

Assessing the accessibility to the IPOST at admission to the Emergency Department



To the Editor,

When patients arrive in the Emergency Department (ED), their wishes regarding life-sustaining treatment are often unknown, even to close family members. To address this discrepancy, Oregon was the first state to develop the Physician Orders for Life-Sustaining Treatment (POLST) form, which Iowa adopted as the Iowa Physician Orders for Scope of Treatment (IPOST) [1]. These documents are designed to create a clear, portable declaration of the patient's healthcare treatment preferences and act as an executable order for the healthcare team when the patient lacks decision-making capacity. Prior to the availability of an IPOST, the Iowa code only specified the availability of DNR orders for terminally-ill adult patients outside the hospital.

Unfortunately, patients who may want to voice specific preferences for life-sustaining treatment often arrive in the ED without an IPOST. McQuown et al. investigated the continuity of documented code status between extended care facilities and the hospital/ED, and found that hospital staff often inaccurately documented treatment preferences, and that patient DNR paperwork was not routinely transported [2]. We suspected that this same problem was happening with the IPOST documentation.

We conducted an IRB-approved, prospective, observational study of the prevalence of a valid IPOST in patients age 65 and older arriving to an urban Midwestern Level 1 Trauma Center. Inclusion criteria used were patients age 65 years or older with arrival via ambulance, interfacility transport, or private vehicle between June and September 2017. With a mean age of 80 years, the chief complaint categories of abdominal pain, altered mental status, chest pain, fall and shortness of breath accounted for 54% of the study population.

Upon the arrival of an eligible patient, our research assistant examined any accompanying transfer paperwork for the presence of an IPOST or documentation of its existence on a Face Sheet. If no IPOST was noted, the research assistant asked EMS personnel if they had seen or been informed by facility staff about an IPOST. If no IPOST was identified by that time, the research assistant contacted the patient's care facility (if applicable), inquired about an IPOST. Also during the patient's ED visit, the research assistant searched the patient's electronic medical record for a previous documentation of an IPOST.

Secondary aims of this study included investigating how extended care facilities handled resident IPOSTs. To address this, forty-four area care facilities were contacted via phone and asked to complete a survey about how IPOSTs were stored in the facility and how they were to be transported to the hospital.

One hundred and nineteen patients were included in this study, with 9 patients arriving with a valid, physical IPOST (Fig. 1). A total of 18 patients had a completed IPOST, known by the physical arrival of the IPOST, a faxed copy from the care facility, or prior documentation in the EMR. Of the 9 IPOSTs arriving with patients transported via EMS, EMS personnel were aware of the IPOST for 3 of those patients.

Forty-four care facilities were contacted via phone and asked to complete a survey. In speaking with the directors of nursing or social services at the responding care facilities, we found that while facility staff was frequently familiar with the IPOST and its uses, less than half of interviewed facilities had 50% or more of their residents with a completed IPOST.

Our data and experiences have identified a significant gap in the number of elderly patients in our Midwestern city arriving in the ED with a valid IPOST. Apart from the small fraction of appropriate patients utilizing such documentation (18 of 119, 15%), it is most concerning that only half of the completed IPOSTs are arriving to the ED with the patient. Furthermore, only one third of the physically-present IPOSTs (and 16.6% of the IPOSTs found to exist) were known by the EMS personnel. Considering that the IPOST is intended to be an active physician

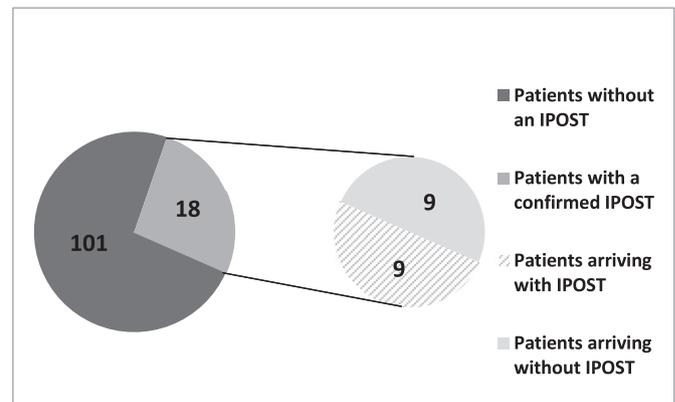


Fig. 1. Incidence of transported IPOSTs. Of the 119 patients included in the prospective arm of the study, 18 patients had a confirmed IPOST and 9 of those patients arrived with a physical IPOST in-hand.

order, it is alarming that these prescriptions are largely going unnoticed. With 43 states having either implemented or developing a state-specific POLST form, there is increasing awareness for standardization of handling these documents [3].

With the successful creation of a state-wide POLST registry in Oregon and a similar online database in West Virginia, it may be time to consider expanding an electronic database. This type of database would assist in eliminating the challenges of transporting a physical document and needing to record that document's existence in the EMR. Pedraza et al. found that with the creation of the West Virginia POST e-registry, more patients had out-of-hospital death consistent with their wishes, compared to those without a registered POST form [4].

With the continued expansion of POLST adoption, it is increasingly important for care facility, Emergency Department, and EMS personnel to be aware of such documents and handle them appropriately in order to provide care that best aligns with patients' wishes.

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References

- [1] Iowa Department of Public Health. Iowa Physician Orders for Scope of Treatment (IPOST); 2013 Retrieved November 3, 2017, from <https://idph.iowa.gov/ipost>.
- [2] Mcquown CM, Frey JA, Amireh A, Chaudhary A. Transfer of do not resuscitate orders to the emergency department from extended care facilities. *Am J Emerg Med* 2017 Jul;35(7):983–5.

- [3] National POLST Paradigm. National POLST paradigm state program designations. <http://polst.org/programs-in-your-state/>; 2017. Retrieved November 4, 2017, from.
- [4] Pedraza SL, Culp S, Falkenstine EC, Moss AH. POST forms more than advance directives associated with out-of-hospital death: insights from a state registry. *J Pain Symptom Manage* 2016 Feb;51(2):240–6.

Characteristics associated with problematic pediatric transports to a regional children's hospital



Levels of pediatric emergency care for hospitals in Tennessee include Basic, Primary, General, or Comprehensive Regional Pediatric Center (CRPC). Our urban, tertiary teaching children's hospital is a CRPC and performs continuous review of transports to our emergency department (ED). Transported patients arrive by EMS ground-transport, helicopter, fixed wing aircraft, or private vehicle.

Our CRPC documents *problematic transports*, defined as those during which a preventable and potentially adverse event occurred. Any healthcare provider may identify a patient as having a preventable, potentially adverse event during their transport. Data on each of these patients and the transport are entered into a secure REDCap® database to track and trend these events [1]. Data recorded included patient age, gender, method of transportation, name of referring facility, and type of problem. These categories are based on AAP Guidelines, with special focus on common and/or life threatening issues [2].

Our objective was to identify patient and transport characteristics associated with *problematic transports*, and specifically, to investigate associations of patient and transport characteristics with hemodynamic instability during transport. We chose hemodynamic instability as the outcome for a multivariable logistic model because it is a frequent cause of problematic transports and one that might be prevented with education and training.

We analyzed CRPC patient transport data for calendar years 2011 through 2016. Patient and transport (e.g., type of referring facility and mode of transport) characteristics were evaluated as frequencies. We also identified 5 broad categories of problematic transports, and these broad categories were then divided into 37 subcategories, for which frequency statistics were also measured. Finally, a multivariable logistic regression model was performed to examine adjusted associations of available predictor variables with hemodynamic instability.

During the six-year study period 44,856 patients were transported to our facility, of which 667 (1.5%) were problematic transports. Characteristics of the 646 patients with complete records are presented in **Table 1**. The five broad categories of problematic transports and their frequencies as a percentage of problematic transports were airway (13.65%), circulation (14.67%), patient assessment (36.26%), medication error (18.55%), and mode-of-transport (17.19%). **Table 2** displays the subcategories and their frequency of occurrence, with the Top 5 problems comprising 35.3% of the total. These 5 problems were “Patient should have come via emergency medical service, pov (personal vehicle) was inappropriate”, “Improper immobilization”, “Failure to completely assess the patient”, “Maintenance of iv/io (intravenous/intraosseous) access”, and “Patient should have come via specialty

Table 1
Characteristics of 646 problematic pediatric transports amongst 44,856 transports to a children's hospital ED during years 2011–2016.

Characteristic	
Male, n (%)	381 (59)
Median age, years [IQR]	4 [1, 11]
Age range	2 d–23 years
EMTALA ^a violations (n)	2

^a Emergency medical treatment and labor act.

Table 2

Frequency of problems occurring during 44,856 pediatric transports to a children's hospital emergency department during years 2011–2016.

Problem	%
The transporting crew intubated outside of protocol	0.46
Esophageal ETT	0.46
Right main-stem ETT	1.24
Failed airway - intubation was unsuccessful	1.86
Traumatic Intubation	0.77
Incorrect ETT size	1.08
End tidal colorimetric/capnography device not utilized	0
Failure to use a back-up airway device (LMA, etc.)	0.31
No O ₂ applied	0.31
BVM should have been utilized	0.93
Appropriate airway medications were not utilized (bronchodilators on intubated Asthmatics)	2.11
Other - not listed	4.12
Airway total	13.65
Improper CPR performance	0.15
The crew failed to recognize the patient was in shock	3.1
The patient needed blood (not available/does not carry blood)	1.55
The patient needed an IV/IO and the crew did not attempt one	1.39
Maintenance of IV/IO	5.73
Other - not listed	2.75
Circulation total	14.67
AMS - no glucose checked	2.48
Under-recognized/undertreated seizure activity	1.55
Failure to completely assess the patient	7.59
Thermoregulation measures not taken	0.77
Tension PTX or hemothorax and no chest tube or needle decompression (maybe because the crew does not carry one)	0
Improper immobilization (c-spine, long spine, fracture)	8.2
Trauma UPGRADE on arrival due to failure to recognize the severity of the injury	2.63
Other - not listed	13.04
Assessment total	36.26
Incorrect resuscitation (PALS) meds or doses given	1.39
Improper RSI meds given (based on receiving facility)	0.62
Mannitol of 3% NS needed for increased ICP and not given or not available	0.46
Improper sedation	1.39
Improper/no pain meds given	2.32
No sedation/pain meds after RSI	0.77
Narcan or reversal agent indicated but not administered	0.31
Patient was placed on insulin drip, blood sugar dropped too fast	1.7
General medication - i.e.: wrong med, inappropriate med, med not given	3.56
Wrong dose of medication given	3.51
Other - not listed	2.52
Medication total	18.55
Patient should have come via EMS (POV was inappropriate)	9.29
Patient should have come via Air-Medical (EMS was inappropriate)	2.48
Patient came via Air-Medical and should have come via EMS (Air was inappropriate)	0.93
Patient should have come via Specialty Care Team (ex. neonatal team or ground critical care team)	4.49
Mode of transportation total	17.19

care team”. In a multivariable logistic model that included the covariates age, gender, and location of referring facility, age was associated with the subcategory of “unrecognized hemodynamic instability during transport”, such that each increase in age of 1 year was associated with a 10% increased odds of hemodynamic instability (aOR 1.1 [95% CI 1.0, 1.2]).

Our analyses suggest that 1.5% of patient transports to our children's hospital are problematic, most often involving patients transported for trauma. Inaccurate patient assessment is the most frequent identified problem. Additionally, increasing age was associated with unrecognized hemodynamic instability, perhaps because older patients can verbally communicate despite their hemodynamic instability. Alternatively, transport personnel may be more vigilant in younger patients, enabling earlier recognition and intervention for compensated shock.

A study strength was the rigor with which the CRPC staff reviewed and entered patient data. In addition, a CRPC representative contacted the transport crew and hospital to ascertain the transport circumstances and provide real time incident ascertainment and education. A possible