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PATIENT SAFETY NETWORK

Triaging Interhospital Transfers

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Case Objectives

- Recognize that transfer of patients between acute care hospitals is common.
- Realize that the interhospital transfer process is vulnerable to deficiencies in communication that can impact patient safety.
- Understand the role of hospital or hospital system–based transfer centers.
- Identify telemedicine as a potential tool for improving the exchange of clinical information during the interhospital transfer process.
- Recognize that further research is needed to establish best practice guidelines with regard to the interhospital transfer process.

The Case

A 63-year-old man with a history of hypertension, coronary artery disease, and diabetes was evaluated by his primary care physician for a rash. The physician noted the presence of high fevers and headache, and so he sent the patient to the emergency department (ED) for further evaluation and possible admission. Repeat vital signs in the ED were notable for a slightly low blood pressure and elevated respiratory rate. His rash was worsening, with sloughing of his skin. Laboratory test results showed an elevated lactate and white blood cell count, both concerning for possible sepsis. Fluids and antibiotics were administered. The patient was started on IV norepinephrine through a peripheral IV to maintain his blood pressure, but no central line was placed.

The admitting physician was concerned that the patient might require subspecialty care, including dermatology consultation and critical care interventions not available at the local hospital. The physician arranged to have the patient transferred to a large academic medical center that could provide these services, but he was not familiar with any formal process to do so. He called a colleague at the receiving hospital to make the request for transfer. The colleague secured a bed through the bed control department and suggested he send the patient over.

The details of the patient's current clinical condition and clinical data were not formally transmitted to the receiving hospital. Not knowing that the patient required pressors to maintain his blood pressure and that he was likely developing worsening shock, the accepting physician booked a general ward bed for the patient rather than an intensive care unit (ICU) bed. He did not inform the hospital's transfer center.

Four hours later, the patient arrived at the academic medical center and was placed on a telemetry floor. His mentation was altered and he was breathing rapidly. The bedside nurse realized that norepinephrine was infusing through a peripheral IV. He called the rapid response team and ICU fellow to arrange for transfer to the ICU. Unfortunately, in the interim, the patient went into cardiac arrest and was pronounced dead about an hour after transfer.

In reviewing the case, the accepting physician was not aware of how critically ill the patient had become prior to transfer and did not have access to laboratory and imaging data from the referring institution. The ambulance transport team was not trained to provide critical care and did not recognize that the patient's condition was deteriorating quickly while en route.

The Commentary

by Stephanie Mueller, MD, MPH

The transfer of patients between acute care hospitals, known as interhospital transfer, occurs frequently. Approximately 1.5% of all Medicare patients admitted to the hospital undergo interhospital transfer (1), with greater frequency occurring among select patient populations, including patients with cardiac conditions (up to 44% of patients with acute myocardial infarction) (2,3), and those who are critically ill (4), including patients with sepsis or pneumonia.(1)

Patients undergo interhospital transfer for a variety of reasons. Although the decision to transfer may be influenced by secondary reasons, such as patient/family preference or expediting diagnostic evaluation (5), the most commonly described reasons for transfer are access to unique specialty services or a higher level of care (5,6), as observed in the presented case.

Existing legislation, known as the Emergency Medical Treatment and Labor Act (EMTALA), dictates that hospitals transfer patients requiring specialty care that is unavailable at the transferring institution and directs hospitals who offer these unique services to accept these patients for transfer.(7) Despite these laws, specialty care encompasses a heterogeneous group of services. In practice, it is often difficult to define which patients are truly in need of such care and where that care will best be provided. Additionally, although patients are often transferred to receive specific specialty care, such as a particular procedure or surgery unavailable at the referring institution, many patients do not actually receive the procedural care for which they were initially transferred (3,8,9), which supports the likelihood that a broader definition of specialty care (i.e., access to cognitive and diagnostic specialists in addition to procedural specialists) drives many transfers.

While the EMTALA laws provide some direction regarding interhospital transfer, they fail to serve as concrete guidelines that can assist providers in selecting patients most appropriate for transfer. As a result, the selection process remains largely arbitrary and up to the discretion of individual providers (and in some

cases, patients and families), leading to variable and inconsistent transfer practices.(1)

Once the decision is made to transfer a patient, the process of selecting a receiving hospital, negotiating with providers and administrators at the receiving hospital, and accomplishing the transfer also tends to be highly variable, without national, regional, or local standard practices to direct high-quality transfers.(10) Thus, referring clinicians are often left to navigate the transfer process unaided and continue to provide care to their patient prior to transfer while simultaneously providing care to the patients who remain on their service. In the presented case, the transferring physician was not aware of any formal process to transfer his patient and therefore used a colleague connection to proceed with the transfer, an action that compromised patient safety.

In addition to challenges associated with negotiating a transfer, there are no formal established best practices to help guide exchange of necessary clinical information and patient data at the time of transfer. As we know from other hospital-based care transitions, including patient discharge and intrahospital patient handoffs, high-quality communication and information exchange during care transitions are essential for preventing adverse events resulting from discontinuity of care.(11,12) Additionally, patients undergoing interhospital transfer are a particularly sick subset of hospitalized patients (1,13,14) and are therefore at even greater risk for poor outcomes when suboptimal communication occurs. The need for transfer of clinical information across different hospitals or health care systems is an additional challenge to the interhospital transfer process. Despite advances in electronic health record (EHR) capabilities, EHR interoperability to allow sharing of clinical data across systems, which may help mitigate discontinuity of care, remains inadequate.(15) As we see in the case described, critical information regarding the clinical stability of the patient was not adequately communicated to the receiving hospital prior to transfer, which led to inappropriate preparation for the patient and triage upon arrival to a general medicine floor rather than the ICU.

Recent data suggest that deficiencies in communication are common with interhospital transfer. Frontline clinicians assuming care for transferred patients frequently do not receive sufficient advance notification of a patient's arrival and clinical information available at the time of transfer is often incomplete.(5,16) Existing data also demonstrates that select transferred patients experience worse outcomes, which cannot be attributed to their illness severity alone.(13,14,17) The described vulnerabilities inherent to the interhospital transfer process likely contribute to these outcomes.

More recently, hospital or hospital system–based transfer centers have become increasingly common, particularly among large tertiary or quaternary referral centers that accept a high volume of interhospital transfers.(18-20) Although the functionality and scope differ between transfer centers (20), most of these centers seek to create a centralized process to streamline various aspects of interhospital transfer. Such streamlining often involves simplifying and standardizing both the transfer request process for referring clinicians and the accepting and admitting processes within the receiving institution. However, the working aspects of each transfer center remain largely distinct across hospitals (1,20), including the type of personnel used to staff the center (i.e., nurses, advanced practice providers) and what, if any, specialty training they have had (i.e., critical care training); the roles different personnel have during the transfer process (i.e., nurse versus physician acceptance for transfer); what tools, if any, are utilized to assist with information exchange (i.e., templates, electronic health information exchange, shared electronic health

records); what, if any, communication guidelines exist (i.e., timeliness of communication prior to transfer, frequency of communication if transfer is delayed); and the existence of any modalities for feedback and quality improvement with the transfer process.(20)

Additionally, although transfer centers provide a more centralized contact point for referring clinicians, accepting institutions with such centers still suffer from suboptimal intrahospital communication.(5) In this case, the accepting hospital's transfer center was never notified about the transferred patient prior to his arrival. Thus, any existing protocols that the transfer center may have had (i.e., communication guidelines that may have correctly triaged the patient to the ICU) were bypassed. This error might have been prevented by improved communication between the accepting hospital's transfer center and its bed control department.

Telemedicine, including teleconsultation, is one information exchange modality that has been used to improve communication during interhospital transfer, but its use in this area remains quite limited, particularly in comparison to its popularity in other aspects of health care.(20,21) Theoretically, telemedicine could alleviate some of the complexities associated with the interhospital transfer process. By allowing for real time evaluation of patients by expert consultants in advance of transfer, telemedicine may help guide earlier treatment with necessary therapy for severely ill patients awaiting transfer. Telemedicine has been shown to benefit trauma patients (22) and acute stroke patients prior to transfer.(23,24) Additionally, telemedicine could facilitate the appropriate triage of transferred patients (i.e., evaluating the patient in real-time to determine need for ICU versus general ward care). Lastly, recent data suggests that the use of telemedicine may reduce the volume of transfers (by obviating unnecessary transfers) without impacting patient outcomes.(25) In the case described, the physician requested transfer of the patient for dermatologic and critical care evaluation and treatment. The use of telemedicine to consult with a dermatologist and/or critical care physician in advance of patient transfer might have facilitated rapid diagnosis and expedited treatment as well as appropriate triage to the ICU of the accepting institution.

As highlighted by the case, interhospital transfer is a highly complex care transition involving transfer of patient care responsibilities and information across providers, locations, and systems of care. Varying practices of care across the transfer continuum leave patients undergoing transfer vulnerable to the risks associated with discontinuity of care. In order to improve the quality and safety of interhospital transfers, more data are needed to further understand which patients benefit most (and least) from transfer and why, and to understand best methods of communication and information exchange, both between the transferring and accepting hospital and within the accepting hospital. These data can then be used to create best practice guidelines for high-quality, safe interhospital transfer, offering a standardized and practical guideline to clinicians as they navigate this complex process.

Take-Home Points

- Hospitalized patients often undergo interhospital transfer, most commonly to access unique or specialized care not available at the referring institution.
- There are limited guidelines to direct best practices with regard to interhospital transfer, leading to marked variability in transfer practices and leaving patients vulnerable to the risks of discontinuity of care.

- Although hospital-based transfer centers are becoming increasingly common to streamline aspects of interhospital transfer, practices between distinct transfer centers remain varied.
- Telemedicine has the potential to improve communication and data exchange during interhospital transfer.
- More data is needed to direct the development of best practice guidelines with regard to interhospital transfer, including patients most and least likely to benefit and the most effective ways to transfer information between hospitals and within accepting hospitals.

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