Name of the speaker: **Frederique Simons**

☑️ I have no link of interest.
Patient safety in the operating theatre: How A3 thinking can help reduce door movement

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If we were to open and close the operating room door, on average, every 2.5 minute during surgery….

Is it still relevant to have doors in the operating room?
Today

1. Relevance limiting door movement;

2. A3 intervention, a lean tool;

3. How we used the A3 intervention;

4. Sustainable reduction of door movement: 78%
Adverse effect Surgical Site Infections (SSIs)

- Mortality & morbidity in surgical patients
- Excessive costs (e.g., medication, revision surgery)
- Quality of care
Prevention intervention SSIs

Dutch patient safety program

- Antibiotic prophylaxis
- Perioperative normothermia
- Avoiding hair removal
- Hygiene discipline, e.g. Limiting door movement during surgery
Effects of door movements during surgery

- Correlated elevated level airborne bacteria-carrying particles
- Disturbance airflow
- Disturbance necessary temperature

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Limiting door movement is relevant
Lean can have a significant effect on limiting traffic flow

What are the effects of a lean A3 intervention on door movement?
Lean healthcare
Improve value for the patient. Focus on better health care at less cost.

A3 intervention
A methodical approach, based on PDCA, to address and solve complex problems by a multidisciplinary team.

“My team has created a very innovative solution, but we’re still looking for a problem to go with it.”

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Jumping to conclusions

Problem (or symptom...?)

Solution (or pollution...?)
Flow to the right solutions

Background & problem definition

Current situation & Target situation

Root causes

Solution
A3 intervention

**Features:** A3 size, team effort, visual

**Steps**

1. Define the problem
2. Specify the current situation (CS)
3. Determine target situation (TS)
4. Analyse gap between CS-TS: Root cause analysis
5. Action for improvement: countermeasures
6. Evaluate countermeasures
7. Follow up

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Background

- Door counter: from first incision until closure of the wound
- Included: 8,009 surgical procedures

- 733-bed University Medical Centre
- 16 Operating Rooms (OR)
- 12 months of monitoring door movement
Start of the A3: the problem

- Mean of 24 door movement p/h across 26 specialisms.

A3 intervention:
- Orthopaedics: Eager to start with limiting door movement
- 1 OR: dedicated orthopaedic surgery
- Multidisciplinary team: orthopaedic surgeon, anaesthesiologist, surgical assistant, quality coordinator
- Support of a lean coach
Current situation OR

Variation between orthopaedic surgeons

*Door movement per hour*

Scrub room door

Mean: 18 door movements per hour
Target situation

- 0 (zero) door movements during each surgical procedure
- 0 (zero) door movements between incision and closing of the wound.
- Allowing door movement for special clinical reasons:
  - Need for X-rays
  - Unexpected material
  - Instruments or blood products
  - Breaks or service shifts of employees
  - Emergencies
  - Supervision for the orthopaedics or anaesthetist
Root cause analysis

- Major categories
  - People
  - Machines
  - Methods
  - Materials
- 13 root causes
- Biggest impact: 3 root causes

Fishbone diagram
**Countermeasures**

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<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Visible telephone number</td>
</tr>
<tr>
<td>2</td>
<td>Orthopaedic surgeons in charge</td>
</tr>
<tr>
<td>3</td>
<td>Revised warning sign</td>
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</tbody>
</table>
Sustainable result

Figure 3  The trend of door movement per hour during the total period of the A3 intervention and extended with a 6-month follow-up.
Conclusion

A3 Intervention

✓ In-depth understanding root causes = effective countermeasures
✓ Collaborated effort healthcare professionals
✓ Sharing knowledge
✓ Learning by dialogue
✓ Direct feedback loop by a metric (door counter)
✓ Setting their own countermeasures vs. imposed measures
Take home message

• Our case study showed a 78% sustainable reduction

• The use of an A3 intervention, a lean method, can support in improving the surgical environment

What is your challenge?

Disclaimer: Copying countermeasures will not give the same effect!
Acknowledgments

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- My fellow authors of the article *Patient safety in the operating theatre: how A3 thinking can help reduce door movement*. IJQHC(2015). K.H. Aij MBA PhD; prof. dr. G.A.M. Widdershoven and M.A. Visse PhD.

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