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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.

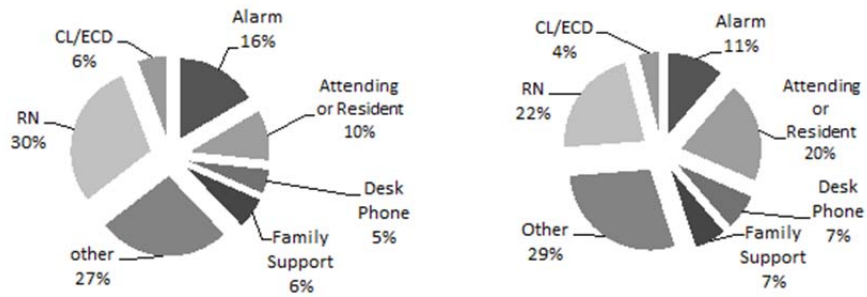


Figure 1. Frequency (left, $n=206$) and duration (right, % of 342 total interrupted minutes) of interruptions for each source (person and device); CL = call light, ECD = electronic communication device.

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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

	Situation		Situation	<i>p</i> -value
		Duration (s)		
Person + Activity	<i>Attending/Res + Documentation (12/202.5 s)</i>	greater than	<i>Other situations (194/93.5 s)</i>	0.0238
Person + Location	<i>Attending/Res + Hall (8/258.0 s)</i>		<i>Other situations (198/93.4 s)</i>	0.0301
Device + Activity	<i>Alarm + Documentation (19/55.2 s)</i>	less than	<i>Other situations (187/104.3 s)</i>	0.0323
		Switches (%)		
Person + Location	<i>Attending/Res + Hall (8/87.5%)</i>	greater than	<i>Other situations (198/49.5%)</i>	0.0368
Device + Activity	<i>Alarm + Documentation (19/84.21)</i>		<i>Other situations (187/47.6%)</i>	0.0019
Person + Location	<i>RN + Patient Room (31/25.8%)</i>	less than	<i>Other situations (175/55.4%)</i>	0.0020

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