Evaluation of a wireless, portable, wearable multi-parameter vital signs monitor in hospitalized neurological and neurosurgical patients

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Despite studies showing the benefits of continual, multi-parameter vital sign (VS) monitoring in general non-ICU patients, as demonstrated by a decrease in total length of stay in both hospital and intensive care unit days and a lower incidence of cardiac arrest\(^1\), alarm fatigue poses a concern and burden on nurses.

### Study Objective & Methods

A prospective, observational, 5-month pilot study in a 26-bed adult, neurological/ neurosurgical unit (non-ICU) at Wake Forest was conducted. ViSi Mobile was used to assess the impact of continual, multi-parameter VS monitoring on alarm rates, rapid response team (RRT) calls, intensive care unit (ICU) transfers, and unplanned deaths before and during the pilot study.

### Highlights

- **Alarm Parameter Changes during study period**
  - Start
  - 1/1-6/6
  - 2/1-2/29
  - 2/1-End

<table>
<thead>
<tr>
<th>Alarm Parameter Changes during study period</th>
<th>Rapid Response Team Events/1000 Discharges</th>
<th>ICU Transfers &amp; Unplanned deaths/1000 Discharges</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.41</td>
<td>189</td>
<td>52.9</td>
</tr>
<tr>
<td>7.09</td>
<td>158</td>
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<tr>
<td>5.94</td>
<td>↓16%</td>
<td>↓24%</td>
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<td>2.01*</td>
<td>RRTs (p&lt;0.05)</td>
<td>ICU Transfers (NS) &amp; Unplanned Deaths (NS)</td>
</tr>
<tr>
<td>Pre-Study</td>
<td>Pilot Study</td>
<td>Pre-Study</td>
</tr>
<tr>
<td>↓16%</td>
<td>↓16%</td>
<td>↓47%</td>
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<tr>
<td>52.9</td>
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<td>4.92</td>
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</tr>
<tr>
<td>2.6</td>
<td>↓47%</td>
<td>2.6</td>
</tr>
</tbody>
</table>

**Comments regarding alarm parameter changes**
- Modify configuration to VSAS defaults
- ↑ high systolic BP alarm limit
- ↑ BP and SP02 alarm delays

**RESULTS**

- Reduction in non-actionable alarms enabling effective vital signs surveillance while minimizing overall alarm burden
- RRT events during study period decreased significantly after implementation
- Albeit statistically non-significant, reduction in ICU transfers and unplanned deaths were observed pre and during study

### Keeping An Eye on Life

Up to 75% of adverse events and preventable deaths occur outside the ICU in unmonitored beds\(^2\). With Sotera Wireless’ ViSi Mobile Surveillance Monitoring System, clinicians are empowered to detect early signs of deterioration in virtually any care setting, enabling early intervention and rapid response.

When early detection matters, ViSi Mobile can make the difference. Transform the way vital signs are monitored with ViSi Mobile today.


For more information about the ViSi Mobile System, visit soterawireless.com