A Time and Motion Study of Nursing in the Performance of Medication Administration

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Overview

- Background/ Significance
- Study Analysis
- Results
- Implications for practice
Background/ Significance

- Barcode Medication Administration (BCMA) Project
  - Patient safety
  - IOM report
  - Baseline data lacking
- NO safety net for nursing
- Insight into medication administration process from systems perspective

Purpose

- To develop and test a method for assessing the nursing effort (time and motion)
- Gain understanding of the medication administration process
- Increase efficiency and improve patient safety
Research Question

- How much effort (time and motion), including interruptions, is spent by nurses in the process of administering medications in the acute care setting?

Method

- Descriptive observational study
  - Medication preparation
  - Medication documentation
- Unit of observation (UMO)
  - Medication retrieval
  - Medication administration
- Interruptions
- Pedometers
Sample

- Participants
- Rural Hospital in Kentucky
  - 90 beds with paper charting and medical records, Accudose
- Community Hospital in Illinois
  - 320 beds with Meditech & Pyxis
- Academic Medical Center in Illinois
  - 523 beds with EPIC, CPOE, & medication carts

Results - UMO

<table>
<thead>
<tr>
<th></th>
<th>HOSPITAL A (Rural)</th>
<th>HOSPITAL B (Community)</th>
<th>HOSPITAL C (Medical Center)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medication Retrieval Time</td>
<td>5:13</td>
<td>3:31</td>
<td>4:00</td>
</tr>
<tr>
<td>Medication Administration Time</td>
<td>3:05</td>
<td>3:35</td>
<td>6:04</td>
</tr>
<tr>
<td>Total UMO Time</td>
<td>8:18</td>
<td>8:37</td>
<td>10:02</td>
</tr>
</tbody>
</table>
### Total Results

<table>
<thead>
<tr>
<th></th>
<th>HOSPITAL A</th>
<th>HOSPITAL B</th>
<th>HOSPITAL C</th>
</tr>
</thead>
<tbody>
<tr>
<td>UMO Time</td>
<td>8:18</td>
<td>8:37</td>
<td>10:02</td>
</tr>
<tr>
<td>Average Preparation Time</td>
<td>5:13</td>
<td>3:31</td>
<td>4:00</td>
</tr>
<tr>
<td>Average Documentation Time</td>
<td>3:05</td>
<td>3:35</td>
<td>6:04</td>
</tr>
<tr>
<td><strong>Total Pass Time</strong></td>
<td><strong>14:25</strong></td>
<td><strong>16:57</strong></td>
<td><strong>15:28</strong></td>
</tr>
</tbody>
</table>

### Interruptions in Medication Administration Process

- **Number of Interruptions (Total=1052)**

#### Interruption Type

- Laboratory
- Patient Care
- Pharmacy/ Accudose
- Physician
- Communication
- Other staff
Nurses Don’t Have to Work Out!

Pedometer Results

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Average steps per medication pass</th>
<th>Average steps per hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital A</td>
<td>917</td>
<td>1013</td>
</tr>
<tr>
<td>Hospital B</td>
<td>961</td>
<td>879</td>
</tr>
<tr>
<td>Hospital C</td>
<td>1149</td>
<td>903</td>
</tr>
</tbody>
</table>
Summary Results

- Nurses are working hard, but not achieving optimal results
- Average medication pass 15 min 36 sec
- Use of Pyxis
- Hospital culture
- Risk of an interruption or distraction with EVERY medication pass
- NO Matter What System, There was NO perfect Medication Pass

Implications for practice

- RN orientation strategy
- Need to understand technology and its impact on nursing workflow
- Opportunity for decreasing interruptions
- Identifies opportunity for system wide schedule changes
- Developed model for organizations to use in observing medication administration
THANK YOU!

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