Patient Flow in the Emergency Department: Phase III—after Disposition Decision through Departure

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ABSTRACT

In 2013, Pennsylvania hospitals reported 23,749 events to the Pennsylvania Patient Safety Authority in which the emergency department (ED) was selected as the care area. Of these reports, 540 (2.3%) involved patients undergoing care in the time between disposition decision through departure from the ED (i.e., phase III); reported consequences ranged from no-harm events requiring monitoring to events resulting in harm or even death. Several components of this phase have potential safety hazards. Two hundred and thirty-nine events (44.3% of the 540 ED phase III events) involved monitoring the patient until an inpatient bed was available or until the patient was discharged or transferred, and 199 events (36.9%) were gaps in care unrecognized by ED personnel (i.e., identified by another caregiver or department). This article, the third in a series that addresses patient safety related to ED flow, focuses on strategies to improve processes of care and patient safety during ED phase III. (Pa Patient Saf Advis 2015 Dec;12[4]:132-40.)

INTRODUCTION

For emergency department (ED) patients, the time between disposition decision and departure from the ED (i.e., phase III) often comprises waiting for discharge instructions or completed inpatient orders, transportation to another facility, or transfer to the next level of care (e.g., inpatient bed, procedural area). Most evaluations have been completed, emergent care has been provided, and disposition decisions have been made, and patients wait for that decision to be acted on. For caregivers, the primary function in phase III is to care for and monitor the patient until departure from the ED by way of discharge, transfer, or admission.

In 2010, the Pennsylvania Patient Safety Authority published an article that delineated the patient's ED stay into the following phases:[1]

- Phase I: patient arrival in the ED up to diagnostic evaluation
- Phase II: diagnostic evaluation through disposition decision
- Phase III: after disposition decision through departure from the ED

Figure 1 depicts each phase, including components and potential hazards to patient safety. The components of phase III are as follows:

- Monitoring of the patient until a bed is available or until the patient is discharged or transferred
- Communication or handoffs to the next facility, unit, or caregiver
- The discharge process, including patient teaching
- Transportation or transfer

Potential patient safety hazards during phase III include the following:

- Gaps in treatment responsibility and oversight
- Unmonitored patients, including patients who have inpatient bed assignments and are awaiting transfer; patients whose ED care is complete and who are waiting for inpatient orders, discharge, or transfer; and admitted patients who are boarders waiting in the ED for an undetermined length of time
- Rushed, incomplete, or inaccurate patient assignments
- Poor communication and handoffs
- Incomplete or no patient and family education
- Transportation and transfer difficulties

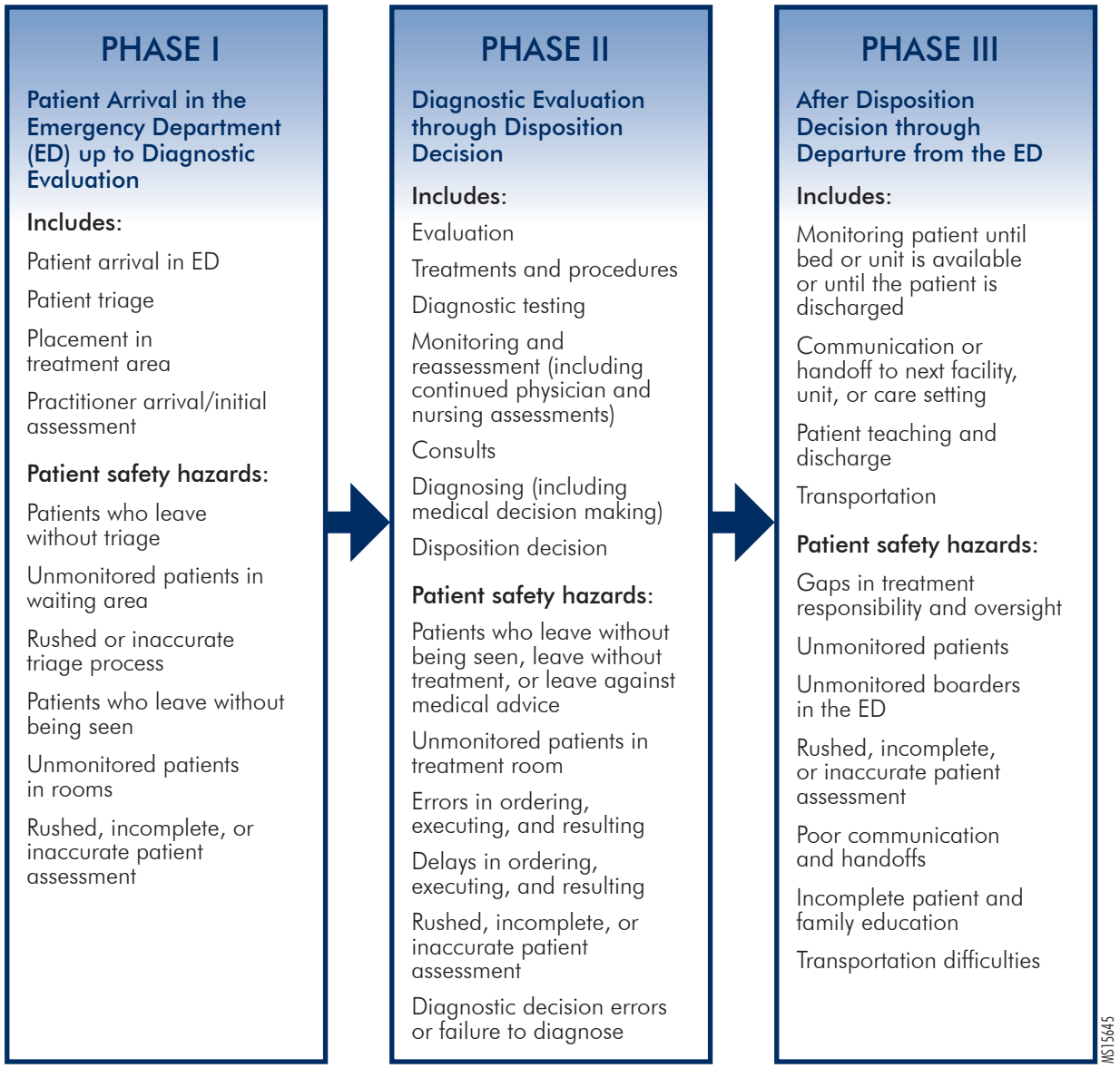
The March 2015 *Pennsylvania Patient Safety Advisory* article on phase II describes the components, potential patient safety hazards, risk reduction strategies, and best practices specific to the time from diagnostic testing through disposition decision.[2] This article addresses phase III of the ED flow experience and discusses risk reduction strategies and best practices.

METHODS

Analysts queried the Authority's Pennsylvania Patient Safety Reporting System (PA-PSRS) database for reports submitted during calendar year 2013 that identified the ED as the care area; facilities reported 23,749 such events. An illustration of the data analysis methodology, "Emergency Department (ED) Flow Phase III Methodology Algorithm," is available exclusively in the online version of this article at http://patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2015/Dec;12(4)/Pages/132.aspx.

Scan this code with your mobile device's QR reader to access the Authority's toolkit on this topic.

Figure 1. Emergency Department Flow Phases



Analysts expanded the data analysis performed for the phase II article and identified events associated with phase III by means of relevant keywords (e.g., "discharge," "dispo," "inpatient," "admit") in the narratives, resulting in 2,784 reports.

PA-PSRS uses an adaptation of the National Coordinating Council for Medication Error Reporting and Prevention harm index and the US Department of Veterans Affairs National Center for Patient Safety severity assessment code system to distinguish between harm and no-harm events.[3,4] The analysts excluded 2,164 of the 2,784 reports from the analysis because they were submitted as unsafe conditions or no-harm events (i.e., harm scores of A through C). Analysts retained for analysis the remaining 620 reports submitted as no-harm events

requiring monitoring (i.e., harm score D) or as events resulting in harm or even death (i.e., harm scores E through I) and also included 221 phase III reports meeting the same harm criteria identified during the previous phase II analysis. Through individual analysis of the resulting 841 phase III events, analysts excluded remaining non-ED (n = 199), phase I (n = 3), and phase II (n = 99) reports, leaving 540 reports in the final data set.

Analysts conducted a review of the literature to identify risk reduction strategies and best practices for the management of the phase III components.

RESULTS

Analysts reviewed the 540 phase III event narratives and categorized the reports into one of the following components: monitoring, communication (including handoffs and reporting), patient teaching or discharge, transportation or transfer, unplanned returns requiring admission, or other. See Figure 2.

Once sorted by component, analysts reviewed the narratives and identified the following four types of key vulnerabilities (see also Figure 3):

1. Gaps unrecognized by ED personnel: events discovered by non-ED personnel (e.g., radiology personnel) or discovered after the patient left the ED
2. Delays: delays in care, treatment, or services
3. Insufficient oversight: events involving unclear oversight or lack of oversight responsibility
4. Lack of prompt transition: patients who were admitted but remained in the ED as "boarders"

Examples of Event Reports Related to ED Phase III Components

Monitoring. The predominant number of events reported in phase III involved monitoring (44.3%, n = 239) (e.g., falls, adverse reactions, complications), as depicted in the PA-PSRS event narratives below:*

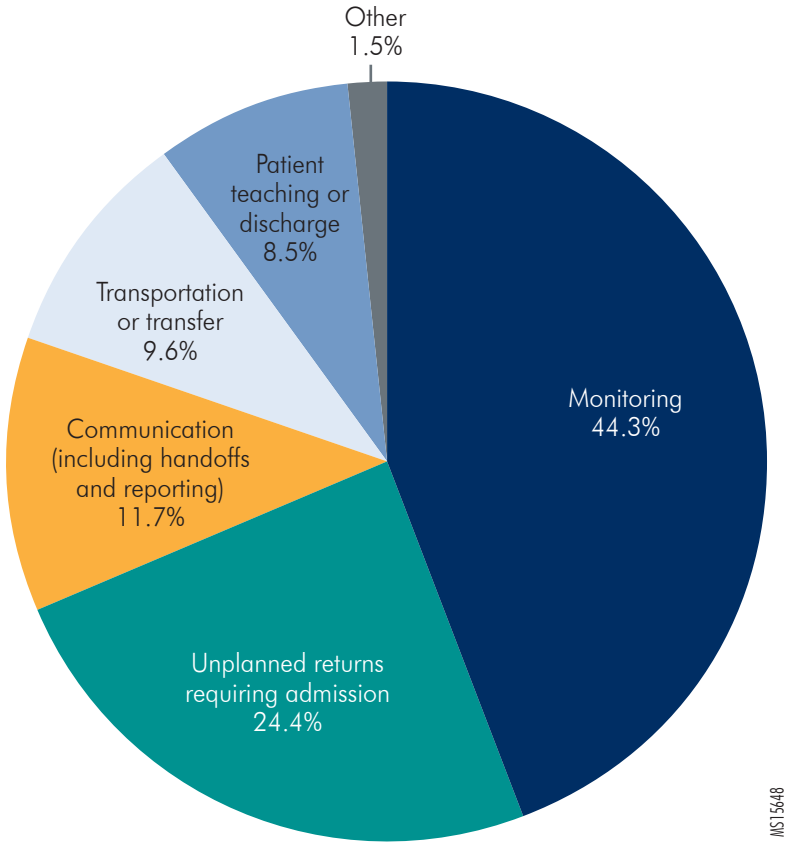
> *An elderly patient with an extensive cardiac history was evaluated in the ED and was in the 302 process awaiting placement for behavioral health. Suddenly, the patient had a cardiac arrest, which was witnessed by staff; [patient was] resuscitated and admitted to the hospital.*

> *Patient was sitting up in the chair awaiting transport back to nursing home. RN [registered nurse] near the room heard a thump and found the patient lying against the wall complaining of left arm pain.*

The majority of events involving monitoring were unrecognized by ED personnel (53.1%, n = 127 of 239); for example:

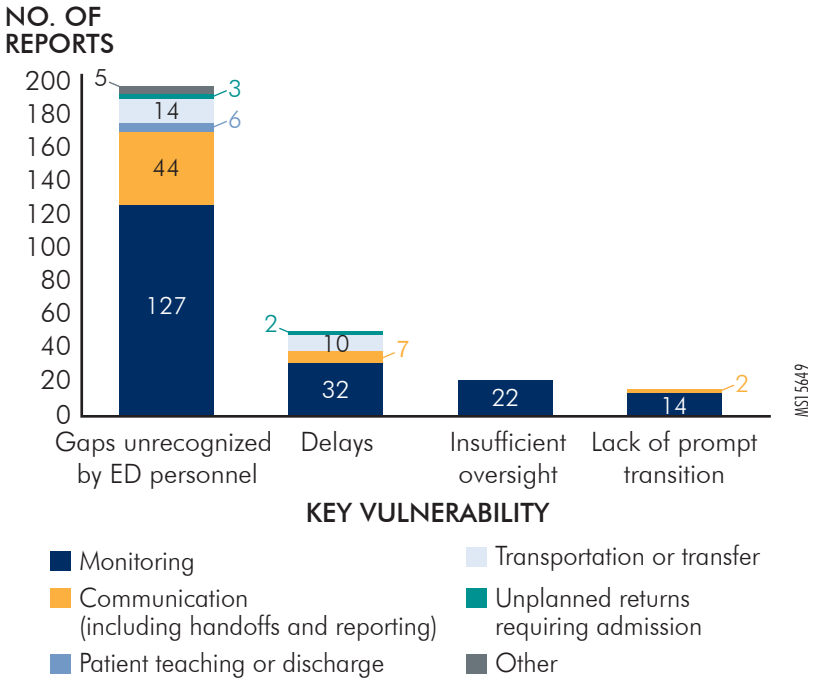
> *A medication was ordered to be started in the ED prior to admission to the inpatient unit. The [attending] physician discovered that the treatment had not been started. Recommendation: admission orders need to be initiated when ordered regardless of the location of the patient.*

Figure 2. Percentage of Emergency Department Flow Phase III Event Reports, by Component, Submitted to the Pennsylvania Patient Safety Authority in Calendar Year 2013 (N = 540)



* The details of the PA-PSRS event narratives in this article have been modified to preserve confidentiality

Figure 3. Number of Reports Mentioning Key Vulnerabilities Submitted to the Pennsylvania Patient Safety Authority in Calendar Year 2013 (N = 288), by Emergency Department (ED) Phase III Component



***Note*: Some reports did not specify vulnerabilities, and some identified more than one key vulnerability.**

> *The ED patient was admitted for nausea, vomiting, and abdominal pain and has a history significant for abdominal surgery. The patient was showing significant symptomatology and was ordered an x-ray and CAT [computerized axial tomography] scan. The patient was transported to the inpatient unit prior to having the imaging studies completed; this led to a multi-hour delay in diagnosis and treatment.*

Communication or handoffs. These events (e.g., inaccurate or inadequate medication reconciliation, inadequate reporting) represented 11.7% (n = 63) of the phase III reports; for example:

> *The patient reported that the ED medication list was not correct, as it contained medications that the patient was no longer taking. A family member stated they gave the ED a current medication list that was never sent to the unit with the patient.*
>
> *There was a delay in transferring the patient to the inpatient unit. There was confusion about the admission orders, and poor communication led to a delay in medication administration. The medication was administered once the error was discovered.*

The majority of events involving communication and handoffs were unrecognized by ED personnel (69.8%, n = 44 of 63); for example:

> *The receiving [inpatient] nurse was unaware that an SBAR [situation, background, assessment, and recommendation] was entered by the ED nurse. The patient arrived to the unit with a cardiac drip infusing. Because the admitting unit was not equipped to take patients on cardiac drips, the patient had to be transferred to a higher level of care.*
>
> *ED staff brought the patient to the inpatient unit but did not notify the unit staff. The siderails were left down, and the patient was not connected to the telemetry pack.*

Patient teaching or discharge. These events (e.g., inability to use devices, inadequate discharge instructions, omissions) represented 8.5% (n = 46) of the phase III reports; for example:

> *The patient was instructed [on the use of] crutches prior to disposition. The patient attempted to walk with crutches and fell and is [now] unable to bear weight on foot.*
>
> *The patient was treated with IV [intravenous] fluids and medication and was discharged. The [discharge] instructions indicated that the cause of the pain and elevated [white blood cell] count is uncertain, but there is no evidence of an acute surgical problem. The family complained about the [discharge instructions] because the only information communicated to them was via a handwritten note that did not [contain actual results].*

Patient and family teaching events were unrecognized by ED personnel 13.0% (n = 6 of 46) of the time, as represented below:

> *The patient was given the wrong prescription [upon discharge]. The pharmacy noticed the wrong name on the prescription and called the ED. The patient came back and [was given the correct prescription].*

Transportation or transfer. These events (e.g., falls, skin integrity issues,

complications) represented 9.6% (n = 52) of the phase III reports; for example:

> *A patient was being transported out of the ED by ambulance attendants. The stretcher tilted over; the patient was strapped to the stretcher and sustained an injury to the arm and shoulder. The patient was brought back into the ED for treatment of abrasions. No other injuries noted. The patient was discharged.*

> *Following discharge from ED, the patient became [light-headed] while using the restroom in the waiting area, fell, and hit his head on the [sink].*

Transportation/transfer events were unrecognized by ED personnel 26.9% (n = 14 of 52) of the time, as represented below:

> *The patient was admitted with a [respiratory diagnosis] and was transported to CAT scan and ultrasound prior to being transported to the unit. The patient was to be on oxygen continuously but was transported without it. On arrival to the floor, [the patient's] oxygen saturation was in the 70s, [his] heart rate was tachycardic, and [he] was complaining of chest [tightness]. Oxygen was immediately applied and [he] received an EKG [electrocardiogram], lab work, and breathing treatment. [He] responded to treatment within a half hour.*

Unplanned returns requiring admission. These events (e.g., errors or complications related to procedures, treatments, or tests) represented 24.4% (n = 132) of the phase III reports; for example:

> *A [pediatric] patient was seen in the ED for nausea and vomiting and decreased urine output. The patient was discharged with a [gastrointestinal infection] diagnosis and given a prescription. The parents brought the patient back with worsening symptoms, and [the patient] was admitted.*

> *A patient was seen and discharged from the ED because teleradiology [verbally] reported that the ultrasound was negative. The written ultrasound report was positive for [thrombosis], and the patient was called back and admitted.*

Events of unplanned ED returns requiring admission were unrecognized by ED personnel 2.3% (n = 3 of 132) of the time, as seen in the example below:

> *The [ED patient's] initial CAT scan was read as negative by the [teleradiology service]. Several hours later, the [teleradiology service] called the ED to report that the CAT scan was positive. The patient was called back and admitted.*

Other. These events represented 1.5% (n = 8) of the phase III reports. As stated previously, these events did not meet the criteria for classification into any of the phase III components and were analyzed separately.

Examples of Event Reports Related to Key Vulnerabilities

There were 288 instances in which a key vulnerability was mentioned in the 540 ED flow phase III event report details. Some reports did not specify vulnerabilities, and some identified more than one key vulnerability.

Gaps unrecognized by ED personnel. This vulnerability was identified in 36.9% (n = 199) of the phase III reports. An example is as follows:

> *The ED patient was ordered [normal saline solution] at [100mL/hr]. Upon arrival to the inpatient unit the admitting nurse found [5% dextrose in water solution infusing at 100mL/hr].*

Delays. This vulnerability was identified in 9.4% (n = 51) of the phase III reports; for example:

> *There was a delay in transferring the [ED] patient to the inpatient unit due to [lack of bed] availability. There was a delay in medication administration due to confusion and poor communication.*

Insufficient oversight. This vulnerability was identified in 4.1% (n = 22) of the phase III reports; for example:

> *A [mental health] patient with [several] medical conditions was awaiting placement for [72 hours]. Psychiatric services did not provide care while the patient was in the ED.*

Lack of prompt transition. This vulnerability was identified in 3.0% (n = 16) of the phase III reports; for example:

> *A [psych] patient was in the ED for [48] hrs and did not receive [his] psych meds. The patient began acting out, which required [interventions]; the lack of prescribed medications may have [contributed to this behavior].*

DISCUSSION: IMPROVING FLOW AND PATIENT SAFETY

Monitoring/Rounding

Patients waiting to depart from the ED via discharge, transfer, or admission remain in the care of ED staff until the patient's departure. Routine monitoring (observing) of patients is a basic nursing intervention and can help prevent untoward events (e.g., falls).[5] Hourly *intentional* rounding promotes safety, comfort, and patient satisfaction.[5, 6] There are specific rounding elements to address with ED patients: pain management, plan of care, duration (i.e., length of stay), and expectation management.[6-9]

Toolkits, protocols, and policies are available for improving patient monitoring.[2,5,10] Hourly rounding has been associated with increased patient satisfaction and decreased number of falls with significant injury, call light use, and number of patients leaving the ED without being treated or against medical advice.[5,6,8,11] As a proactive intervention, hourly rounding

enables nurses to anticipate and assess for safety hazards and patients' needs.[5]

Communication and Handoff

Patient handoffs are variable.[12-16] The handoff is not merely about communicating information from one caregiver to another but also involves transfer of care and responsibility for the patient.[12,14,15] Studies suggest that the handoff process is highly complex and may be optimized by standardization.[12,13,16]

One standardized method of communication that can be used to enhance handoffs is situation, background, assessment, and recommendation (SBAR). SBAR uses a predictable pattern of communication that allows for the recognition of missing information.[13] Practicing and evaluating the use of standardized methods of handoff communication can enhance patient safety.[13,16]

Transfer and Admission

Interfacility transfers. The Emergency Nurses Association's position statement on interfacility transfers recommends that transport teams have specialized training, patients be rapidly transferred with certain provisions, and patient safety and level of care be maintained.[17] The handoff communication strategies are of import and applicable to successful transfers, whether for transporting a patient back to a skilled nursing facility or to another facility for definitive care.[13,15,16]

Sethi and Subramanian, in their review of the literature, identified practice guidelines that promote "pre-transport coordination and communication, qualified and trained accompanying personnel, appropriate transport equipment, standard monitoring and documentation as key elements of a safe transfer."[18] Before transfer, the patient should be stabilized to the extent possible by the transferring facility.[18,19]

Admission processes. Once the decision to admit has been made, efficient processes can expedite the transfer of the patient to the inpatient unit.[20] Use of an admission consultant response time guideline was successful in reducing the time between disposition decision and inpatient departure from the ED.[21]

Studies have shown that high hospital inpatient occupancy impedes ED flow and affects inpatient occupancy of the ED, leading to prolonged ED stays and boarding.[20,22,23] One simulation study revealed that a hospital inpatient occupancy rate below 85% lowers the risk of hospital bed shortage, enabling the ED inpatient demands to be met.[24]

Efforts to improve inpatient bed flow include early alert systems for hospital-wide awareness of reduced bed availability, admission guidelines, daily bed huddles, early rounding practices, early discharge practices, and discharge lounges for inpatients waiting to be discharged.[20,22,23] Overcrowding calculators, such as the Emergency Department Work Index and the National Emergency Department Overcrowding Scale, are useful early warning systems.[25]

Improvements can be seen when hospitalists are involved in the admission process. Specifically, when management of ED admissions, department of medicine resources, and hospital bed occupancy is directed by a hospitalist, ED throughput and ambulance diversions are improved.[26,27]

Discharge Process and Patient/Family Teaching

Discharge planning and ensuring a safe transition to the home or community is a fundamental element of emergency care.[28] The Agency for Healthcare Research and Quality (AHRQ), in its 2014 report on improving the ED discharge process, identified three primary functions of the ED discharge process: "communicate with/educate patients," "support post-ED discharge care," and "coordinate care with other providers and services."[29] See "Characteristics of a High-Quality ED Discharge."

There are multiple factors that contribute to a poor discharge, including limited literacy.[30,31] The ED can be a noisy, chaotic environment with distractions and interruptions. Patients are anxious to leave once their care is complete. All of these conditions affect comprehension.[30] According to Alberti and Nannini's literature review on patient comprehension of

CHARACTERISTICS OF A HIGH-QUALITY ED DISCHARGE

A high-quality emergency department (ED) discharge contains three main characteristics:

1. It informs and educates patients on their diagnosis, prognosis, treatment plan, and expected course of illness. This includes informing patients of the details of their visit (e.g., treatments, tests, procedures).
2. It supports patients in receiving post-ED discharge care. This might include medications, home care for injuries, use of medical devices/equipment, further diagnostic testing, and further healthcare provider evaluation.
3. It coordinates ED care within the context of the healthcare system (e.g., other healthcare providers, social services).

Source: Agency for Healthcare Research and Quality. Improving the emergency department discharge process: environmental scan report [online]. AHRQ Publication No. 14(15)-0067-EF. 2014 Oct [cited 2015 Jun 24]. http://www.ahrq.gov/professionals/systems/hospital/edenvironmentalscan/index.html

ED discharge instructions, clinicians do not routinely assess patients' comprehension, and actual patient comprehension was limited in the studies that used only verbal and/or written instructions.[30] Many interventions are available to improve patient and family teaching, such as multimedia tools, illustrations, simple text, and discharge facilitation.[28-30] Studies recommend using the "teach-back" method to enhance patient comprehension.[10,31]

Sharing clinical information with post-ED care providers (e.g., primary care physicians) is essential for ensuring continuation of care and timely follow-up.[32,33] One study identified eight best practices for safe care transitions, including sending summary and clinical information to the primary care physician and to other "receiving physicians upon discharge or transfer."[32] Measuring and evaluating the ED discharge process can enhance patient safety.[29]

Boarders

According to the American College of Emergency Physicians (ACEP), a boarded patient is "a patient who remains in the emergency department after the patient has been admitted to the facility, but has not been transferred to an inpatient unit."[34] ED overcrowding, including days spent boarding, has been associated with increased inpatient mortality.[35] ACEP published a list of hospital recommendations regarding boarding of admitted and intensive care patients in the ED, and this list can be accessed at https://www.acep.org/Clinical---Practice-Management/Boarding-of-Admitted-and-Intensive-Care-Patients-in-the-Emergency-Department.[36]

There are advantages to reducing boarding. According to the ACEP, "By reducing patient boarding, treatment of patients in non-treatment areas such as hallways can be limited, and the number of patients leaving prior to evaluation or completion of medical treatment can be reduced."[37] One study duplicated the inpatient care delivery model in the ED for boarders, including dedicated equipment and supplies, resulting in increased patient and staff satisfaction.[38] The Emergency Nurses Association supports a systems approach to improving patient flow.[39]

For psychiatric patients, the Illinois Hospital Association recommends specially trained staff and dedicated space providing specific areas in the ED or alternative locations in which the patient can remain for crisis stabilization. These areas should ensure privacy, comfort, and safety; be soothing and supportive; promote healing; and help deescalate agitated or psychotic patients.[40]

Gaps Unrecognized by ED Personnel

A large portion of the phase III events were unrecognized by ED personnel (i.e., were identified and reported by another caregiver or department). This data can provide valuable information when analyzed and considered for incorporation into the ED's performance improvement program.

An AHRQ study demonstrated that the diagnoses made in the ED differed from those made at the time of hospital discharge 10% of the time. The study evaluated an automated system for feedback to emergency medicine physicians about the concordance between their initial diagnoses and patients' final diagnostic outcomes and concluded that "timely followup is feasible in the ambulatory setting and may catch issues at an earlier stage."[41]

PATIENT FLOW BEST PRACTICES

Return Visits and Postdischarge Follow-Up

Once the patient is discharged from the ED, diagnostic test results may come back positive or with a discrepancy. Patients may leave the ED without their discharge instructions and prescriptions. These issues can contribute to patients returning to the ED for continued care or admission, as depicted in some PA-PSRS event narratives. Return visits to the ED can be considered a discharge failure or an indicator of poor initial care and may negatively affect patient safety, satisfaction, and care.[29,42,43]

Care coordination with ambulatory providers could reduce unplanned ED returns, but in their systematic review of the literature, Katz et al. found that ED care coordination interventions had variable effectiveness.[44] Having dedicated staff may address these issues.[45,46] One study showed a 17% improvement in completing follow-up cases within three days and an 80% reduction of follow-up cases delayed by more than seven days, attributable to the follow-up program.[45] One study identified system improvements when analyzing data on patients who returned to the ED, including improving physician-to-patient communication, acute pain control, and availability of community resources to vulnerable populations such as the elderly.[42]

In an interview, Lindsay Lion, BSN, RN, CEN, senior nurse navigator in the ED at Nazareth Hospital, described this new role as one of partnership with the older adults seeking emergency care.[47] The navigator calls patients who have been discharged from the ED to ensure they understand the importance of and know how to prioritize their discharge instructions, including follow-up appointments and filling prescriptions. Additionally, the navigator educates patients about medical problems, answers questions, offers emotional support, and connects patients with resources such as transportation and support groups.

Another study speculated that lack of a primary care physician contributed to a high ED return visit rate; however, the study identified that patients who returned to the ED within 30 days of an initial visit may have contacted their primary care physician before returning, and many were insured patients with a primary care physician who were able to see them that same day.[43] Ms. Lion also

communicates with the patients' primary care physician to foster enhanced care coordination.[47] Early success is shown by increased Hospital Consumer Assessment of Healthcare Providers and Systems survey scores on the statement, "Staff cared about you as a person."[47]

Stony Brook University Hospital in Long Island, New York, has an enhanced ED follow-up program that uses dedicated nursing and clerical staff 7 days a week for 10 hours each day.[46] A computerized tracking board is used for chart reviews, clinical checks, test results, and callbacks. All nurse/patient interactions are documented in the electronic health record, and clerical staff fax information to the next provider of care. Service recovery, additional patient teaching, and improved communications with transitions in care are among the successful program outcomes.

LIMITATIONS

Data searched was limited to events reported under the ED care area; relevant reports for which an ED location was misclassified would not have been captured. Similarly, removing reports based on phase I and phase II keyword sorting at the beginning of the analysis may have eliminated some phase III reports. Relevant information is derived from the event type taxonomy and from free-text narratives in varying degree of detail, and in some cases, interpretation in context is made by the analysts.

CONCLUSION

Potential and actual safety hazards occur during phase III of the ED stay, from after disposition decision through departure. The monitoring component of this phase and gaps in care unrecognized by ED personnel were identified as vulnerabilities to patient safety. Analyzing and understanding all of the key components and vulnerabilities of this phase, employing risk reduction strategies and best practices in patient flow, and improving operations during phase III of ED flow and beyond can improve care delivery and coordination, minimize safety hazards, and directly contribute to the safety of patients in this phase of ED treatment.

ED discharge aftercare and care coordination are becoming ever more integral to the management of the ED patient, and it is essential that ED clinicians participate in the design and implementation of these processes. The Patient Protection and Affordable Care Act created a variety of incentives to promote care coordination, such as the patient-centered medical home model. Seamless communication and information sharing between the ED and the medical home (including primary physicians and after–ED care providers) is essential to process improvement, as well as education and support for patients once they return home.[33] The use of health information exchanges and patient portals may help form the structure for this direction.

NOTES

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