The Anatomy of Nursing Interruptions: Who-What-When-Where

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THE ANATOMY OF NURSING INTERRUPTIONS IN A SURGICAL INTENSIVE CARE UNIT
AT A TRAUMA CENTER

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Objectives: Although interruptions experienced by nurses during intensive care have been
indicated to affect patient safety, not much is known regarding the complex situations that drive
interruptions to eventually aid in intervention design and implementation. Our objective, thus, is
to understand the anatomy of interruptions; i.e., source (person or device), location, activity
performed, inquiry, and their interactions that affect the duration of an interruption and switch
from the primary activity.

Methods: We observed registered nurses (RNs) in a 23-bed surgical intensive care unit (SICU)
at a Level 1 Trauma Center in the Midwest US. Multiple RNs were shadowed for 25 sessions for
a total of 75 hours between June and September 2014. A total of 206 interruptions were recorded
for two outcomes (interruption duration and switch from primary task), which were analyzed
using statistical methods.

Results: RNs were interrupted on average every 18.3 min; mean duration of interruption being
99.8 s. The dominant location was patient room (57.8%), activity was documentation (42.2%),
and inquiry was professional communication (56%). Interruptions by attending/residents were
less frequent (10%), but significantly longer than the more frequent (30%) caused by other RNs
(197.1 vs 74.8 seconds; p<0.01). Long durations (although less frequent) led to a higher
proportion of switches (correlation, r = 0.64). Individually, devices, hall, documentation, and
inquiry in form of a task led to significantly higher switches. Interaction between these factors
were detrimental; e.g., duration was long by interruption from attending/resident during
documentation (202.5 vs. 93.5 s, p=0.0238); switches were higher when in the hall (87.5% vs
49.5%, p=0.0368).

Conclusions: This work shows that a deeper understanding in the anatomy of interruptions, and
the emerging complex situations through their interaction, is imperative. Operational protocols
can be devised to avoid such situations from occurring, unless it is benefiting the patient.
Figure 1. Frequency (left, n=206) and duration (right, % of 342 total interrupted minutes) of interruptions for each source (person and device); CL = call light, ECD = electronic communication device.

<table>
<thead>
<tr>
<th>Situation</th>
<th>Duration (s)</th>
<th>Situation</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Person + Activity</td>
<td>Attending/Res + Documentation (12/202.3 s)</td>
<td>greater than</td>
<td>Other situations (194/93.3 s)</td>
</tr>
<tr>
<td>Person + Location</td>
<td>Attending/Res + Hall (8/258.0 s)</td>
<td>less than</td>
<td>Other situations (187/104.3 s)</td>
</tr>
<tr>
<td>Device + Activity</td>
<td>Alarm + Documentation (19/55.2 s)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Person + Location</td>
<td>Attending/Res + Hall (8/87.3 s)</td>
<td>greater than</td>
<td>Other situations (198/49.5 s)</td>
</tr>
<tr>
<td>Device + Activity</td>
<td>Alarm + Documentation (19/84.21)</td>
<td>less than</td>
<td>Other situations (175/55.4 s)</td>
</tr>
<tr>
<td>Person + Location</td>
<td>RN + Patient Room (31/25.8%)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2. Situations (modeled via two-way interaction effects) affecting duration and switch; n/q indicates events and mean (seconds) for duration or events and percentage switched (%) for switch.

Notes