ▶ Capturing trajectories in descriptive scenarios:
  - Illustrate how failures propagate through the system and the diversity of effects failures may have depending on contextual influences
  - Can produce a quantified risk rating based on contextualised failure trajectories rather than abstract single failures

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## Example Scenario

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A 34-year old Turkish female patient came in, she was diabetic, but was unable to tell me her current insulin dose. I looked up her old records, they were a bit dated, and I chose on purpose a low but safe dose. This isn't a problem as long as we monitor her blood sugar levels regularly. I made a note accordingly. It was very busy and when I handed over my patients at the end of the shift we focused on the patients requiring urgent care. I assume the note I had made was lost or forgotten about, but the patient was deteriorating and the problem was spotted only once the patient was visibly unwell.

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Comments please 😊

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