Resilience Engineering

Is it possible in the care pathway?

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Center for Kvalitet
The design of resilient - and not only reliable - processes in the care pathway, by using the principles of ETTO and the Process Approach.

The care pathway of patients with suspected hip fracture.
Reliable versus resilient

- **Reliable** ¹:
  "The system works the way you designed it!"

- **Resilient** ²:
  "The ability of a system to keep, or recover quickly to, a stable state, allowing it to continue operations during and after a major mishap or in the presence of continuous significant stresses."

¹) Source: Faculty visit IHI, “Patientsikert Sygehus”, Kolding Sygehus, 17. november 2011; Frank Federico, “How to design reliable Processes in Healthcare

Reliable versus resilient

• Resilient 3):

  "The intrinsic ability of an organisation to adjust its functioning prior to, during, or following changes or disturbances, so that it can sustain required operations under both expected and unexpected conditions."

3) Resilient Health Care Network Tutorial
June 3, 2012
Care pathway: Suspected hip fracture

Core Processes

1. Admittance
2. Ward C5 Preoperational
3. Operation
4. Recovery
5. Ward C5 Post operational
6. Discharge

Support Processes

7. X-Ray

Fall at home
Fall Another Ward

Another Ward
Primary Care
Systemic thinking

Every system is perfectly designed to get the results it gets.

Paul Batalden

A system consists of processes. To understand the system, we need to understand every process and its interrelations and interactions with the other processes in the system.

"If you can’t describe what you are doing as processes, you don’t know what you are doing."

W. Edwards Deming (1900 – 1993)
Process Approach

• To design reliable processes to achieve intended output/defined goals.
• Segmentation of processes into activities allows the perfection of the design.
• For each activity you must define: Who does what, when, where, and with what = “Work-as-imagined”

“Don’t be creative with what, has shown to be evident.”
Frank Federico

“Reliability occurs by design not by accident”.
Frank Federico

Legislation
Vision, Mission and Values
Policies, Strategies and Goals
Plans
Procedures and Instructions
Forms (paper/electronic)
Responsibilities and Authorities
Process Data
Budget

Controls

Input

Process

Output

Resources

Patient Information and Data

Competent staff
Buildings and Equipment
Materials and Tools
Energy, Water and Gases
Master Data
Money

What if.....?

Treated patient
Product/Service
Information and Data
Registrations
How to ensure reliability?

The Back-up activities are the difficult part.

Source: Faculty visit IHI, “Patientsikkert Sygehus”, Kolding Sygehus, 17. november 2011; Frank Federico, “How to design reliable Processes in Healthcare
Care pathway: **Suspected hip fracture**

**Foreground Functions**

1. Admittance
2. Ward C5 Preoperational
3. Operation
4. Recovery
5. Ward C5 Post operational
6. Discharge

**Result:** LOS Length of stay blow 9 days in average.

**Background Functions**

- Fall at home
- Fall Another Ward
- 7. X-Ray
- Another Ward
- Primary Care

31-05-2012
Care pathway: **Suspected hip fracture**

Is the reliable process also a resilient process?

Average of LOS (IChart). Patient discharged per month.

Break at January 2010 and December 2010.

\[ \text{N=47} \]

**EpiData Analysis Graph**

*Mean: 9.10 LCL: 6.15 UCL: 12.05 | Mean: 8.34 LCL: 5.28 UCL: 11.40 | Mean: 6.86 LCL: 5.51 UCL: 8.21*
Discussion: From reliable to resilient?

I believe it is possible!

- ? How will the critical processes in the care pathway react:
  - to a major mishap or other disturbances
  - in the presence of continuous significant stresses.

- ? Are the staff able to keep or recover quickly to, a stable state.

- ? What is the difference between “Work-as-imagined” and “Work-as-done”.

Thank you for listening!

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Legislation
Vision, Mission and Values
Policies, Strategies and Goals
Plans, Procedures and Instructions
Forms (paper/electronic)
Responsibilities and Authorities
Process Data
Budget

Input → Process → Output

Precondition

Competent staff
Buildings and Equipment
Materials and Tools
Energy, Water and Gases
Master Data
Money

Time

Treated patient
Product/Service
Information and Data
Registrations

Controls

Resources
Eksempel: Hoftenære frakturer


Mean: 13.32 | Mean: 11.43

EpiData Analysis Graph
What is a process?

A set of interrelated or interacting activities, which transforms inputs into outputs and creating value at the same time.

Information, data, output from a preceding process or something else initiating the process.

The result of the process: Product/service, information, registrations.

Input to initiate the succeeding process.

What is controls?

Requirements needed to control the process to get the intended output:

- Legislation
- Vision, Mission and Values
- Policies, Strategies and Goals
- Plans, Procedures and Instructions
- Forms (paper/electronic)
- Responsibilities and Authorities
- Process Data
- Budget

Source: ISO 9000 Introduction and Support
What is Resources?

Resources provided to complete the process as intended:

- Competent staff
- Buildings, Equipment and Components
- Materials and Master Data
- Money