Handheld Technology to Improve Documentation Process of Vital Signs at Bedside

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Quality Improvement Idea

• Implementation trial of handheld devices to improve Vital Signs (VS) documentation accuracy and timeliness by Unlicensed Assistive Personnel (UAP) in Adult & Peds Med/Surg units
• Our goal was:
  • To improve timeliness of documentation
  • To promote point of care documentation
  • To help clinicians to make treatment decisions based on real time data
  • To improve accuracy of documentation
  • Eliminate errors of omission
  • Reduce transcription errors

Methodology

• Collaborated with Clinical Solutions Center, a division of Medical Operations, in designing an application (app), for the handheld device
• Workflow & needs assessment analyzed
• Involved UAP (champions) during pre-pilot planning
  Pilot conducted on 4 units
  • Units A & B – Phase I
  • Units C & D – Phase II
• Based on UAP feedback during Phase I, added functionality & changed user interface for Phase II trial:
  • View digit & activity orders
  • Enter weight

Implementation

• Training was conducted prior to the implementation
• Teaching materials were distributed to promote practice change
• Rounds were conducted to ensure correct process was followed
• Online audits to verify that VS were entered in Electronic Medical Record (EMR)
• To prevent loss/theft of the handheld devices they were locked up when not in use.

Data Collection

• Nursing Informatics collected pre-pilot and intra-pilot metrics by observing UAPs obtain and record VS during each phase
• Metrics collection included:
  • Time between VS completion and VS entry into EMR
  • Amount/type of documentation errors
  • User Survey
• Phase II user survey questions were revised because of app changes

Outcomes

• Time Between VS Completion & VS Entry into EMR

Time Between VS Completion & VS Entry into EMR

<table>
<thead>
<tr>
<th>Phase</th>
<th>Before Pilot</th>
<th>During Pilot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase I</td>
<td>21.67</td>
<td>15.27</td>
</tr>
<tr>
<td>Phase II</td>
<td>20.00</td>
<td>15.27</td>
</tr>
</tbody>
</table>

The left side column displays the time between VS completion and VS entry into EMR. The right side column will display the percentage of data.

Visuals

Documentation Errors Pre-Pilot

<table>
<thead>
<tr>
<th>Phase</th>
<th>Errors</th>
<th>Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase I</td>
<td>78</td>
<td>148 observations</td>
</tr>
<tr>
<td>Phase II</td>
<td>2</td>
<td>2 errors/14 observations</td>
</tr>
</tbody>
</table>

• Transcription errors were noted for heart rate, blood pressure, temperature, respiratory rate, and SpO2
• RR that were not recorded on paper but were entered in EMR were considered errors
• During handheld device use:
  • Transcription error data was not collected because observers could not easily record what the UAP collected (no paper documentation as a reference)
  • Unable to track entry errors in Phase II because data was entered directly into EMR
  • Inconsistent internet connectivity resulted in loss of data.
• Users unaware until loss verified in EMR.

Implications

• Using a handheld device, VS are entered sooner into the EMR, especially for those units where UAPs document on paper first and then enter data into the EMR. This has a direct impact on providing real-time data, to support clinical decision making and to provide safe patient care.
• Inconsistent internet connectivity issues resulted in data loss
• Further evaluation of WIFI structure is needed
• Change in incidence of transcription/documentation errors cannot be determined using a handheld device.