

Safe Intrahospital Transport of the *non-ICU* Patient Using Standardized Handoff Communication

ABSTRACT

The intrahospital transport of the non-intensive care unit (ICU) patient is often performed by unlicensed hospital personnel who frequently encounter patient condition changes requiring immediate intervention. Healthcare organizations have increasingly recognized the benefits of using a standardized handoff process particularly when patients are transported from one care area to another. Of the 2,390 patient transport reports submitted to the Pennsylvania Patient Safety Authority from May 2004 through September 2008, facilities identified patient transport Incidents and Serious Events having problems with communication, intravenous lines, monitoring and other issues in 280 reports. This article will examine risk reduction strategies to ensure the safe intrahospital transport of the non-ICU patient, including but not limited to the development of an intrahospital transport team for the non-ICU patient, standardization of patient handoff communication tools used during transport, and a robust educational program for unlicensed hospital transport personnel as ways to ensure the accurate exchange of patient information, to decrease the number of adverse events, and to promote optimal care. (*Pa Patient Saf Advis* 2009 Mar;6[1]:16-9.)

Intra- or interhospital transports expose patients to periods of potential instability and increased risk for complications, morbidity, and mortality.^{1,5} The Society of Critical Care Medicine (SCCM) and the American College of Critical Care Medicine (ACCCM) developed formal transport guidelines for the intra- and interhospital transport of critically ill patients.^{1,2,4,6} These guidelines suggest that critically ill patients be transported typically by a minimum of two highly qualified and specialized critical care team members who focus on monitoring and ventilatory support.^{1,4,6,7}

No formal guidelines exist for the intrahospital transport for the *non-intensive care unit (ICU)* patient.⁶ These patients are typically transported by unlicensed personnel who lack the clinical qualifications or experience to safely monitor these patients.^{6,8} Facilities have had to develop their own intrahospital transport policies for the non-ICU patient.⁶ Without practice guidelines, essential elements necessary to complete the safe intrahospital transport of the non-ICU patient may be inadvertently absent from policies, potentially compromising patient safety.

There were 2,390 patient transport-related reports submitted to the Pennsylvania Patient Safety Authority from May 2004 through September 2008. Facilities identified patient transport Incidents (or near misses) and Serious Events having problems

with communication, intravenous lines, monitoring, and other issues in 280 reports. More than 40% of these issues indicated the need for improved communication between healthcare providers (see Table). Healthcare organizations have increasingly recognized the benefits of standardized handoff communication processes when patients are transported from one care area to another.

Evidence from the Clinical Literature

Current research and guidelines focus primarily on the outcomes or equipment-related factors in the intra- and interhospital transport for *critically ill* and *pediatric* populations.^{1,3,6,9} The clinical literature yields few peer-reviewed articles, guidelines, or standards for intrahospital transport of non-ICU patients.⁶ In the absence of specific guidelines for the intrahospital transport of the non-ICU patient, contributing factors to Serious Events relating to transport of critically ill patients may be applied to non-ICU patient transport events. These factors should be considered when facilities develop or revise policies for the intrahospital transport of the non-ICU patient and competency requirements for unlicensed hospital personnel involved in patient transport.

A six-month prospective observational study with a concurrent retrospective chart audit revealed 66 adverse events among 290 intrahospital transports of critically ill patients from the emergency department (ED) to the ICU, including some admissions via the operating room or after a computed tomography (CT) scan.¹⁰ Equipment problems, hypothermia, cardiovascular events, and delays in transport were the adverse events identified.¹⁰ One adverse event that also occurred was the discovery of an incorrect patient identification band during a preoperative check.¹⁰

A cross-sectional analysis of 176 intrahospital transport reports of critically ill patients, submitted to the Australian Incident Monitoring Study in Intensive Care database between 1993 and 1999, identified 55 serious adverse outcomes that included four patient deaths.^{1,9} These adverse events identified system-based problems and human factors as the underlying

Table. Patient Transport Issues Submitted to the Authority, May 2004 through September 2008

TRANSPORT ISSUES	NUMBER OF REPORTS
Communication issues	115 (41%)
Intravenous lines/tubes	93 (33%)
Monitoring/techniques	47 (17%)
Other	25 (9%)
Total	280 (100%)

contributing factors.^{1,9} The data taken from this anonymous, voluntary incident monitoring system identified important causes of poor outcomes and contributing factors, while other studies focused on outcomes or equipment-related mishaps.¹ According to Beckmann et al., system-based problems involved battery/power supply, ventilatory equipment and monitors, and medication-delivery systems.¹ The contributing and underlying human factors problems included issues with communication, airway management, vascular lines, patient monitoring, and positioning.¹

Handoff Communication with Transports

Handoff communication occurs whenever patient information and responsibility is transferred from one care provider to another. Many facilities have developed and implemented handoff procedures, but the Joint Commission requires that each patient handoff communication include a standardized and interactive approach for the safe transfer of a patient from one care area to another.¹¹ Significant barriers to handoff communication include the lack of national standards for building a handoff communication system.¹² Healthcare providers often perceive handoff communication as a burden, and poor or failed handoff communication is not always apparent to those who perform the handoff.¹² Communication breakdowns can occur between healthcare providers along the continuum of care particularly when recent or anticipated patient condition changes are not communicated. Handoff communication that occurs between licensed providers considers issues related to patient monitoring, assessment, and interventions and differs from communication between—or may not be considered by—unlicensed personnel because they may not understand or be able to act upon the information or monitoring data.

Safety Risks Related to Patient Transport

The following reports were submitted to the Authority from May 2004 through September 2008 and illustrate Incidents and Serious Events associated with the intrahospital transport of non-ICU patients. Several issues identified include patient misidentification, intravenous (IV) lines/disconnection, and personnel who lack the clinical qualifications or experience to safely monitor these patients.

Patient Identification

Central patient transport took [the] wrong patient for chest x-ray. Radiology did not check [the patient's identification] and completed the chest x-ray on the wrong patient.

Disconnect

A patient with elevated creatine phosphokinase and blood pressure on a nitroglycerine [IV] drip was sent to x-ray. The transport technician shut off the [IV] pump, stating it was beeping. The pump was restarted with no problem for the patient.

Scope of Practice

[A] patient sent to [magnetic-resonance-imaging (MRI)] on 3 liters of oxygen and returned on 6 liters with no call to nurse as to why it was changed. [The] transporter told nurse that patient was [short of breath] in MRI so [the transporter] increased [the oxygen rate]. Patient has chronic obstructive pulmonary disease and was unable to tolerate 6 liters.

Patient arrived to unit with blood transfusing, without RN [registered nurse] accompaniment, only with the [transporter]. The transporter personnel [was] unaware they could not transport patient with blood transfusing.

Patient in ED with [complaints of] chest pain. Patient on monitor and EKG [electrocardiogram] done. Patient sent to x-ray department [for a computed tomography (CT) scan] unmonitored [and] accompanied by transport escort. Patient became unresponsive in x-ray waiting area. X-ray staff called emergency room RN. Upon arrival in x-ray waiting area, emergency room RN called [a code] and initiated CPR [cardiopulmonary resuscitation]. . . . upon arrival to CT, [the patient] collapsed, [went into cardiac arrest and died].

Supportive service called floor and stated that the [patient's] chest tube was stuck on the [stretcher] wheels and asked that someone come and help; then reported that they fixed the problem. Patient returned to floor with a large hole noted in the chest [tube drainage system] tubing.

Monitoring

Patient was transported from one telemetry unit to another without a monitoring device or appropriate staff.

Patient transferred to ICU from [patient care unit]. [The patient's] lips [were] blue and legs [were] mottled. [Patient was] unresponsive to any stimuli [and had] inadequate respiratory effort. Patient [was] not on a monitor [and had] no pulse oximetry monitoring. No IV access [because] the IV site in left forearm initiated [was] puffy, unable to flush.

Transport Team Development

The development of a specialized transport team has been explored by many facilities after having identified risk-prone situations in which unstable patients had been transported by inadequately trained personnel. These interdisciplinary transport teams help to reduce patient risk during transport by using standardized protocols and policies, some of which are adapted from the aviation industry.^{7,12-14}

The transport team protocols include the development or use of communication standards, coordinated teamwork, defined roles and responsibilities of the team members, and appropriate equipment for a safe and effective transport. It is essential that this process includes an intrahospital transport curriculum consisting of step-wise, competency-based education for professional and unlicensed personnel

Questions in Assessing Transport Policies and Procedures

Which patients are being transported?

- Focus initial efforts on the most frequent source units and patient types (ages, clinical diagnoses).

To which locations are most patients transported?

- Are these destinations in the main hospital, adjacent buildings, across the street?
- Are there special safety hazards in any of the units (e.g., MRI [magnetic resonance imaging] magnets)?

Pre-transport patient assessments

- What criteria are used to determine patient stability, patient risk, and level of monitoring during transport?
- Who is responsible for this assessment?
- What is the recommended timing for this assessment?
- Do the assessment criteria include risk factor assessment based on the type of procedure/diagnostic, patient positioning during transport, and duration of transport time?
- Does the assessment take into account the possibility of decline in clinical condition and the need for escalating support (e.g., increase in oxygen flow rate and change to NRM [non-rebreather (oxygen mask)] with same oxygen saturations)?
- How is this assessment communicated to the care team, the transport personnel, and the destination personnel?
- Finally, how is compliance monitored?

Transport personnel

- Who transports patients (unlicensed and licensed personnel)?
- What are their specific responsibilities before and during transport?
- What level of training and competency assessment is done related to patient safety during transport?

- Are they required to have Basic Life Support (e.g., CPR [cardiopulmonary resuscitation]) certification (in the case of an arrest, could they initiate the ABCs of CPR)?
- What is the content of their training (does it cover how to get help during transport or how to receive and provide handoff communications)?

Handoff communication

- How are the patient's condition, potential safety risks, and needs communicated?
- Is a checklist used? Is patient identification included?
- What is the responsibility of the sending and receiving providers and/or transporters?

Necessary supplies and equipment for transport

- What equipment is required to accompany the acute care patient during transport (eg, mask with Ambu bag, ECG [electrocardiogram] monitor)?
- Who ensures that therapies (e.g., oxygen, infusions, etc.) are maintained during transport?
- Would the transport personnel know how to use or troubleshoot any accompanying equipment/supplies, if needed?

Transport monitoring

- What basic level of monitoring is expected during transport (e.g., change in level of consciousness, color, respiratory effort, IV [intravenous] pump alarm, etc.)? And are the transporters qualified or adequately trained for this?
- What is the expected level of intervention (e.g., replace an oxygen mask if it falls off, silence an IV pump)?

Reprinted from: Schell H, Wachter RM. Moving pains. Web M&M [online]. 2006 Jul [cited 2008 Oct 27]. Available from Internet: <http://webmm.ahrq.gov/case.aspx?caseID=128&searchStr=Hildy+Schell#table1>.

that includes but is not limited to intravenous lines, Foley catheters, and oxygen use.^{8,15} Many facilities use handoff communication checklists (e.g., SBAR [situation-background-assessment-recommendation], read-back, ticket to ride) to standardize the approach to safe intrahospital patient transport from one care area to another.¹²⁻¹⁴ Two facilities have developed separate handoff communication checklists to differentiate between inter- and intrahospital transports.^{12,14}

The benefits of implementing a transport team include an increase in patient safety, a decrease in the number of adverse events and in the resource burden, and fewer delays in treatment, which limit interruption of patient care. Still other studies indicate a time-saving benefit, as less time is required to prepare patients for the actual transport and to return the

patient to the pretransported status.⁷ While evidence suggests that dedicated transfer teams for critically ill patients may reduce patient mortality and morbidity, little research studied specialized transport teams for the intrahospital transport of non-ICU patients.¹⁵ Applying these same transport team protocols for the intrahospital transport of non-ICU patients can provide the professional and unlicensed personnel specific guidelines that promote overall patient safety before, during, and immediately following a transport.

Risk Reduction Strategies

The following risk reduction strategies are based on the SCCM and ACCCM practice standards for the intrahospital transport for critically ill patients, on expert opinion, and on case series in which published

supporting data are unavailable for the intrahospital transport of non-ICU patients.^{1,2,4,6,7}

- Develop a transport team model of care with a clear outline of the specific responsibilities for each team member.^{2,4,6-8,15}
- Coordinate pretransport communication between the transporter, nurse, and destination areas.^{2,4,13,16} Although patient assessment is completed by the nurse, a time lapse of the assessment greater than two hours involves reassessment.⁵ All findings are verbally communicated to the transporter and reviewed in the handoff communication.
- Implement a robust educational and competency program for unlicensed hospital transport personnel to ensure that facilities have staff with optimal qualifications to perform non-ICU patient transports safely.^{1,2,4,7,8,13,16} There are no requirements for training or certification of unlicensed personnel who transport non-ICU patients without a nurse or physician.⁶ Educational competencies for unlicensed transport personnel should include but not be limited to CPR certification, knowledge of the National Patient Safety Goals, handoff communication, and expected level of intervention for unexpected patient decompensation during transport.^{2,8,14,15} It is important for transport personnel to know how to activate the rapid response team or code blue and how to contact the nurse who is caring for the patient should his or her condition change.
- Ensure that essential patient equipment for safe intrahospital transport is functional (e.g., fully charged, filled, in good repair).^{2,4,13}
- Provide cardiac monitoring, if warranted, by qualified clinical personnel.^{1,2,4,13}
- Provide clear documentation to ensure that all applicable patient information is available and communicated to the next level of care and that an opportunity to ask questions is included in the handoff procedure (see “Questions in Assessing Transport Policies and Procedures”).^{1,2,13}
- Monitor any Incidents or Serious Events that occur during intrahospital transport of non-ICU patients because this will contribute to the overall improvement in patient safety within your organization.^{1,15}

Conclusion

The intrahospital transport of the non-ICU patient is often performed by unlicensed hospital personnel who frequently encounter patient condition changes that require immediate intervention. Risk reduction strategies include the development of an intrahospital transport team for the non-ICU patient. Handoff communication using a specific tool, which includes written information facilitating clear communication before, during, and immediately following transport from the patient care unit to the destination point and back, is suggested. A robust educational and competency program for unlicensed hospital transport personnel is essential to ensure that facilities have staff with optimal qualifications to perform non-ICU patient transports safely. These strategies benefit patients, ensure accurate information exchange,

decrease the number of adverse events, and promote overall patient safety during intrahospital transports.

Notes

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