HATRICC-US
Handoffs & Transitions in Critical Care – Understanding Scalability

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Addressing Performance Gap in High-Acuity Settings

- **Need**: characterizing implementation strategies suitable for fast-paced, high states critical care environment

- **Why?**: to narrow evidence-to-practice performance gap for high-acuity patients

- An intervention deemed high priority by the American Heart Association (1)

“Handoff failures have been identified as a significant source of medical errors, both between and within teams” (2)

“Standardization of critical interactions by use of protocols (eg, handoffs) improves the content and structure of information and increases participation but is often met with ambivalence at best and hostility at worst” (2)
Handoff Structure

Where data collection begins

a) OR to ICU handoff participants

a Clinician participants and roles in the OR-to-ICU handoff. b OR-to-ICU handoff protocol
The Project: HATRICC-US

- HATRICC (pilot study) to HATRICC-US (current project)
- Using evidence-based standardized protocol for patient care handoffs from the operating room (OR) to the intensive care unit (ICU)
  - 12 adult and pediatric ICUs, 9 hospitals, 5 health systems
- **Purpose:** study the uptake and use of complex socio-technical interventions in acute care.
Aims:

1. Ascertain determinants of OR to ICU protocol adoption and use through contextual inquiry
2. Adapt handoff protocols using human factors engineering and implementation mapping
3. Test the effectiveness of such strategies throughout 4-5 years of study
4. Design and create a digital toolkit for other ICUs for future interventions
### Study Instruments

**NASA TAS**

<table>
<thead>
<tr>
<th>Date of Handoff</th>
<th>In what clinic</th>
<th>Cooper TIC</th>
<th>Cooper Vin</th>
<th>Hopkins Ba</th>
<th>Hopkins Ba</th>
<th>Please select:</th>
<th>Anesthesia</th>
<th>Instructions:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
<td>The following that matches</td>
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<tr>
<td></td>
<td>Mental stress your job during remembering</td>
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<tr>
<td></td>
<td>Physical stress your job (e.g., during OR)</td>
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<td></td>
<td>Temporal delay OR-to-ICU handoff elements occur.</td>
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<td></td>
<td>Efficiency. How is complete you</td>
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</tr>
</tbody>
</table>

**For the OR to ICU team to prepare for handoff**

<table>
<thead>
<tr>
<th>For the OR to ICU team to prepare for handoff</th>
<th>For the ICU to prepare to handoff to the ICU</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. From the OR perspective: During handoff, I ask the ICU team if they have questions.</td>
<td>For the ICU to prepare to handoff to the ICU</td>
</tr>
<tr>
<td>2. From the OR perspective: During handoff, I forget to mention something important.</td>
<td></td>
</tr>
<tr>
<td>3. From the OR perspective: There is a person on the ICU team that I do not know.</td>
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</tbody>
</table>

**Perspective Survey**

We are conducting a study of handoff protocol implementation. We are interested in your perspectives on the OR-to-ICU handoff process. Please complete the questions below. Your participation is voluntary, and you do not have to answer any of these questions. Your answers are anonymous, and survey results will only be reported in aggregate. Thank you!

**In which clinical location/unit do you work?**

- Cooper TIC
- Hopkins NICCU
- Penn Lancaster ICU
- Temple ICU
- Cooper Vinr ICU
- Hopkins PICU
- Penn Princeton CCU
- UTSW Clements SICU
- Hopkins Bayview Burn ICU
- Hopkins CVICU
- Penn Presbyterian TSCU
- UTSW Children’s CVICU
- Hopkins Bayview SICU
- Other __________

In your current role, do you care for patients in the operating room who are later transferred to the ICU?

- Yes
- No

In your current role, do you care for patients in the ICU who have been transferred to you from the OR?

- Yes
- No

How familiar are you with the way OR-to-ICU handoffs are conducted on this unit?

- Extremely familiar
- Very familiar
- Moderately familiar
- Slightly familiar
- Not at all familiar

**IF YOU CARE FOR PATIENTS IN THE OR TRANSFERRED TO THE ICU:**

Please answer the following questions from the perspective of a clinician caring for a patient in the operating room who requires transfer to the ICU.

From the intraoperative (OR) perspective, how often are the following statements true?

<table>
<thead>
<tr>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Usually</th>
<th>Always</th>
</tr>
</thead>
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</table>

1. From the OR perspective: During handoff, I ask the ICU team if they have questions.
2. From the OR perspective: During handoff, I forget to mention something important.
3. From the OR perspective: There is a person on the ICU team that I do not know.

From the OR perspective, please specify your level of agreement with the following statements:

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
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</table>

4. From the OR perspective: I understand what is expected of me in handoffs.
5. From the OR perspective: I know what information I need to transmit to the ICU team for care for the patient after the handoff.
6. From the OR perspective: I am satisfied with the current way that OR-to-ICU handoffs are conducted.

**IF YOU CARE FOR PATIENTS IN THE ICU TRANSFERRED FROM THE OR:**

Please answer the following questions from the perspective of a clinician caring for a patient in the ICU who was transferred to you from the operating room.

From the postoperative (ICU) perspective, how often are the following statements true?

<table>
<thead>
<tr>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Usually</th>
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7. From the ICU perspective: During handoff, I ask clarifying questions of the OR team when necessary.
8. From the ICU perspective: There is a person on the OR team that I do not know.

Revised Version 2023.1025
Case Summary for Cooper Viner ICU

- Based on ICU Handoff Case Report Form (David) and Perspectives Survey (Anthony)
- Summarized collected data from Cooper Viner ICU
- Played a role in initiating intervention for this ICU
Systematic review of OR to ICU handoff standardization interventions highlights need for focus on sustainability and patient outcomes

● Purpose: To synthesize findings about OR to ICU handoff intervention sustainability and their impact on patient outcomes (not described well in the literature)

● Original Methodology: 10 databases (studies published between 1995 and October 2021)
  ○ Modified to studies published up to the present

● Screening articles with Covidence (shown on left)

● Preliminary Deadline: December 2023
Timeline

What we’ve done:
- Data collection
- Shadowing
- Summer School/learning about HATRICC-US
- Began systematic review

What’s next?
- Continuing beyond SUMR program in the efforts to:
  - collect data
  - stepped wedge implementation of interventions at more sites
  - conduct focus groups and interviews
- (Hopefully) continue shadowing and shadowing other clinicians
- TBD
Lessons Learned

David

● Exposure to research process
● Attitude towards a particular intervention is crucial in the successful implementation of said intervention
● Nurses are awesome!!
● Shadowing
● Equity in research and in medicine
● Systematic Review
● Critical care, maybe 😊

Anthony

● The vital role each clinician plays
  ○ Shadowing
  ○ Data Collection
  ○ HATRICC meetings and career panel
● Methods to a systematic review
● Engineering is not limited to inanimate objects (humans, too!)
● Implementation science
● Dynamic critical care environment
Acknowledgements

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REFERENCES

1. HATRICC-US: About the Study: https://hatricc.us/overview
QUESTIONS?

Thanks for listening!