INTRAHOSPITAL TRANSPORT
– OF CRITICALLY ILL PATIENTS

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“What’s new in ICU” Conference
Edinburgh Critical Care Research Group
2016
This is Sweden

Gothenburg second city 500,000

Stockholm main city

9,000,000 people

Mona Ringdal
Gothenburg, a city by the sea

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University of Gothenburg was founded in 1887
Status as independent university 1907
Outline

• Critical care nursing in Sweden

• Transport of critically ill patients

• Transport process

• Critical Care Nurses perceptions about transport of critically ill patients in Sweden – a survey

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Critical Care Nursing in Sweden

• 3 year of University education to be a RN
• At least 1 year of work as a RN
• 1 year postgraduated education at university to be a CCN
• Nurse : Patient ratio 1:2
  (enrolled nurse is assisting the CCN)
Background

- 1 of 10 patients experience harm due to the health care they receive (de Vries et al. 2008)

- ICU is a high technological environment

- Maintain patient safety outside ICU

- Patients safety is reduced during transportation (Lahner et al. 2007, Mazza et al. 2008)

- Most common destination for patients transportation outside ICU is radiotherapy department (Schwebel et al. 2013, Voigt et al. 2009)

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The transport of a ICU patient is hazardous

• Intrahospital transport (IHT), inside the hospital

• 30-70% of all IHT are associated with adverse events Lia et al. 2015, Schwebel (2013); Waydhas, (1999)

• 8% of IHT cause life-threatening adverse events that need medical therapy de Almeida et al. (2012); Fanara et al. (2010)
Complications during intrahospital transports

- **System related** Day (2010)
- Related to equipment
- Related to staff/organisation
- Often related to poor planning and is avoidable

- Patent with severe illness is more likely to be transported
- Physical and psychological complications before and after transport
Transport process

- The aim is during the transport the patient receives the same care as they receive in ICU. (Brunsveil-Reinders et al. 2015)
The three phases of the transport

- Pretransport
- During transport
- Posttransport

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Transportprocess - pretransport

- Risk-benefit analysis
- Preparation

Brunsveld-Reinders et al. (2015)
Transport process - during transport

- Continuous intensive care
- Monitor vital signs
- Documentation

Brunsved-Reinders et al. (2015)
Transport process – post transport

• Stabilisation of patient
• Documentation
• Safety check of equipment

Brunsved-Keinders et al. (2015)
Actions to increase safety in Intrahospital transports

- Guidelines
- Checklists Brunsveld-Reinders et al. (2015), Choi et al. (2012)
- Transportsteam Kue et al. (2011)
Background to the study

• In Sweden CCN preforming the IHT for intubated mechanical ventilated patient mostly without physicians presence

• There is a limited understanding of CCN perspective on the risks and problems during IHT.

• Therefore it is essential for research this area to promote patient safety.
Intrahospital transports of critically ill patients: critical care nurses’ perceptions

Ringdal M, Chaboyer W, Warrén Stomberg M. Nurs Crit Care 2015

AIM

• To describe Critical Care Nurses’ Perceptions of intrahospital transport problems, including the stress associated with transport and their perceived ability to respond appropriately to these problems

• To determine if there were associations between problems and responses.
Sahlgrenska University Hospital

- The largest hospital of Northern Europe
- 2,300 beds
- ICU 80 beds

Including:
- General ICU
- Neuro ICU
- Pediatric ICU
- Infection ICU
- Thoracic ICU

Kungälvs hospital

- Local hospital
- 214 beds
- 1 ICU 6 beds
A web survey

- Three ICUs in Sweden
- Response rate 57%
- 86 CCN completed the web survey
- 52 items
- Likert scale 1-10 (1 low - 10 high)
- One open ended question
Web survey

- Patient related problems
- Technical equipment issues
- CCN ability to respond appropriately to patient problems
- CCN ability to respond appropriately to technical equipment issues
- CCN responsibilities during IHT
- CCN stress during IHT
- One open-ended question

How did you experience the IHT?

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Sample (n=86)

- 87% female CCN
- Mean 12 year of experience as a CCN
- 90% work full time
Results: CCN perceptions of IHT

- CCN undertake 1-4 IHT every month
- 65% IHT performed by CCN without a physician
- 65% said they had guidelines for IHT

- Circulatory failure was the most frequently perceived problem (4.2 ± 2.8)
- Then followed by decreased levels of consciousness (3.5 ± 2.9)
- Failure in pulse oximetry due to equipment was most common
Results: CCN perceptions of IHT

<table>
<thead>
<tr>
<th>Variable</th>
<th>Perception of occurred problem</th>
<th>Ability to respond to problem</th>
<th>Correlation</th>
<th>p-Value</th>
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<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
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<tr>
<td>Patient-related problems</td>
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<tr>
<td>Circulatory failure</td>
<td>4.2</td>
<td>2.8</td>
<td>6.6</td>
<td>2.2</td>
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<tr>
<td>Decreased level or consciousness</td>
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<td>2.9</td>
<td>4.5</td>
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<td>2.2</td>
<td>8.5</td>
<td>1.9</td>
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<td>Very anxious patient</td>
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<td>2.0</td>
<td>7.6</td>
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<td>Major bleeding</td>
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<td>1.8</td>
<td>5.0</td>
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<td>Convulsions</td>
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<tr>
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<td>Non-functional arterial catheter</td>
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<td>1.4</td>
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<td>2.9</td>
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<tr>
<td>CNS deterioration</td>
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<td>Fall injury</td>
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<td>Crush injury</td>
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<td>Equipment-related problem</td>
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<td>Pulse oximetry</td>
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<td>Infusions pump</td>
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<td>Monitors</td>
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<td>Other equipment</td>
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<td>Ventilator</td>
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<td>6.5</td>
<td>2.7</td>
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</tbody>
</table>

Correlation with Pitman’s test, *significant positive correlation p ≤ 0.05.
Mean level of perceived stress among CCN during IHT

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"It’s like a marathon"

- The similarity with the marathon was the experience of a long event, not necessarily in time but in the mind, and a feeling of a racing challenge requiring the CCN to have endurance.
- CCN felt stressed when caring for the patient outside the ICU.
- The IHT was rushed, and they rarely had time to undertake a proper safety check.
CCN answer to the open question "A Marathon"

- A task that makes demands and is time consuming
- A time of stress
- Burden of work for staff remaining in the ICU
- The care of the other patient comes to a halt
- Well-functioning and part of the work

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Conclusions

• CCNs are alert to the potential risk of adverse event during IHT.

BUT

• It’s a stressful task for CCN

• During IHTs, the workload of the staff remaining in the ICU increases, which potentially compromises patient safety.
Further research
a PhD candidate project with focus on patients safety

Aim is to improve the IHT experience for patients in ICU.

• Describe the IHT process including its risks and hazards;
• Understand patients’ perceptions of the IHT process; and
• Develop and pilot test a complex health care intervention to improve patient safety during IHT.
Tack så mycket!

Thank you!

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