



CHOC Children's Hospital *Best Evidence and Recommendations*

ED – PICU Handoff Process: Best Practice

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PICO: “In pediatrics, what are best practices in nursing handoff from emergency department to the critical care unit to enhance communication, improve nurse satisfaction, and promote patient safety?”

P (Population/problem): In Pediatrics

I (Intervention/issue): what are best practices in nursing handoff from emergency department to the critical care unit

C (Comparison): (current practice)

O (Outcome): to enhance communication, improve nurse satisfaction, and promote patient safety?

Background:

The transfer of essential information and responsibility for care of the patient from one healthcare team member to another is an integral component of communication known as “handoff”. Cairns et al. (2013) stated “A core component of nursing practice is to ensure the communication of information facilitating the transition of care from one provider to another” (p. 160). Nursing handoff occurs frequently in the acute care setting, particularly in the fast-paced, high turn-over units such as the emergency department (ED). These transitions in care represent vulnerable times in which communication failure or gaps in communication can result in adverse patient events. Fanara et al. (2010) explains “the intrahospital transport of critically-ill patients still involves considerable risk and adverse event incidence remains high” (p. 8). Handoffs between ED and intensive care units are particularly challenging due to a lack of understanding of workload, workflow, and priorities between the two departments. Additionally, in the pediatric setting, the inability of infants and children to verbalize their condition invites further opportunity for error. According to the Joint Commission (2012) “Ineffective handoff communication is recognized as a critical patient safety problem in health care; in fact, an estimated 80% of serious medical errors involve miscommunication between caregivers during the transfer of patients” (p.1). To mitigate adverse events and enhance patient safety, the majority of hospitals have standardized the handoff process through the use of structured communication tools. In a study conducted by Bigham et al. (2014) showed “This study found a significant decrease in handoff-related care failures after implementation of a standardized evidence-based handoff process” (p. e578). Standardization allows staff to have common expectations of what is going to be communicated and how the communication will be delivered and received.

CHOC Children's uses the 5 P's tool, (patient, plan, purpose, problems, precautions) to guide nurse handoff across the organization. Despite the use of this model, the ED and pediatric intensive care unit (PICU) have identified ongoing challenges with handoff communication. For example, utilization of patient information varies between each unit, which is dependent on workflow, lack of understanding on each unit's needs, as well as unit-based outcomes for the patient. Problem based information and patient stabilization was identified as an initial outcome in the ED with the ultimate goal to transfer to a higher level of care. PICU expectations and goals were identified as system-based, identifying all patient problems as a whole. In addition, increased length of time for transfer for was also recognized as a factor,



due to discoordination of transport team members, disproportionate allocation of nursing resources due to time off the ICU, disorganized and miscommunication of vital information, and inpatient rooms that were not ready for patient placement upon arrival.

The purpose of this evidence-based practice project was to utilize a comprehensive literature review to identify best practices to improve patient safety and decrease adverse events related to handoff communication.

Search Strategies and Databases Reviewed:

- Databases searched for this review included CINAHL, Medline in EBSCO and Pub Med. Key search words: nursing handoff, intrahospital transport, critically ill patients, emergency department, PICU, communication failures, transport tools. This search yielded approximately 30 articles. Fifteen studies were selected for further analysis and discussion of practice recommendations.
- Websites reviewed included The Joint Commission, Institute of Medicine, and Agency for Healthcare Research and Quality.

Synthesis of Evidence

- According to The Joint Commission (2018), “It’s estimated that a typical teaching hospital may experience more than 4,000 hand-offs every day. However, inadequate hand-off communication is a contributing factor to adverse events, including many types of sentinel events” (p. 2). Research and quality improvement efforts identified by The Joint Commission include the utilization of “forms and checklists, as well as team training derived from evidenced-based frameworks and an SBAR” (p. 2).
- Meneguín et al. (2014) completed a study which aimed at characterizing the transport of critically ill patients in an adult ICU. Themes which were identified from the study, included: portable equipment must be present to meet the needs of patient monitoring, continuous infusions of medications, adequate ventilatory support during transport, specialized transport team must be appropriately trained and skilled to carry out the necessary procedures efficiently and effectively, the use of rating systems, the presence of a physician during transport when a patient is identified as hemodynamically unstable, mechanically ventilated, invasive monitoring with use of vasoactive agents, and effective communication (p. 117-118).
- Parmentier-Decrucq et al. (2013) performed a study which aimed to collect data in the incidence of adverse events (AEs) during the transport of critically ill patients, while also identifying risk factors. The study objective was met in determining the frequency of (AEs), the elements that predict the risk of AEs during IHT, and improvements to be assessed and implemented in that particular ICU.
- Comeau et al. (2015) also described such adverse events, which can be categorized by equipment related failures and patient related changes. In addition, “physiologic red flags” were described that identified patients who are at a higher risk for complications. In order to mitigate risk factors, three publications mention the use of a checklist or protocol during transport of critically-ill patients. In addition, six publications evaluated the use of intrafacility transport checklists. Evaluation on the implementation of checklists during transport was performed, which yielded positive results.
- The American Academy of Pediatrics (2018) explains, “Communication defects between the ED and inpatient team are the primary source of faulty transfer of cares (ToCs), with up to 50%-60% of handoffs omitting vital information” (p. 6). Recommendations developed this study included: Implementation of a structured and consistent approach to ToCs, communication that is patient and family-centered, education and training on a structured ToC process, collaboration with local EMS on structured ToC processes and scripts, implementation of interfacility transfer guidelines, evaluation using standardized and validated process and outcome metrics, as well as current information technology utilization.



- Chang et al. (2010) completed a study utilizing a quality control work group to increase safe patient transport of critically ill patients from the emergency department, focusing on 4 indicators: respiratory status, circulatory status, equipment present, and duration of transport to designated unit (p. 141). Based on the literature research and guidelines for critically ill patients, as well as consultation from collaborative experts (ED and ICU physicians and nurses) guidelines were developed and implemented for the transport of critically-ill patients. Following guideline education dissemination and implementation, “the quality control work group improved quality and safety of intrahospital transport from the emergency department” (p. 145).
- Jarden and Quirke (2010) designed a transport tool for critically ill patients. “The tool utilizes a pre-transport checklist, a patient assessment form, a destination checklist, an observation chart, and sections for documentation of transport complications, and a reminder to recheck equipment and oxygen” (p. 104). They found that “this tool provides the Intensive Care Unit (ICU) nurse with an integrated documentation record, incorporating patient assessment with a procedural guideline” (p. 106).
- In comparison, Choi et al. (2012) performed a study with the goal to “explore the effect of intervention using a checklist program for safe intrahospital transport on the incidence of unexpected events incurred during the transport of emergency patients” (p. 1434). Choi (2012) explains “The transfer checklists (TCLs) included 28 items: which consisted of safety equipment and patient assessment information. The results of their study “produced a significant decrease in the rate of total and serious unexpected events occurring during intrahospital transport from the ED” (p. 1440). In addition, “Serious UEs in that affected the clinical status of a patient were also significantly lower” (p. 1436).
- Bigham et al. (2014) conducted a study which aimed to improve handoff. “They developed a comprehensive, pediatric-specific change package of evidenced-based practices used to guide sites in improving handoff. This package consisted of 4 components addressing handoff, which included: (1) Defined handoff intent, (2) Defined handoff content, (3) Defined handoff process, and (4) Maximized team effectiveness” (p. e573). This package was then disseminated to the 23 children’s hospitals and utilized in their handoff process. Results showed a significant decrease in handoff-related failures.
- Esmail et al. (2006) described the development of an “ICU Patient Transport Decision Scorecard” The first draft of the scorecard consisted of “green-yellow-red” columns, which identified: green as safe to travel with an RN; yellow, identified the need to transport with an RRT; and red, identifying the need for further assessment by critical care physician and the need for a transport team (p. 83). The tool was implemented at two major hospitals using a Plan-Do-Study-Act (PDSA) process. Results showed that “nursing staff agreed that the tool allowed them to pause and evaluate the patient immediately prior to leaving the controlled and well-supported ICU. Staff felt empowered to present their patient to the attending physician as being stable or unstable for transfer from the unit. It also helped them to identify and minimize risks associated with removing a critically ill patient from the ICU environment” (p. 83).
- Pesanka et al. (2009) described the development of a “Ticket to Ride” that was highly comprehensive, which included: “a pretransport assessment and transportation checklist to be completed by the sending unit, transporter, and receiving unit, as well as a message to the patient explaining the goal of safe patient transport and inviting the patient’s participation” (p. 110). Outcomes shown by implementing the “Ticket to Ride” process showed “a decrease in off-unit events, including those related to oxygen, which had been shown to be the most compromising events occurring during patient transport; a decrease in condition A’s and condition C’s; an increase in patient satisfaction with transport; and an increase in relevant documentation” (p.114).
- Fanara et al. (2010) conducted a study which aimed to provide ICUs and EDs with a set of practical procedures/ check-lists for managing critically-ill adult patients in an attempt to decrease complications during intrahospital transport (IHT). Based on their literature review, the tool



developed contained a quick, practical check-list allowing for a “systematic list of final check points for before and after critically ill patients are moved (p. 8). They found that providing ICUs and EDs with standardized procedures in the form of a check-list constitutes a significant step towards reducing the number of IHT related AEs” (p.8).

- Sheth et al. (2016) explained the implementation and evaluation of an “I-PASS-Supported Handoff Process” for patients who were being transferred from the cardiovascular intensive care unit (CVICU) to the acute care units (ACU). I-PASS is an acronym for: Illness, Severity, Patient Summary, Action List, Situational Awareness and Contingency Plans, and Synthesis by Receiver. The results of this study found “improvements in transfer efficiency and handoff-related patient safety culture during patient care transitions after the implementation of an I-PASS-supported handoff process. The handoff was not associated with decreased provider satisfaction, and was, in fact, associated with improved satisfaction among patients, families, and providers” (p. 8).

Practice Recommendations:

- Based on the evidence, we recommend an interdepartmental quality improvement project to improve communication gaps or barriers to effective nursing handoff between the ED and PICU.
- Barriers to communication can be identified through focus groups.
- Surveys can be distributed to each department’s nursing staff to attain data on their perceptions of handoff, then analyzed to determine the most appropriate intervention.
- Outcome measures to determine the effectiveness of the intervention may include staff satisfaction surveys as well as the volume of documented adverse events and incident reports related to errors in communication pre and post implementation.
- Effective strategies most commonly described in the literature included establishing clear expectations and the development of a structured approach or checklists/ transport tools for critically ill patients.
- Essential elements recommended in the development of a checklist/ transport tool for critically ill patients described in the literature may include: pretransport assessment and stability of patient, identification of patients who are at high risk for an adverse events, a comprehensive checklist to ensure pertinent safety equipment and appropriate staff are present (RN, RT, MD), inclusion of patient and family participation during transport, as well as utilization of a standardized handoff structure.

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Bibliography:

- Bigham, M. T., Logsdon, T. R., Manicone, P. E., Landrigan, C. P., Hayes, L. W., Randall, K. H., et al. (2014). Decreasing handoff-related care failures in children’s hospitals. *Pediatrics*, 134(2), e572-e579).
- Cairns, L. L., Dudjak, L. A., Hoffmann, R. L., & Lorenz, H. L. (2013). Utilizing bedside shift report to improve the effectiveness of shift handoff. *Journal of Nursing Administration*, 43(3), 160-165.



- Chang, Y. N., Lin, L. H., Chen, W. H., Liao, H. Y., Hu, P. H., ... & Chen, S. F., et al. (2010). Quality control work group focusing on practical guidelines for improving safety of critically ill patient transportation in the emergency department. *Journal of Emergency Nursing, 36*(2), 140-145.
- Choi, H. K., Do Shin, S., Ro, Y. S., Kim, D. K., Shin, S. H., & Kwak, Y. H. (2012). A before-and after-intervention trial for reducing unexpected events during the intrahospital transport of emergency patients. *The American Journal of Emergency Medicine, 30*(8), 1433-1440.
- Comeau, O. Y., Armendariz-Batiste, J., & Woodby, S. A. (2015). Safety First! using a checklist for intrafacility transport of adult intensive care patients. *Critical Care Nurse, 35*(5), 16-25.
- C. R. I. C. O. Strategies (2015). Malpractice risk in communication failures. *2015 Annual Benchmarking Report*. Boston, MA: The Risk Management Foundation of the Harvard Medical Institutions.
- Esmail, R., Banack, D., Cummings, C., Duffett-Martin, J., Shultz, J., Thurber, T., ... & Hulme, T. (2006). Is your patient ready for transport? Developing an ICU patient transport decision scorecard. *Healthcare Quarterly, 9*(Sp).
- Fanara, B., Manzon, C., Barbot, O., Desmettre, T., & Capellier, G. (2010). Recommendations for the intra-hospital transport of critically ill patients. *Critical Care, 14*(3), 1-10.
- Jarden, R. J., & Quirke, S. (2010). Improving safety and documentation in intrahospital transport: Development of an intrahospital transport tool for critically ill patients. *Intensive and Critical Care Nursing, 26*(2), 101-107.
- Joint Commission. (2018). Sentinel event alert 58: inadequate hand-off communication. Available from https://www.jointcommission.org/sentinel_event_alert_58_inadequate_handoff_communications/.
- Joint Commission (2012). Joint Commission Center for Transforming Healthcare releases targeted solutions tool for hand-off communications. *Joint Commission Perspectives, 32*(8), 1-3.
- Meneguín, S., Alegre, P. H. C., & Luppi, C. H. B. (2014). Characterization of the intrahospital transport of critically ill patients. *Acta Paulista de Enfermagem, 27*(2), 115-119.
- Parmentier-Decrucq, E., Poissy, J., Favory, R., Nseir, S., Onimus, T., Guerry, M. J., ... & Mathieu, D. (2013). Adverse events during intrahospital transport of critically ill patients: incidence and risk factors. *Annals of intensive care, 3*(1), 10.
- Pesanka, D. A., Greenhouse, P. K., Rack, L. L., Delucia, G. A., Perret, R. W., Scholle, C. C., ... & Janov, C. L. (2009). Ticket to ride: reducing handoff risk during hospital patient transport. *Journal of nursing care quality, 24*(2), 109-115.
- Sheth, S., McCarthy, E., Kipps, A. K., Wood, M., Roth, S. J., Sharek, P. J., & Shin, A. Y. (2016). Changes in efficiency and safety culture after integration of an I-PASS-supported handoff process. *Pediatrics, 137*(2), e20150166.