Barriers to Early Rehabilitation in Critically Ill Patients

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Objectives

• To review what we know about barriers
• To review the challenges in studying barriers
• To discuss a “theory-driven” approach
Early Mobility

• Is safe and feasible in mechanically ventilated patients
• Improves functional status at hospital discharge
• Reduces duration of delirium

Pohlman et al., Crit Care Med 2010
Morris et al., Crit Care Med 2008
Schweickert et al., Lancet 2009
How have we studied barriers?

1. Survey data
2. Quality improvement projects
3. Feasibility/safety studies
Mobilization Practices in Canadian Critical Care Units

Reasons Not to Ambulate

- 81 PTs
- 18 nurses
- 15 physicians
Physical therapy utilization in intensive care units: Results from a national survey

Katherine E. Hodgin, MD; Amy Nordon-Craft, MA; Kim K. McFann, PhD; Meredith L. Mealer, RN; Marc Moss, MD

- Survey about unit characteristics
- **482 physiotherapists**
- Provided standardized clinical scenarios
  - Likelihood of PT consultation
  - Frequency of treatment
  - Automatic evaluation of ICU patients by PT at 1% of hospitals
  - PT involvement highly impacted by admitting diagnosis (stroke, spinal cord injury, MVA vs. medical admission)
Rehabilitation within Scottish intensive care units: a national survey

RTD Appleton, M MacKinnon, MG Booth, J Wells, T Quasim

• Lead physician and physiotherapist in 23 ICUs across Scotland
• >95% response rate
Factors perceived to limit the provision of rehabilitation

Percentage of Scottish ICUs

- Patient severity of illness
- Insufficient funding
- Sedation
- Insufficient equipment
- Lack of patient cooperation
- Insufficient ancillary staff
- Insufficient physiotherapists
- Problems setting MDT goals
Rehabilitation and exercise prescription in Australian intensive care units

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b School of Physiotherapy, The University of Melbourne, Australia
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• 111 physical therapists
• 75% response rate
• 71% believed physiotherapy should be routinely prescribed in mechanically ventilated patients
<table>
<thead>
<tr>
<th>Factor</th>
<th>Judging 1 to exercise (107)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physiotherapy judgement of</td>
<td>93 (84)</td>
</tr>
<tr>
<td>medical stability</td>
<td></td>
</tr>
<tr>
<td>Pain</td>
<td>68 (61)</td>
</tr>
<tr>
<td>Physician instruction</td>
<td>63 (57)</td>
</tr>
<tr>
<td>Fatigue</td>
<td>54 (49)</td>
</tr>
<tr>
<td>Gut feel</td>
<td>43 (39)</td>
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</tbody>
</table>
Who determines readiness to exercise?
Surveys

• General lack of agreement in terms of:
  – Indications for or contra-indications to physiotherapy
  – Which professionals are responsible for exercise prescription

• Little to no data on ICU culture
<table>
<thead>
<tr>
<th>Country</th>
<th>Physiotherapists</th>
<th>Physicians</th>
<th>Nurses</th>
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<tbody>
<tr>
<td>Canada</td>
<td>81</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scotland</td>
<td>23</td>
<td>22</td>
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<tr>
<td>Australia</td>
<td>111</td>
<td></td>
<td></td>
</tr>
<tr>
<td>United States</td>
<td>482</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

597 Physiotherapists
37 physicians
18 nurses
How have we studied barriers?

1. Survey data
2. Quality improvement projects
3. Feasibility/safety studies
Rehabilitation Quality Improvement in an Intensive Care Unit Setting: Implementation of a Quality Improvement Model

Dale M. Needham, MD, PhD,1–3 and Radha Korupolu, MBBS, MS1

1OACIS Group, Division of Pulmonary & Critical Care Medicine, Johns Hopkins University, Baltimore, Maryland;
2Department of Physical Medicine and Rehabilitation, Johns Hopkins University, Baltimore, Maryland; 3Critical Care Physical Medicine and Rehabilitation Program, Johns Hopkins Hospital, Baltimore, Maryland

• Followed structured QI model
• Identified local barriers to implementation
  – Met with inter-professional groups, hospital stakeholders to identify barriers
  – Developed targeted strategies to overcome each barrier

Needham et al., Top Stroke Rehab 2010
Rehabilitation Quality Improvement in an Intensive Care Unit Setting: Implementation of a Quality Improvement Model

Dale M. Needham, MD, PhD,1-3 and Radha Korupolu, MBBS, MS1

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- Leadership
- Staffing/equipment
- Knowledge/training
- Physician referrals
- Oversedation

- Delirium
- Perceived pain/discomfort
- Physiological instability
- Safety

Needham et al., Top Stroke Rehab 2010
How have we studied barriers?

1. Survey data
2. Quality improvement projects
3. Feasibility/safety studies
Feasibility Studies

• Reasons therapy did not occur
  – Marked ventilator dyssynchrony
  – MAP<65
  – GI bleeding
  – Patient fatigue $\rightarrow$ refusal
  – Scheduled procedure
  – Respiratory distress

• Potential patient-level barriers per episode of physical therapy
  – FiO2 $>$0.6 during 35% of sessions
  – Central lines present on 75% of sessions
  – BMI 30-39 in 26% of sessions

Pohlman et al., Crit Care Med, 2010
Summary

• Surveys and feasibility studies
  – Focus thus far on:
    • Patient characteristics
    • Training
    • Staffing and resources

• Local QI projects have tried to address ICU culture, but difficult to generalize

• Surveys have focused largely on physiotherapists (and a few physicians, nurses)
CHALLENGES IN STUDYING BARRIERS AND FACILITATORS
Challenges

• Lack of common language to describe barriers and facilitators
The problem of ICU culture

Culture of early mobility in mechanically ventilated patients

Polly P. Bailey, RN, ACNP; Russell R. Miller III, MD, MPH; Terry P. Clemmer, MD


Transforming ICU culture to facilitate early mobility.

Hopkins RO, Spuhler VJ, Thomsen GE.

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ramona.hopkins@intermountainmail.org
We can only identify barriers if we ask about them

• Heavy focus in the survey literature on:
  – Patient contra-indications
  – Resources (providers, equipment)
Bridge the gap from barriers to change

- Identify barriers
- Identify strategy for change
- Implement change
A THEORY DRIVEN APPROACH
A Theory-Driven Approach

- Brings common language
- Improves understanding of change mechanisms
- Builds evidence base with stronger potential for generalization to different settings
- Encourages broader view of barriers and facilitators

Grimshaw et al., Health Tech Assess 2004
Foy et al., BMJ Qual Safe 2011
Inter-professional team discussion

Patient deemed “eligible”

Order written

PT assesses patient

Team plans PT treatment

Team prepares patient & equipment

Team mobilizes patient
MD: I have so many things to worry about. Mobility is the last thing on the list.

Physio: The last patient I mobilized seemed to really do well afterwards. I think it’s good for patients.

RN: I think this patient has pain we should deal with before we mobilize, but the physician was really dismissive the last time I brought it up, so I’ll just speak with the PT about it after rounds and we won’t mobilize today.

RT: This patient’s FiO2 is 65%. I think this patient might desaturate.
Physio: The last patient I mobilized seemed to really do well afterwards. I think it’s good for patients.

RT: This patient’s FiO2 is 65%. I think this patient might desaturate.
MD: I have so many things to worry about. Mobility is the last thing on the list.

Memory, attention and decision processes

Cognitive overload/tiredness
Attention control
RN: I think this patient has pain we should deal with before we mobilize, but the physician was really dismissive the last time I brought it up, so I’ll just speak with the PT about it after rounds and we won’t mobilize today.
So, will this help to change practice?
Developing theory-informed behaviour change interventions to implement evidence into practice: a systematic approach using the Theoretical Domains Framework

Simon D French\textsuperscript{1,2*}, Sally E Green\textsuperscript{1}, Denise A O’Connor\textsuperscript{1}, Joanne E McKenzie\textsuperscript{1}, Jill J Francis\textsuperscript{3}, Susan Michie\textsuperscript{4}, Rachelle Buchbinder\textsuperscript{1,5,9}, Peter Schattner\textsuperscript{6}, Neil Spike\textsuperscript{6} and Jeremy M Grimshaw\textsuperscript{7,8}

• Evidence-based primary care management of acute low back pain
• Focus groups – identify barriers and facilitators
• Designed and implemented a series of interventions
• Measure
  • Practitioner outcomes (e.g. x-ray referral rates)
  • Patient outcomes
Our Project

- Develop theory-based “library” of barriers and facilitators to early rehabilitation in mechanically ventilated patients
- Study of nurses, physical therapists, physicians and respiratory therapists
- Mixed methods
  - Semi-structured, theory guided interviews
  - Iterative quantitative survey to establish stability of responses (Delphi)
Conclusions

• Literature thus far focuses on:
  – Patient-level barriers
  – Resources
  – Less on “ICU culture”

• Studying barriers is challenging

• A theory-driven approach may be helpful
Study Team

Thesis Committee

- Dr. Brian Cuthbertson
- Dr. Eddy Fan
- Dr. Gordon Rubenfeld
- Professor Jill Francis (UK)

Collaborators

- Dr. Louise Rose
- Dr. Michelle Kho
- Dr. Dale Needham

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