Understanding and Mitigating the Distractions/Interruptions Experienced in the OR

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Definition

Multiple definitions exist for distractions/interruptions in healthcare literature (Grundgeiger & Sanderson, 2009)

- Hindered knowledge accumulation and comparison across studies

Widely used definitions: (Healey et al, 2007)

- Distraction: Observed behavior such as orienting away from a primary task or verbally responding to a secondary task with no break in primary task
- Interruption: A clear break in primary task activity due to a distraction

Prevalence of Interruptions in Healthcare


- Medication Administration 53% of all administrations
- Emergency Department 3.3/h per registered nurse
- ICU 4.5-19/h per registered nurse
- Surgery 6-33/h

Large variability in interruption rates due to:

- Unit characteristics
- Adopted definitions
- Nature of different departments

Relation to medical errors?

Interruptions may cause medical errors (Kohn, et al, 2000)

- Limited evidence on the relationship between medical errors and distractions/interruptions (Grundgeiger & Sanderson, 2009)

Interruptions can be positive: (Rivera & Karsh, 2010, Grundgeiger & Sanderson, 2009)

- May convey important information about patient safety
- May decrease boredom for low attention tasks (Fisher & al, 1998)

A holistic approach: Context needs to be considered, not just prevalence

Mitigation

Physical and Procedural Changes:

- Blocking (Raban & Westbrook, 2014)
- No interruption zones
- Do not disturb vests
- Supporting resumptions
- Whiteboards (Westbrook et al, 2010)
- Automatic error-prone tasks
- Bar-coding (Westbrook et al, 2010)

- Mitigation technique should be matched to the problem

Training/Cultural Changes:

- Well-coordinated teams (Sevdalis et al, 2014)
- Knowing one’s self and active handling (Sevdalis et al, 2014)
- Sympathetic relationship (Persson et al, 2011)
e.g. how comfortable a resident feels asking the team to switch off the radio

Research Gap:

- No standards in definitions of distraction and interruption
- Limited evidence on the relationship between distractions/interruptions and errors
- Systems approach in interruption-error relationship
- Mitigation techniques specific to different departments

Investigating Interruptions in Surgery

- Naturalistic data is being collected in operating rooms at St. Michael’s hospital (Operating Room Black Box Data)
- Statistical analyses on the naturalistic data could help:
  - identify which distractions/interruptions may be related to surgical errors
  - mitigate the most detrimental ones with a suitable mitigation technique

Operating Room Black Box

Multiview, high-resolution images of:

- Audio/video of OR
- Endoscopic camera/wearable technology
- Patient physiology,
- Environmental factors
- Recording devices

Raw, unbiased recordings – potential to capture more insights

References