

EMS PROVIDER DETERMINATIONS OF NECESSITY FOR TRANSPORT AND REIMBURSEMENT FOR EMS RESPONSE, MEDICAL CARE, AND TRANSPORT: COMBINED RESOURCE DOCUMENT FOR THE NATIONAL ASSOCIATION OF EMS PHYSICIANS POSITION STATEMENTS

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ABSTRACT

With increasing demands for emergency medical services (EMS), many EMS jurisdictions are utilizing EMS provider-initiated nontransport policies as a method to offload potentially nonemergent patients from the EMS system. EMS provider determination of medical necessity, resulting in nontransport of patients, has the potential to avert unnecessary emergency department visits. However, EMS systems that utilize these policies must have additional education for the providers, a quality improvement process, and active physician oversight. In addition, EMS provider determination of nontransport for a specific situation should be supported by evidence in the peer-reviewed literature that the practice is safe. Further, EMS systems that do not utilize these programs should not be financially penalized. Payment for EMS services should be based on the prudent layperson standard. EMS systems that do utilize nontransport policies should be appropriately reimbursed, as this represents potential cost savings to the health care system. **Key words:** emergency medical technicians; paramedics; transportation of patients; determination of medical needs; health services misuse; emergency medical services; reimbursement

PREHOSPITAL EMERGENCY CARE 2011;15:562-569

Received April 16, 2011, from the Department of Emergency Medicine (MGM), Johns Hopkins University School of Medicine, Baltimore, Maryland; the Anton Breinl Centre, School of Public Health, Tropical Medicine and Rehabilitation Sciences (JHB), James Cook University, Townsville, Queensland, Australia; and the Department of Family and Community Medicine (BS), University of Toronto, Toronto, Ontario, Canada. From the Standards and Clinical Practice Committee of the National Association of EMS Physicians, Olathe, Kansas. Revision received May 9, 2011; accepted for publication May 12, 2011.

The position statements based on this resource document appear in this issue on pages 545 and 546.

The authors have no conflicts of interest to report.

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doi: 10.3109/10903127.2011.598625

INTRODUCTION

In emergency medical services (EMS), there are widespread reports of unnecessary ambulance utilization from the United States,¹⁻⁴ South Africa,⁵ Canada,⁶ and the United Kingdom, where authors have estimated that between one-third and one-half of all ambulance transports are medically unnecessary.⁷⁻¹² In 2001, the National Association of EMS Physicians (NAEMSP) recognized that nontransport decisions may be initiated by patients or by EMS personnel,¹³ and that "transportation by alternate means or to an alternate destination may be appropriate" for nonurgent patients.¹⁴ Systems that establish nontransport and alternate-destination protocols, however, must ensure physician oversight of the program, adequate education of the EMS providers, and a strong quality management system.^{13,14} Furthermore, it should be demonstrated in the peer-reviewed literature that EMS determination of nontransport is safe given the specific situation. Currently, only 7% of the EMS agencies serving the 200 largest U.S. cities have policies allowing EMS-initiated nontransport of patients,¹⁵ which is less than the 17% reported in 1998.¹⁶ One possible explanation for the decline in EMS-initiated nontransport programs may be that many systems simply do not possess the physician oversight, educational, and quality assurance resources necessary to safely implement policies enabling paramedics to evaluate patients and make decisions regarding the necessity of ambulance transport.

Further, the ability of paramedics to universally make such determinations has not been established in the peer-reviewed literature. Two systematic reviews and meta-analyses, one specific to U.S. systems and one evaluating the international literature, have concluded that there is insufficient evidence to support widespread implementation of such practices.^{17,18} In 2009, Brown et al.¹⁷ evaluated studies of U.S. paramedic determinations of medical necessity, finding an aggregate negative predictive value for those determinations of 0.91, with a 95% confidence interval ranging from 0.71 to 0.98. In 2004, Snooks et al. published a review of the U.K. and international literature addressing the ability of ambulance crews to triage patients to nontransport, alternative transport means, or transport to alternative destinations. They too

concluded that there is “... a lack of evidence to indicate that there is a clinically safe approach to identifying patients who call for an emergency ambulance but do not need conveyance to ED.”¹⁸

The purpose of this paper is to outline the literature examining EMS provider determinations of medical necessity and the provision of on-scene medical care without transport, and to serve as a resource document to the National Association of EMS Physician’s (NAEMSP’s) position statements on “EMS Provider Determinations of Necessity for Transport”¹⁹ and “Reimbursement for EMS Response, Medical Care, and Transport.”²⁰

Why People Call

There are many reasons ambulance transport is requested even though it might later be deemed medically unnecessary. First, many patients legitimately believe they need ambulance care or transport,^{10,21} or that transport by ambulance is safer than transport by private vehicle.^{21,22} This is particularly the case when parents call an ambulance for their child.^{21,23} Also, patients may not have any other means of transport,^{2,24} which might partially account for the higher rates of ambulance use among the elderly.^{24–26} Finally, ambulances are often summoned by someone other than the patient, including family members, passers-by, and even medical professionals.^{2,10,27} In all of these circumstances, the decision to request ambulance transport is arguably appropriate.

The Neely Conference

In 2004, the participants in “the Neely Conference,” a consensus process addressing medical necessity in EMS, attempted to define measurement standards for use in research addressing medical necessity and to develop triage tools that would enable referral of patients to alternative means of transportation and alternative destinations.^{28–31} When examining the criteria used to evaluate on-scene triage decisions made by paramedics and other EMS providers, they found that a wide variety of outcome measures and reference standards were used.³⁰ Although the participants in the Neely Conference could not reach consensus on an acceptable level of undertriage,³¹ they were able to reach a consensus that medical necessity–based triage decisions must refer patients to alternative means of care and/or transport, and not simply deny patients care.²⁸

Defining Medical Necessity

Medical necessity is not easy to define. Patients, physicians, nurses, paramedics, and other allied health personnel have differing perspectives on the definition

of an emergency.^{7,10,32,33} In 1994, Foldes et al.³⁴ found that when an emergency physician and an internist reviewed the same cases, the internist identified 36% of the cases as emergencies, whereas the emergency physician identified 90% of the cases as emergencies. Other studies have found similar disparities in the definition of an emergency between emergency physicians and other health care practitioners, and even among emergency physicians themselves.^{35,36}

Larger societal expectations and resource availability also have implications for medical necessity.^{32,33} As a number of authors have pointed out, if other resources are not available, emergency care and ambulance transportation could be perfectly appropriate even for situations that are not, in and of themselves, emergencies.^{28,33,37,38}

EMS Determinations of Medical Necessity for Ambulance Transport

Some EMS systems do allow paramedics to make determinations of medical necessity,^{15,16} but the published data regarding the accuracy and safety of EMS-initiated nontransport decisions raise questions about this practice in the absence of additional training and medical oversight.

Five papers in the U.S. peer-reviewed literature compare paramedic determinations of medical necessity for ambulance transport with some reference standard. In 1992, Zachariah et al.³⁹ reported outcomes of patients who declined or who were denied transport by EMS personnel in Harris County, Texas. In a system without a strict written protocol defining the appropriate criteria for EMS provider decision to not transport, 50 patients were denied transport, and 11 (22%) of those patients subsequently required hospitalization.³⁹

In 2001, Pointer et al.⁴⁰ reported paramedic determinations about medical necessity in Alameda County, California, when using a set of written guidelines, and found that 113 of the 1,180 patients in the data set (9.6%) had been undertriaged based on a reference standard of physician determination that the patient should be transported directly to the emergency department (ED). In 2003, Gratton et al.⁴¹ reported paramedic determinations of medical necessity in Kansas City, Missouri, where paramedics used a structured, five-item screening form. All patients were transported to an ED where the emergency physician, blinded to the EMS provider’s evaluation, completed the same screening form. The study authors note that the EMS providers undertriaged 11% of patients, although it is unclear how it was determined that a patient was undertriaged.⁴¹ Of note, both the Pointer and Gratton studies compared EMS providers with an emergency physician “gold standard” rather than examining actual patient outcomes. Therefore, it is possible that the assessment by the emergency

physicians would have resulted in overtriage rather than the EMS providers' assessments' resulting in undertriage.

Finally, in 2006, Haines et al.⁴² evaluated protocol-guided paramedic-initiated nontransports among pediatric patients in Akron, Ohio. Telephone contact with a responsible adult was made for follow-up evaluation with 527 (75%) of the 704 children in the study. Two hundred seventy-nine (53%) of the children received subsequent evaluation by a medical professional within 72 hours, but only 13 children (2.4%) were hospitalized after being designated for nontransport.⁴²

EMS Determinations of Medical Necessity for Emergency Department Care or Hospital Admission

Other studies have evaluated the need for ED evaluation and care separate from, but presumably indicative of, the need for ambulance transport. These studies have found similar discrepancies between EMS providers' assessment that a patient does not need ED care and either the determination of a physician or evidence that the care was needed based on diagnosis or interventions consistent with a need for ED care.^{40,42-46} Overall, U.S. paramedic determinations of the need for ED care have a negative predictive value ranging from 0.45 to 0.98.¹⁷

Three studies have evaluated the ability of U.S. paramedics to predict the need for hospital admission or intensive care unit admission. Paramedics' predictions of the need for hospital admission have a negative predictive value ranging from 0.83 to 0.90,⁴⁷⁻⁴⁹ and predictions about the need for intensive care unit admission have a negative predictive value ranging from 0.96 to 0.98.^{47,48} Hospitalization and intensive care unit admission, however, can be misleading reference standards. Many patients who legitimately require ambulance transport or ED care may not require hospital admission; conversely, many patients admitted to a hospital do not arrive by ambulance or present to the ED.

Medical Necessity and Pediatrics

Determining medical necessity for children may be more difficult and more complex than it is for adults. Children represent a unique population in which decisions about medical necessity and nontransport need to be carefully considered.

In 2001, Seltzer et al.²² reported that 84% of 32 children whose parents refused ambulance transportation after an ambulance had been called to the scene of an emergency subsequently received some type of medical evaluation and/or care, with three (10%) of the children requiring hospi-

tal admission. Other studies have found similar results.^{50,51}

Even if children who do not require ambulance transport can be identified, societal expectations may preclude refusing to transport those children. In 2008, Shah et al.²¹ reported parents' preferences for EMS transport as well as care in a pediatric-specific ED for their ill and injured children. The two most common reasons for calling an ambulance were 1) perceived medical necessity and 2) security of EMS transport. When hypothetically asked about similar circumstances in the future, these parents clearly favored ambulance transport over alternative transportation, whether their child required hospital admission or was well enough to be treated and released from the ED.²¹ In addition to the reasons identified in the study by Shah et al., request for EMS transport may be reasonable so that caregivers of children do not have to drive while under the emotional stress of the incident.

Nonparamedic Systems

Determinations of medical necessity can be even more problematic when made by EMS providers with less training than paramedics. In 2001, Cone and Wydro⁵² reported an evaluation of basic life support (BLS) emergency medical technicians' (EMTs') ability to determine whether ambulance patients required advanced life support (ALS) intervention. Of 52 cases in which a first-responding BLS crew had canceled ALS response, 40 (77%) were subsequently determined by physicians to have been inappropriate cancellations because of the nature of the chief complaint (e.g., chest pain), vital signs, or physical examination findings (e.g., neurologic deficit). There were 45 patients (87%) who received an intervention immediately upon arrival at the ED.⁵² Therefore, the available evidence does not support allowing universal decision making of medical necessity by EMS providers trained at a level below paramedic.

Dispatcher Screening for Nonemergent Calls

Some systems use algorithms that allow EMS dispatchers to identify emergent and nonemergent calls. This has been widely studied, but the results are more varied than common practice might suggest. The reported sensitivity of dispatch criteria to identify high-acuity patients, patients requiring ALS intervention, or patients eventually requiring hospital admission ranges from 68% to 99%.⁵³⁻⁵⁹ Only a small proportion of dispatch codes reliably identify nonemergent patients. In 2003, Woolard⁶⁰ reported an attempt in the U.K. to reach consensus among a panel of physicians with prehospital expertise about which Medical Priority Dispatch System (MPDS) codes "could be safely

provided with a response other than the immediate dispatch of an emergency ambulance." At the end of this iterative process, only 13 codes were unanimously identified as being nonemergencies. This represents 5% of the MPDS codes, and the authors estimate these codes would account for approximately 0.2% of call volume.⁶⁰ Similarly, in 2005, Shah et al.⁵⁵ attempted to validate a set of dispatch codes identified during a previous derivation study⁶¹ as potentially being able to identify low-acuity patients. These authors concluded that 21 of the dispatch codes identify low-acuity patients who do not require emergent or ALS response.⁵⁵

Treat-and-Release Programs

Most of the research about paramedic treat-and-release programs (in which paramedics assess, treat if appropriate, and discharge a patient without ambulance transport) involves the management of hypoglycemia and opiate overdose.^{62–69} In 1998, Mechem et al.⁶⁴ reported short-term outcomes for hypoglycemic patients who were treated by EMS with oral or intravenous glucose and subsequently refused transport. A registered nurse conducted telephone follow-up of 103 patients to determine any recurrence of symptoms within the first 72 hours. Ninety-four (91%) of the patients had no recurrence of symptoms; nine patients did have recurrence of symptoms and recontacted 9-1-1, with eight being transported to hospital and three requiring hospital admission.⁶⁴ That same year, Socransky et al.⁶⁵ reported a seven-month retrospective review of hypoglycemia patients treated by EMS. Paramedic, hospital, and medical examiner records were reviewed for 374 patients who were treated a total of 571 times. In nearly three-fourths of contacts, the patients were successfully treated by EMS—364 with intravenous dextrose and 48 with oral glucose or food—with subsequent refusal by the patient for transport. There were 25 relapses among those treated and released, with only five relapses resulting in hospital admission; similar rates of relapse occurred among patients who had originally been transported to hospital.⁶⁵ In 2003, Lerner et al.⁶⁶ reported a prospective study evaluating a structured treat-and-release protocol for hypoglycemic patients treated by paramedics. Thirty-six patients, representing 38 events, were enrolled over a six-month period. There were no complications reported after discharge for 35 (92%) of the events; two patients developed recurrent hypoglycaemia, but they were able to treat themselves and did not require further emergency care. One patient, who had suffered multiple hypoglycemic events, was found unresponsive the day after his enrollment and was subsequently admitted to a long-term care facility with hypoglycemic encephalopathy. The authors concluded that patients with uncomplicated hypoglycemic events can be successfully treated and released by EMS personnel.⁶⁶

Regarding opiate overdose, in two separate studies Wilke et al. demonstrated that administration of naloxone by EMS providers for suspected opiate overdose with subsequent nontransport of the patient was safe.^{67,68} The first study retrospectively reviewed medical examiner cases over one year (1996) and cross-examined the results of EMS provider treatment of naloxone use. Three hundred seventeen patients received prehospital naloxone and refused further treatment. None of these patients were identified as one of the 117 medical examiner cases of opiate overdose deaths.⁶⁷ The second study used a similar methodology and found 998 cases of EMS provider treatment with naloxone and refusal of further treatment with no subsequent cases of opiate overdose death among those patients in medical examiner records.⁶⁸ More recently, Boyd et al.⁶⁹ studied 84 patients who received prehospital naloxone for opiate overdose. None of those patients had a life-threatening event in a 12-hour follow-up based on review of medical examiner and cardiac arrest registry data.⁶⁹

Mass Gatherings

The patient population that presents to paramedics at mass gatherings is vastly different from the population that calls 9-1-1, and both patient and paramedic expectations of such interactions differ from those associated with emergency calls. In 2003, Salhanick et al.⁷⁰ described the criteria that paramedics at a large athletic competition used to triage injured or ill athletes to either the on-site clinic or the hospital ED. The event involved approximately 1,500 athletes ranging in age from 13 to 16 years. During the event, 267 athletes sought evaluation; most did not require transport but rather "sought supplies to self-administer care (adhesive bandages, over-the-counter analgesics, fluids for oral rehydration)." There were 47 patients who required treatment and/or transportation; 30 were triaged to the on-site clinic and 17 were transported to the ED. Ten of these patients, however, were triaged contrary to the triage protocol, for a noncompliance rate of 22%. Three patients who should have been triaged to the ED were sent to the clinic, and seven patients who could have been triaged to the clinic were sent to the ED. Follow-up by telephone contact and/or hospital chart review for the 37 patients for whom the triage criteria were followed showed that the criteria had a sensitivity of 100% and a specificity of 90%. The authors did not report follow-up information for the 10 incorrectly triaged patients.⁷⁰

Other Unique Situations

There are two other specific situations in which paramedic determinations about patient transport have been evaluated, with promising results.

EMS personnel are generally able to identify patients who require trauma center or other specialty center care. Ambulance transport for such patients, however, is clearly appropriate and the question is not whether they require ED evaluation, but rather to which ED they should be taken. A number of criteria and scoring systems are available to support trauma triage decisions,^{71–76} although some studies have shown independent paramedic judgment of trauma severity to have comparable levels of sensitivity and specificity.^{73,77,78}

Determinations about medical necessity for air medical transport are a similar issue. As with ambulance transport, authors vary in their approaches to studying and their definitions of medical necessity for air-medical transport.^{79–81} Again, though, decisions about how best to emergently transport a patient are different from decisions about whether to emergently transport a patient.

Patient-Initiated Refusals

In 1996, Burstein et al.⁸² reported telephone follow-up for patients who refused care and/or treatment from four different EMS agencies. Of the 321 patients who refused transport, 199 (62%) were successfully contacted. Ninety-five patients had subsequently sought further medical care; 13 patients were admitted to hospital and one died.⁸² In 1997, Hipskind et al.⁸³ reported the characteristic of 683 patients who refused transports during July 1993 and January 1994. Experienced emergency physicians used information from the paramedic report to classify each patient as having minimal, moderate, or high likelihood of injury or illness requiring transportation to a hospital. Most (72%) of the patients were judged to have minimal potential for injury or illness requiring treatment, with 25% judged to have moderate potential and 3% judged to have a high likelihood of requiring transportation and ED evaluation and treatment. Patients in this high-likelihood group were older, more likely to have medical (versus traumatic) complaints, more likely to have a history of a comorbid condition such as heart disease or diabetes, and more likely to have had the ambulance requested by a family member.⁸³ In 1998, Moss et al.⁶³ reported their experience with patients who initially refused transport by ambulance, but who then reaccessed the 9-1-1 system within 48 hours. Over a three-month period, 443 (7%) of their ambulance calls resulted in nontransport. Ten of these patients reaccessed the 9-1-1 system within 48 hours; all were transported. Four of these 10 patients were admitted to hospital, one died, one was transferred to another facility, and four were discharged from the ED.⁶³

Reimbursement Issues

EMS systems are continuously pressured by increasing call volumes without corresponding increases in resources; hence, there is a need to identify alternative methods to make systems more efficient.⁸⁰ Some third-party payers, facing similar pressures, sometimes deny payment for transports retrospectively (and administratively) determined to be medically unnecessary. However, as outlined above, the evidence around EMS provider determinations of medical necessity is not sufficient to support an expectation that all EMTs and paramedics should be making such determinations. Thus, payers should reimburse emergency services based on the prudent layperson standard.^{81–83} Conversely, where EMS systems invest in additional training for EMS providers, quality improvement plans, and active physician oversight necessary to support EMS provider-initiated nontransport practices, third-party payers may be able to realize some cost savings by providing appropriate reimbursement for non-transport-related services; however, the prudent layperson standard should still be applied when transport to an emergency facility does occur.^{81–83}

FUTURE DIRECTIONS

As EMS systems further develop methods for the safe practice of EMS-initiated nontransport and technology continues to evolve to be cost-effective, there may be a role for telemedicine. While prospective data on the use of telemedicine for determination of necessity of transport are lacking, a retrospective study by Haskins et al.⁸⁴ demonstrated a potential role for telemedicine in the determination of necessity for transport. In this study, emergency physicians with expertise in telemedicine reviewed EMS and ED charts for 345 patients who were transported to one of four hospitals. The physicians ranked on a five-point Likert scale the ability to use telemedicine to determine the need for transport, and indicated that transport to an acute care facility could have been avoided in 14.7% of the cases.⁸⁴

CONCLUSIONS

The extant literature reveals the complexity of determining medical necessity, and the even greater limitations associated with prehospital personnel's trying to make those determinations in the out-of-hospital environment. Certainly, some of these data are encouraging enough that EMS systems with exceptional educational resources, strong medical oversight, and comprehensive quality management programs may elect to implement paramedic-initiated nontransport (or alternative-transport) policies, particularly in narrowly defined treat-and-release and mass-gathering

programs. Given the current state of the literature, however, it is unreasonable to expect all EMS systems to implement such policies. Indeed, systems that do not possess the educational, physician oversight, and quality management resources necessary to implement and continuously evaluate such policies should not implement them. Retrospectively denying payment for transport services provided by agencies that do not have the necessary resources to implement paramedic-initiated nontransport policies unfairly penalizes those systems and is not in the best interest of the patients they serve.

Still, third-party payers may be able to realize some cost savings by providing appropriate reimbursement for non-transport-related services provided by EMS systems that do possess adequate resources and choose to adopt these practices. Regardless of the decision to transport, it is important that EMS providers appropriately document patient contact with an assessment including the patient's capacity to understand the nature of the illness.

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