Mobilizing Older Adults
Facing a Surgical Procedure

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More than 4 million major surgical operations are performed annually in US on older patients

Relatively little is known about course of disability before and after major elective and non-elective surgery

Few interventions have focused on improving functional outcomes after major surgery
Functional Trajectories before and after Major Surgery

Severe disability (n=33, 13.2%)

Moderate disability (n=73, 29.2%)

Mild disability (n=84, 33.6%)

No disability (n=60, 24.0%)

Months before major surgery

Little improvement (n=57, 22.8%)

Partial improvement (n=70, 28.0%)

Gradual improvement (n=76, 30.4%)

Rapid improvement (n=39, 15.6%)

Months after major surgery

Stabenau et al, Ann Surg, 2018
Summary

• Among older persons, long-term function after major surgery is highly dependent on function before surgery

• Older persons undergoing major surgery rarely improve their function and frequently experience functional decline

• Outcomes are worse for non-elective surgery
Prehabilitation interventions to optimise functional capacity

Functional capacity

Cardio-respiratory function

Muscle function

Modifiable risk factors

For example, anaemia, sarcopenia, anxiety, smoking, comorbidities

Venetia et al, BMJ, 2017
Yale PREHAB Study

No. of Participants | 188 | 182 | 181 | 178
% Reduction | -- | 17 | 46 | 40
p-value | -- | 0.40 | 0.004 | 0.007

Gill et al, NEJM, 2002
Areas Targeted

- Muscle strength
- Balance and transfers
- Gait: indoor and outdoor
- Assistive devices and footwear
- Compensatory strategies
- Home environment
Early, goal-directed mobilisation in the surgical intensive care unit: a randomised controlled trial

Resulted in improved patient mobilisation throughout SICU admission, shortened patient length of stay in the SICU, and improved patients’ functional mobility at hospital discharge

A Define a challenging mobilisation goal each day

<table>
<thead>
<tr>
<th>Safety criteria to advance mobilisation</th>
<th>Level 0 No activity</th>
<th>Level 1 Passive range of motion</th>
<th>Level 2 Sitting</th>
<th>Level 3 Standing</th>
<th>Level 4 Ambulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Stable spine</td>
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<td>b) No excessive predicted mortality within the next 24 h</td>
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<td>c) ICP &lt; 20 cm H₂O</td>
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B Implement the challenging mobilisation goal across shifts

- Address potential barriers for the goal
- Develop appropriate procedures to reach the goal
- Ensure inter-professional closed-loop communication

Schaller et al, Lancet, 2016
Gaps and Opportunities

• Better elucidate reasons for poor functional outcomes after major surgery, including role of intervening events
• Determine whether early mobilization after major surgery improves long-term functional outcomes
• Evaluate multifactorial interventions to improve functional outcomes after major surgery
  • prehabilitation, early mobilization, rehabilitation
  • identify components that are most effective
  • identify persons who would benefit most