

BACKGROUND / SIGNIFICANCE

- The Joint Commission data reveals that inadequate handovers are a contributing factor in 80% of all reported adverse events.
- The operating room (OR) to pediatric intensive care unit (PICU) handoff presents an unforeseen risk medical error, patient harm, and miscommunication without a routine and standardized process.
- Inadequate handoff can lead to increasing healthcare costs, increased length of stay (LOS), and decreased patient satisfaction.

PROBLEM/PURPOSE

The problem is that the current OR to PICU handoff process creates opportunity for medical error, inadequate and inefficient communication, and compromises patient safety that could increase morbidity and mortality post-operatively.

The purpose of this quality improvement project is to:

- Identify deficiencies in current OR to PICU handoff.
- Create a new handoff tool from the OR to PICU.
- Educate the interdisciplinary team on new handoff tool.
- Evaluate the completion and accuracy of handoffs.
- Evaluate the need for improvements on the new handoff tool.

OBJECTIVES

- Improved communication between OR providers and PICU providers. This will be measured by measuring introductions of staff, if the handoff card is used, and summarizing the patient post operative plan at the end by the ICU attending.
- Reduction in patient errors related to handoff from OR to PICU. This will be measured by measuring drip handoff and direct visualization of drains with essential staff members.
- Decrease handoff duration.

METHODS

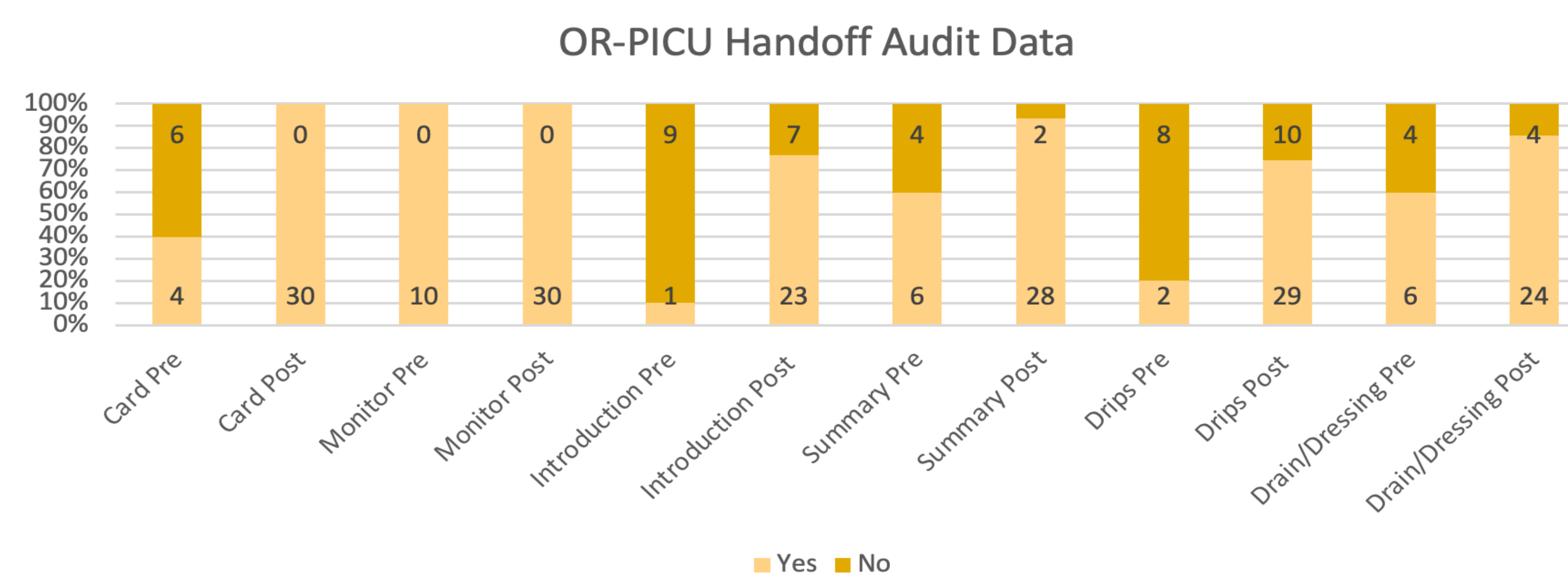
- Setting:** Children's Nebraska providers and staff that are involved in the OR-PICU handoffs.
- Population:** 10 post-operative handoffs in the pre-intervention phase and up to 100 handoffs in the 6-week post-intervention phase.
- Data Collection:** Pre-intervention: 6/1/23-7/1/23, Post-Intervention 8/1/23-10/1/23.
- Intervention:** A new handoff tool was created and education was provided to all staff involved in OR-PICU handoffs on the new tool and practice changes.
- Data Analysis:** Descriptive statistic including Fisher exact tests and student t-tests.

AUDIT QUESTIONS

- Total duration of handoff (minute/seconds)
- Was the handoff card used?
- Was the patient on the monitor before the handoff began?
- Were introductions performed by each party?
- Did the PICU intensivist provide a summary at the end of handoff?
- Were drips co-signed with anesthesia and RN?
- Were drains/dressings visualized before handoff was complete?

RESULTS

- 30 post-operative handoffs were audited in the intervention phase.
- Demographic data: Pre-intervention/post-intervention surgical type:
 - Neurosurgery (50%/57%), Ortho (30%/27%), ENT (0%/10%), General surgery/trauma (30%, 6%), urology (0%/0%).
- Total duration of handoff was not statistically significant (using student t-test).
 - Pre-intervention: 5.7 minutes
 - Post-Intervention: 6.65 minutes
- 5 out of 6 effects were statistically significant (defined as a p-value <.05) using Fisher exact tests:
 - Handoff card (p-value = 0.002)
 - Introductions (p-value = 0.0003)
 - Intensivist summary (p-value = 0.001)
 - Drips co-sign (p-value = 0.024)
 - Dressing/drain visualized (p-value = 0.009)
 - Patient on monitor before handoff begins (p-value = 1.0)



HANDOFF TOOL

OR - PICU Handoff Checklist

Attendees: PICU intensivist, PICU resident/APP, PICU bedside RN, surgeon(s) (and/or surgical resident/fellow), anesthesiologist, OR RN, and RT.

Before Handoff Begins:

- Patient on PICU monitors and PICU bed.
- Mechanical ventilation provided (if necessary); initial settings per the anesthesiologist.
- Drips switched over to the PICU infusion pumps / IV pole.

ANESTHESIA:

- Confirm with PICU team: "Are you ready for report to begin?"
- Introductions (name, role) One representative from each primary service (anesthesia, PICU RN, PICU provider, anesthesia, surgeon, OR nurse) to ensure everyone is present before handoff begins.

HARD STOP

- If the patient is not the PICU monitor
- Missing key staff members

3. Patient:

- Name / nickname
- Age
- Weight
- Allergies
- Relevant past medical history
- Special implanted devices (e.g. - VP shunt / baclofen pump / insulin pump)
- Airway
 - Airway grade and view
 - ETT / Trach size / location
 - Difficult airway / issues during intubation or extubation
- Lines placed (IV, NG/OG)
- Patient positioning in OR (if other than supine)
 - Crystalloids/Colloids
 - Blood products
 - Pertinent urine output
 - Drain output
- Medications given / antibiotic (last dose) / current medication infusions / local anesthetic/ pain management intra-op
- Pertinent lab values

SURGEON:

- Indication for surgical procedure
- Surgical procedure(s) performed
- Intraoperative process / adverse events
- EBL

Post-operative plan

- Antibiotics/steroids
- Tubes, drains
- Diet
- Activity
- Labs

ENT	GenSurg/Trauma	Neurosurgery	Ortho	Urology
Airway reconstruction management	NGT management	EVD specifics Status -Levelled -Height ICP monitoring/goals	Positioning restrictions	Sources of total urine output (catheter/stent/spacing)
Suctioning restrictions	C-Spine clearance (When/who)	Report imaging: CT/MRI	PTOT	Catheter scan/ post void residual volumes
Classified as a critical airway?	Report imaging	Spine Check Frequency	Devices	Expected removal date
Hold any meds?	Hold any meds?	Hold any meds?	Hold any meds?	Hold any meds?
Call parameters	Call parameters	Call parameters	Call parameters	Call parameters

OR CIRCULATING RN:

- Dressings / incision site(s)
- Parent plan / disposition

PICU INTENSIVIST:

Post-op Management Plan

- Airway plan
- Hemodynamic parameters
- Sedation/Pain
- Imaging
- Lab schedule
- Transfusion parameters
- Any home meds that need to be held for next 24 hours
- Restraints?
- Any questions?
- Provide summary of patient
- Verbalize "Surgical handoff complete"

PICU RN:

- Drips
- Drains
- Dressings

HARD STOP

- All infusions signed off with anesthesia
- Visualization of dressings
- Visualizations of drains

LIMITATIONS

- The 6-week time frame did not allow a full representation from all surgical services.
- Different auditors can create a discrepancy from different perceptions of the "yes/no" for each audit question.
- Not all the surgeries that occurred were audited.
- There was a lack of trained auditors on the night shift, which created an unequal representation of data across all shifts.

IMPLICATIONS FOR PRACTICE

- This quality improvement project identified implications for clinical practice change with evidence backed by statistical significance.
- The implementation of an integrated "hard stop" into the handoff tool decreased patient errors. The addition of introductions was a way to ensure key staff members were present for handoff. Adding introductions to the handoff creates a people first culture in which all staff members have an opportunity to know each other on a first name basis.
- The new handoff tool also empowered the OR nursing staff to participate in the handoff, when previously they did not have a role. This integration across specialties improvise communication on a hospital-wide spectrum
- The consistent use of the standardized handoff tool created an expectation that the tool should be used in every handoff.

CONCLUSION

A standardized OR-PICU handoff is a practical process that can improve the transition of care safely and effectively from the OR-PICU. The results of this quality improvement project demonstrate that the integration of a revised OR-PICU handoff tool can increase communication and decrease patient error.