THE DETERIORATING PATIENT IN THE SUB-ACUTE SETTING

Australasian Rehabilitation Nurses Association
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Conflict of Interest and affiliations

No conflicts of interest regarding this topic.

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• Member of National Australian Resuscitation Council
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Medical emergency response in a sub-acute hospital: improving the model of care for deteriorating patients

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Multisite analysis of the timing and outcomes of unplanned transfers from subacute to acute care

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Standard 9

Bendigo Health, 2015
“The research agenda to decrease mortality rates by early recognition and response to clinical deterioration has been largely limited to the context of inpatient wards in acute care settings”

(Considine, 2013, pg 187)
Why is this becoming an issue?

“The sub-acute hospital setting has traditionally been used for patients with lower medical acuity. However, changing models of care in these areas have meant that there is an increased need to manage unwell patients”

(Visser 2014, pg 170)
How big of an issue is it?

Nationally, almost 19,000 (5%) of episodes of sub acute care result in transfer to another hospital for treatment of deterioration (Considine, 2015).

In America this rate is 10.91% (Faulk, 2013).

European statistics not comparable due to average length of stay in acute longer (Morandi, 2013).

Increased costs associated with stay. $494 per day in rehab compared to $626 per day for acute bed, $4,139 per day for ICU bed (Vic Govt, 2015).
What are the demographics?

- One third within the first 24 hours of admission to sub-acute
- More than 80% within first 72 hours of admission to sub-acute
- Median age: 81 (+/- 8 years)
- No obvious difference between gender.
- Original acute admission being for general surgery
- Polypharmacy (4 fold increased risk)
- Significant functional decline (3 fold increased risk)
- Length of stay in acute =/> 13 days (2 fold increased risk)
- More likely with clinical instability on admission to sub-acute (81% greater risk)
- More likely for patients with delirium
- Patients admitted to sub acute after 4pm
<table>
<thead>
<tr>
<th>MET trigger</th>
<th>Visser (n=141)</th>
<th>Bendigo Health (n=103)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change in conscious state</td>
<td>(38/141) 27%</td>
<td>(13/103) 12%</td>
</tr>
<tr>
<td>O2 Sat &lt;90% or &gt;8lpm O2 required</td>
<td>(20/141) 14.2%</td>
<td>(20/103) 19%</td>
</tr>
<tr>
<td>Systolic BP &lt;90mmHg</td>
<td>(20/141) 14.2%</td>
<td>(33/103) 32%</td>
</tr>
<tr>
<td>RR &lt;8 or &gt;25 per min</td>
<td>(16/141) 11.3%</td>
<td>(14/103) 13%</td>
</tr>
<tr>
<td>Chest Pain</td>
<td>(11/141) 7.8%</td>
<td>Not specified in data</td>
</tr>
<tr>
<td>HR &lt;40 or &gt;110</td>
<td>(10/141) 7.1%</td>
<td>(12/103) 11%</td>
</tr>
<tr>
<td>Active bleeding</td>
<td>(9/141) 6.4%</td>
<td>Not specified in data</td>
</tr>
<tr>
<td>Seizure</td>
<td>(8/141) 5.7%</td>
<td>Not specified in data</td>
</tr>
<tr>
<td>Staff worried / other</td>
<td>(7/141) 5.0%</td>
<td>(38/103) 36%</td>
</tr>
<tr>
<td>Cannot be roused</td>
<td>(2/141) 1.4%</td>
<td>Not specified in data</td>
</tr>
<tr>
<td>UO &lt;50ml over 4 hours</td>
<td>Not specified in data</td>
<td>(8/103) 7%</td>
</tr>
</tbody>
</table>
What are reasons for unplanned transfers?

1. Respiratory (SOB, aspiration)
2. Cardiac (chest pain, arrhythmias)
3. Neurological (altered conscious state, confusion, stroke)
4. Gastrointestinal (abdominal pain, vomiting, GI bleeding)
5. Genitourinary (haematuria, urinary retention, renal failure)
6. Febrile illness or sepsis (fever, wound infection)
7. Fall or injury
8. Musculoskeletal (joint pain, back pain, limb pain)
9. Wound management issues
10. Other (hyper/hypo glycaemia, electrolyte imbalance, medication error requiring medical review, medication toxicity and epistaxis)
What are the outcomes?

Those who died had more physiological abnormalities in the 24hrs preceding transfer
More likely to be discharged in a frail or poor condition
Less likely to return to pre hospital functional status
Mortality rates between 15 and 28%
Why are outcomes so poor?

“Post hospital syndrome”

In the 24 hrs preceding the transfer – 92.6% had 1 or more physiological abnormalities

Recognition of deterioration delayed due to the variability in the frequency and completeness of physiological assessments

Acute and subacute care facilities are often on different sites

Lower nurse patient ratio in sub acute settings

Time of day – fatigue, handover, access to information, increased medication errors, increased length of stay
The significance of altered physiological signs in those 24 hrs

<table>
<thead>
<tr>
<th>Vital sign</th>
<th>5% mortality</th>
<th>10% mortality</th>
<th>20% mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systolic BP low</td>
<td>80 to &lt;85</td>
<td>65 to &lt;70</td>
<td>55 to &lt;60</td>
</tr>
<tr>
<td>Diastolic BP low</td>
<td>20 to &lt;30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diastolic BP high</td>
<td>120 to &gt;130</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean arterial Pressure high</td>
<td>40 to &lt;50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heart rate high</td>
<td>120 to &lt;130</td>
<td>140 to &lt;150</td>
<td>150 to &lt;160</td>
</tr>
<tr>
<td>Temperature low</td>
<td>34.4 to &lt;35</td>
<td>33.9 to &lt;34.4</td>
<td></td>
</tr>
<tr>
<td>Temperature high</td>
<td>38.9 to &lt;39.4</td>
<td>39.4 to &lt;40</td>
<td></td>
</tr>
<tr>
<td>Respiratory rate high</td>
<td>24 to 28</td>
<td>28 to 32</td>
<td>36 to 40</td>
</tr>
<tr>
<td>Respiratory rate low</td>
<td>10 to 12</td>
<td>4 to 8</td>
<td></td>
</tr>
<tr>
<td>Oxygen saturation %</td>
<td>90 to &lt;91</td>
<td>81 to &lt;82</td>
<td></td>
</tr>
<tr>
<td>Level of consciousness (GCS)</td>
<td>Not alert 14</td>
<td>Sedated 13</td>
<td>No response</td>
</tr>
</tbody>
</table>

(Bleyer, 2011, pg 1388)
What should be done?

Improved documentation of escalation of care

Physiological observations are measured at least once per 8 hr shift in sub acute settings

Monitoring for primary diagnosis and for other active/developing medical problems

Pre-emptive documentation of Advanced Care Directives / Limitation of medical treatment orders – including transfer information

Identify those patients with reversible pathology and therefore likely to benefit from transfer and those who will not and are appropriate for palliation
Thank you
References

Considine, J., Street, M., Bottie, M., O’Connell, B., Kent, B., Dunning, T. Multisite analysis of the timing and outcomes of unplanned transfers from sub-acute to acute care. Australian Health Review. Early online publication March 2015. doi: http://dx.doi.org/10.1071/ah14106
Faulk, C., Cooper, N., Staneata, J., Bunch, M., Galang, E., Fang, X., Foster, K. (2013) Rate of return to Acute Care Hospital Based on Day and Time of Rehabilitation Admission. Physical Medicine and Rehabilitation. 5: 757-762