Evidence Based Practice
--- to improve ICU nurses’ acceptance of Tele-ICU

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Supervisors: Prof. Nick Hardiker; Dr. Angela Cotton
University of Salford, UK
Outline

- Aim: To improve ICU nurses’ acceptance of Tele-ICU
- Barriers to the acceptance of Tele-ICU
- Acceptance Improvement strategy
Effects of Tele-ICU

- ICU Mortality
- ICU length of stay (LOS)
- Evidence-Based Practice

--- (Lilly et al., 2011; Mackintosh et al., 2016; Ward, Jaana, & Natafji, 2015; Wilcox & Adhikari, 2012; Young et al., 2011)
--- Pictures are retrieved from https://www.google.co.uk/search?biw=1440&bih=775&tbs=isch&sa=1&q=intensive+patients&oq=intensive+patients&gs_i=im3.0i8i30k1.145208.145208.0.146021.1.1.0.0.0.0.150.150.0j1.1.0...0...1c.1.64.jpg.0.1.149.TO95NwbqQ#imgrefc=4Rdi9vwYJANa-M
Aim: to improve ICU nurses’ acceptance of Tele-ICU

Three Key elements to successful evidence-based practice

The best available evidence

The needs and preferences of health service users

The nurses’ expertise, skills, and clinical judgement

--- (International Council of Nurses, 2012)
Search Strategy

- **Electronic database**—
  MEDLINE (Ovid), Cochrane Library, CINAHL, Scopus, PubMed.

- **Hand searching**—related
  organizations, websites, Journals, references, citations.

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1 systematic review
10 qualitative studies
5 others

(Miller & Forrest, 2001; Deslich, & Coustasse, 2014)
Findings:

- Barriers and Facilitators influencing acceptance and utilization of Tele-ICU

(Moeckli, Cram, Cunningham, & Reisinger, 2013)
Barriers to Tele-ICU acceptance

Pre-implementation
- Confused how to use
- Week training
- Tele-ICU understanding
- Perceived need
- Organizational factors

Post-implementation
- Weak collaboration
- Unmet expectations
- Discomfort with being monitored
- Impact on work systems
- Tele-ICU understanding

(Moeckli, Cram, Cunningham & Reisinger, 2013)
Acceptance Improvement strategy

Barriers
Barriers solutions
Cost appraisal
Evaluation

Force-field analysis
Stakeholder analysis
Adopters analysis

---(Martin, 2005; Lukas et al., 2007)
## Force Field Analysis

<table>
<thead>
<tr>
<th>Driving Forces</th>
<th>Restraining Forces</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1</strong> Quality improvement needs</td>
<td>Leadership concerns</td>
</tr>
<tr>
<td><strong>2</strong> Increasing evidence of the value of Tele-ICU</td>
<td>Conservatives</td>
</tr>
<tr>
<td><strong>3</strong> Organizational Acceptance of Tele-ICU</td>
<td>Lack of competency and knowledge of Tele-ICU</td>
</tr>
<tr>
<td><strong>4</strong> Innovation reform policy in ICU</td>
<td>Different perceived needs</td>
</tr>
</tbody>
</table>

--- (Lewin, 1946)
## Stakeholder Analysis

<table>
<thead>
<tr>
<th>High Power</th>
<th>Satisfy</th>
<th>Manage</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Hospital Ethic Board</td>
<td>• Senior leaders of ICU Department</td>
<td></td>
</tr>
<tr>
<td>• Trade Unions</td>
<td>• ICU staff</td>
<td></td>
</tr>
<tr>
<td>• The director of Nursing Department</td>
<td>• The director of IT Department</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• The suppliers or contractors of Tele-ICU settings</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Low Power</th>
<th>Monitor</th>
<th>Inform</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Financial Department</td>
<td>• ICU patients and their relatives</td>
<td></td>
</tr>
<tr>
<td>• Equipment Department</td>
<td>• General Affairs Department</td>
<td></td>
</tr>
</tbody>
</table>

| Low impact / Stake holding | High Impact/Stake holding |

--- (NHS Institute for Innovation and Improvement, 2008)
Recognizing Different Adopters

- **Innovators**: Tele-ICU project team
- **Early adopters**: Tele-ICU nurses, nurse managers
- **Early majority**: advanced practice nurses, clinical nurse specialists
- **Late majority**: most bedsides nurses (nurse practitioners, junior nurses)
- **Laggards**: some senior nurses

(Figure 2. Adopter Categorization on the Basis of Innovativeness)

(Rogers, 2010)
AACN Tele-ICU Nursing Practice Guidelines

Figure 1 Tele-ICU Model of Success

Partners in Patient Care

(American Association of Critical-Care Nurses, 2013)
Objectives

- To improve nurses’ understanding of Tele-ICU
- To gain support from organization
- To improve nurses’ competency towards Tele-ICU
- To design more efficient Tele-ICU workflows and system

(Moeckli, Cram, Cunningham & Reisinger, 2013)
## Barriers Solutions

<table>
<thead>
<tr>
<th>Accountability Assignment</th>
<th>Actions contents</th>
</tr>
</thead>
</table>
| Organization              | ➢ Support Tele-ICU nurses in achieving and maintaining certification to work in Tele-ICU environment  
➢ Develop networks and IT technology support for sharing and spreading knowledge and reflection on practice.  
➢ Develop structures that support education and training  
➢ Appropriate staffing  
➢ Facilitate change management to support evidence-based practice |
| Leaders                   |                  |

## Barriers Solutions

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<tr>
<td><strong>Tele-ICU Leaders</strong></td>
<td>Be engaged in measuring and analyzing outcomes and report them for gaining organizational support</td>
</tr>
<tr>
<td></td>
<td>Create policies, and framework to better standardize Tele-ICU procedures and practice;</td>
</tr>
<tr>
<td></td>
<td>Convene <em>innovators and early adopters to build</em> a quality improvement team, and set a Journal Club for them</td>
</tr>
<tr>
<td></td>
<td>Set a workshops for experience sharing (focus on <em>early majority and late majority</em>)</td>
</tr>
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## Barriers Solutions

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| **Tele-ICU Leaders**      | - Knowledge Training designed for late majority and laggards (evidence-based practice of Tele-ICU, role understanding, Tele-ICU Guidelines learning)  
- Skill training curriculums for all nurses (skilled communication, true collaboration, collegiality, effective decision making)  
- Provide opportunities for joint team meetings (quality meetings, research participation, and joint celebrations) |

Evaluation

◆ **Outcome Audit:** ICU patients’ average Length of Stay Incidence of Complications of ICU patients ICU patients’ Mortality Rate

◆ **Interviews:** to collecting nurses’ perception and satisfaction towards Tele-ICU

(Coustasse, Deslich, Bailey, Hairston, & Paul, 2014)
## Cost Appraisal

<table>
<thead>
<tr>
<th>Process</th>
<th>Expense Type</th>
<th>$ Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Action Executing</td>
<td>Action planning supplies</td>
<td>$50</td>
</tr>
<tr>
<td></td>
<td>Network and Infrastructure Costs</td>
<td>$1,000</td>
</tr>
<tr>
<td></td>
<td>Tele-ICU work system &amp; procedures &amp; flow files improvement costs</td>
<td>$500</td>
</tr>
<tr>
<td></td>
<td>Staff Training costs</td>
<td>$1,000</td>
</tr>
<tr>
<td></td>
<td>Miscellaneous (supplies)</td>
<td>$100</td>
</tr>
<tr>
<td>Control &amp; Evaluation</td>
<td>Outcome audit</td>
<td>$50</td>
</tr>
<tr>
<td></td>
<td>Staff interview costs (for collecting staff perception &amp; satisfaction towards Tele-ICU)</td>
<td>$100</td>
</tr>
<tr>
<td></td>
<td>Contingency costs</td>
<td>$100</td>
</tr>
<tr>
<td></td>
<td><strong>Total Costs</strong></td>
<td><strong>$2,900</strong></td>
</tr>
</tbody>
</table>

(Fifer, 2010)
Aim: To improve ICU nurses’ acceptance of Tele-ICU

Barriers to the acceptance of Tele-ICU

Acceptance Improvement strategy


Thank you!

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