
Geriatric Emergency Medicine and the 2006 Institute of Medicine Reports from the Committee on the Future of Emergency Care in the U.S. Health System

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Abstract

Three recently published Institute of Medicine reports, *Hospital-Based Emergency Care: At the Breaking Point*, *Emergency Medical Services: At the Crossroads*, and *Emergency Care for Children: Growing Pains*, examined the current state of emergency care in the United States. They concluded that the emergency medicine system as a whole is overburdened, underfunded, and highly fragmented. These reports did not specifically discuss the effect the aging population has on emergency care now and in the future and did not discuss special needs of older patients. This report focuses on the emergency care of older patients, with the intent to provide information that will help shape discussions on this issue.

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Three recently published Institute of Medicine (IOM) reports, *Hospital-Based Emergency Care: At the Breaking Point*,¹ *Emergency Medical Services: At the Crossroads*,² and *Emergency Care for Children: Growing Pains*,³ examined the current state of emergency care in the United States. They concluded that the “emergency medicine system as a whole is overburdened, underfunded, and highly fragmented ... as a result, ambulances are turned away ... [and] the system is ill-prepared to handle surges from disasters.”⁴ These reports did not specifically discuss the effect the aging

population has on emergency care now and in the future and did not discuss special needs of older patients.

Older patients (65 years and older) require more time and resources while in the emergency department (ED) and are admitted to the hospital and to critical care units more often than their younger counterparts.⁵⁻⁷ These patients will increasingly affect emergency medicine over the next half century as the number of older persons continues to rise. Moreover, the oldest old (85 years and older) is the most rapidly growing proportion of the overall population.⁸ The prevalence of these older patients and the effect they will have on emergency care requires a thorough exploration of the emergency care of seniors. This topic is given only two paragraphs as an appendix to the IOM main report and passing mention in several other areas.^{1,2} In contrast, the emergency care of children is given a similar mention in the appendix² and its own 360-page report.³

The Board of Directors of the Society for Academic Emergency Medicine (SAEM), the largest organization in the world focused on improving the science and teaching of emergency care, appreciates the effect older patients have on ED activities. They asked the SAEM Geriatrics Task Force to prepare this report on the emergency care of older patients, with the intent to provide information that will help shape discussions on this issue. Both SAEM and the IOM recognize the special needs of children. We note similar needs for older patients. In

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fact, the problems facing pediatric and geriatric patients are so similar that in many instances the findings and recommendations about pediatric patients can be applied to older patients simply by substituting “geriatric” for “pediatric” and “seniors” for “children,” as in the following example.

Finally, as these various improvements are made to the nation’s emergency care system, it will be important to keep pediatric (geriatric) patients in mind in all aspects of emergency care. The needs of pediatric (geriatric) patients should be taken into account in developing standards and protocols for triage and transport of patients; in developing disaster plans; in training emergency care workers, to assure that they are competent and comfortable providing emergency care to children (seniors); and in conducting research to determine which treatments and strategies are most effective with children (seniors) in various emergency situations.⁹

KEY FINDINGS (ADAPTED IN PART FROM THE IOM¹⁰)

- Demographic changes in the U.S. population will worsen overcrowding. Based on demographic changes alone, older patients will increase from 15% to 25% of ED visits in the next 30 years.⁸ These patients take more time, require more testing, and are the most frequently admitted demographic group, both to the hospital and to the intensive care unit.⁵⁻⁸
- ED utilization in the 65 years and older age group is increasing more than in any other demographic group, with a 26% increase in visit rates from 1993 to 2003. This could result in an even greater proportion of older ED patients.¹¹
- Although older patients make up a substantial proportion of the emergency medical services (EMS) patient population, there is little training for EMS personnel in the unique needs of older patients.²
- Older patients, especially those with chronic conditions and disabilities, have an increased vulnerability to, and unique needs during, disasters. Disaster planning has largely overlooked the needs of older patients.
- Older patients are more susceptible to infectious diseases (both from biological terrorism and naturally occurring pathogens) and are more likely to die from these infections.
- Older patients have less physiologic reserve, making them more susceptible to natural disasters.
- Although special needs shelters may be available, they often require a caregiver to be present.¹² Consequently, these patients may turn to the already-overburdened ED in the event of a disaster, even without an acute illness or injury.¹³
- Few EDs address the unique needs of older patients, and many do not have the needed expertise, equipment, and policies in place to provide optimal care for these patients.
- Many drugs are contraindicated or require special dosing in elders. Older patients may be excluded from drug and device trials.

RECOMMENDATIONS (ADAPTED IN PART FROM THE IOM¹⁰)

- The emergency care system of the future should be one in which all participants fully coordinate their activities and integrate communications. This coordination and communication should be extended to nursing and rehabilitation facilities to improve the care of older patients. The federal government can directly affect this through the Centers for Medicare & Medicaid Services (CMS) regulations.
- CMS should explore alternatives to inpatient hospitalization, such as home hospitalization and direct admission to skilled nursing facilities for older patients, to reduce the demand for inpatient beds.
- Federal agencies should target additional research funding to out-of-hospital emergency care services, pediatric emergency care, and geriatric care.
- EMS education should include training in the unique needs of older patients.
- Geriatric concerns should be explicit in disaster planning.
- More research is needed to determine the appropriateness of many medical treatments, medications, and medical technologies for elders.

DISCUSSION

Demographics

The U.S. older adult population (persons aged 65 years and older) is growing rapidly. The older population expanded from 12.3 million to 35.0 million between 1950 and 2000.¹⁴ This growth resulted in an increase in the proportion of older persons from 8.1% to 12.4%. By 2030, this population is projected to double to more than 70 million individuals.⁸

The aging of the population poses a considerable challenge to the U.S. health care system. Older adults consume a disproportionate share of health care services in both ambulatory¹⁵ and hospital settings.¹⁶ One area of particularly heavy resource use is the ED.¹¹ Older adults accounted for almost 16 million visits to EDs in 2004, or 14% of all visits. Based on current population-based visit rates alone, by 2030, older adults will make approximately 35 million ED visits and comprise nearly 25% of all visits.⁸ However, there is little reason to believe that the population-based visit rates will remain static. From 1993 to 2003, the visit rate for patients 65 years and older increased by 26%, which exceeded all other age groups.¹¹ If the visit rate for older patients continues to increase at a similar rate, older patients could represent nearly one third of patients by 2030.⁸ Because older patients require more time and resources and are admitted more often to the hospital and intensive care unit,⁵⁻⁸ these demographic changes will have a profound effect on our presently overcrowded EDs.

The emergency care of older adults is accompanied by difficulties that are not experienced by physicians in other fields. Typically, each patient who enters the ED is a new patient to that emergency physician (EP). There is no preexisting relationship and often no knowledge of the patient’s medical history, medications, or social circumstances. With age comes disorders and diagnoses

that younger patients simply do not suffer, and common diagnoses often have atypical presentations in older adults. Medical diagnosis and management of such patients is complex and significantly different than in younger individuals. Symptoms are nonspecific, comorbidities are common, and response to therapy often is difficult to predict. Even the decision-making process as to when and how aggressively to intervene is different from thought processes used in younger patients. All of these factors will affect ED operations and overcrowding for the foreseeable future.

Out-of-hospital Care

In the United States, emergency medical technicians (EMTs) are commonly certified at one of two levels: EMT-basic or EMT-paramedic. Although EMS training varies by state and sometimes by region, in general EMT-basic level individuals receive 110 hours of training and are allowed to provide basic care such as cardiopulmonary resuscitation, splinting, and transporting patients. The National Standard Curriculum for EMT-basic training provided by the National Highway Traffic Safety Administration includes basic anatomy and physiology; airway management; basic treatment of medical, trauma, psychiatric, and obstetric emergencies; special considerations for pediatric patients; medicolegal issues; patient assessment; and EMS operations. Some of this content is applicable to the treatment of older adults. However, no component is explicitly dedicated to the older adult patient.¹⁷ Pediatric patients, in contrast, are estimated to represent just 4% of EMS patients but are a specific focus in the curriculum.¹¹

Paramedics receive more extensive education and are trained to provide advanced evaluations and interventions such as intubation, defibrillation, medication administration, and intravenous therapy. The National Highway Traffic Safety Administration has developed a National Standard Curriculum for paramedic training, but not all states have implemented it.¹⁸ This curriculum does include physiology across the life span and geriatrics. However, these two components are very small sections of the overall paramedic curriculum.¹⁸

This deficiency in training was recently recognized by the American Geriatrics Society and the National Council of State EMS Training Coordinators. As a result, an optional course, Geriatrics Education for EMS, was developed and is now available to interested EMS providers.¹⁹ This important attempt to improve the training for existing EMS providers does not ensure that all EMS providers have focused training to provide the best care possible to older adults. Findings from a recent unpublished national study by one of the authors (MNS) and a number of regional and local studies showing the large amount of medical care delivered by EMS to older adults suggest that the EMT course curriculum should better prepare EMS providers to care for the older adult population because they are a significant proportion of EMS patients.²⁰⁻²⁴

These same studies have found that the annual EMS use rate ranges between 100 and 167 per 1,000 older adults.²⁰⁻²⁴ This very high rate has important implications for EMS operations, particularly as the population continues to age. EMS administrators and public health

leaders will have to make plans for increases in EMS volumes to provide care to these patients. Plans for additional equipment and staff will have to be made. Additionally, EMS administrators and EMS medical directors may have to consider changes to their equipment and procedures to reflect the needs of older adult patients and to ensure that high-quality, safe care is provided to these patients.

Disaster Planning

Although older people are at increased risk and have unique needs in natural and man-made disasters, they are often not recognized as a vulnerable group during disaster planning and response. However, recent disasters are stark reminders of their vulnerability. Of the victims of Hurricane Katrina identified at the St. Gabriel and Carville morgues, 46% were 75 years or older and 70% were older than 60 years.²⁵ Similarly, following the 2004 Indian Ocean tsunami, there were more deaths in people older than 60 years than in any other age group.²⁶

Steps must be taken to ensure that those involved in disaster planning and response, including professionals from emergency medicine and public health, recognize the unique needs of the older population. Elders, especially those with disabilities or chronic medical conditions, have little functional reserve to respond to a disaster. Social isolation, impaired mobility, economic constraints, functional dependence, and the need for oxygen, nebulizers, dialysis, or other medical treatments affect the ability of older persons to cope with disasters ranging from power outages to hurricanes to terrorist attacks.^{13,25,26}

Regular shelters for victims of disasters are often unable to accommodate elders who are not functionally independent and healthy. Special needs shelters may be available for these patients, although these shelters often require patients to be accompanied by a caregiver.^{12,27} In the absence of designated special needs shelters, these patients often present to EDs even without acute medical emergencies and may be hospitalized if no other location for care is identified.¹³ However, the Federal Emergency Management Agency does not reimburse hospitals for providing shelter for those without a medical necessity for hospitalization,²⁸ and EDs and hospitals are likely to be functioning at or beyond capacity during a disaster.

Planning for Geriatric Patients: Training, Equipment, and Policies

The population and ED use changes we discuss suggest the ED of the future will undoubtedly have an ever-increasing geriatric focus. This will require special skills, resources, and abilities. The availability of EPs with adequate geriatric training is of clear benefit to older adults with emergent conditions. In addition, EPs represent an important safety net for the care of elders with urgent psychosocial problems, functional decline, and inadequate access to primary care. EDs see the full range of frailty and functional impairment ranging from older adults living independently to those transferred from assisted living and skilled nursing facilities.

At present, our country's EP workforce suffers from a serious limitation: practicing EPs have not received extensive training in the special health care needs of

older adults. This poor preparation to care for this growing population partially results from the fact that, similar to other specialties, emergency medicine only recently began to emphasize geriatrics training.^{29,30} Thus, there are many areas of urgent education needed to improve the emergency care of the nation's elders. Adams and Gerson addressed these issues in a recent editorial in this journal.³¹ They commented that

...It is worth noting that the current model of ED care was designed for the acutely ill and injured patient, not a medically complicated, slow-moving, functionally impaired geriatric patient. In fact, ED processes are usually inadequate and inhospitable for the older person. The rapid triage and care process is often unable to elicit a full understanding of the person to enable optimal care. The full breadth of medical conditions, a long list of medicines, communication challenges, and sometimes slowly evolving problems rather than clear and acute events all impair effective understanding of the patient's current need. The ambient environment, the noisy waiting room, the hard gurneys, the crowded department, the lack of pillows, the rushed history and physical examination, the harried caregivers, the separation from friends and family, and even the lack of effective information delivery systems all demonstrate a design that does not enable optimal care.

This is really no surprise when one considers that modern ED design still adheres to principles set forth by the Committee on Trauma of the American College of Surgeons in 1962.³² This design was proposed for "any person who considers himself ill or injured" and establishes the model floor plan still most commonly used today. A central nurses and physician station enables maximal visibility of care rooms that surround it. The emphasis was, and remains, on rapid treatment of emergent and urgent needs. It does not enable thorough assessment and evaluation of a person whose needs are complex and whose care process is slow-moving...When a medically complex older person with impaired memory, impaired mobility, and impaired social supports presents, the system slows and frustration ensues. If frustration is to be reduced and quality optimized, perhaps a new model of emergency care is required.³¹

Some EDs have evaluated different models for the delivery of emergency care to the older population. One hospital developed a unit staffed by geriatricians, while another used geriatric nurse practitioners in the ED.³¹ The geriatric nurse practitioners improve communication and coordination and assist with patient care, admissions, and discharge planning.³¹ The role of other professionals, such as physical therapists, pharmacists, social workers, and geriatric technicians (paraprofessional personnel who participate in care coordination, patient assistance and education, and discharge planning), in the ED care of elders should also be explored.

This focus on geriatric patients as a special population does not differ significantly from the attention we have

focused on other special populations such as trauma patients, pediatric patients, and urgent care patients. Similar to these special populations, planning for the optimal care of geriatric patients will require changes in the training of EPs, nurses, and ancillary staff; protocols, policies, and procedures; and the ED design and environment.³¹

Medications

Adverse drug events are not only common among older patients, but they often lead to additional health services utilization.³³⁻³⁵ They contribute to 7%–11% of all ED visits^{36,37} and 12% of hospital admissions among older adults.³⁸ Adverse drug events are also costly; drug-related events have an estimated annual cost of \$76.6 billion to the U.S. health care system.³⁹ Balanced against the potential for adverse events, drug therapy is among the most widely used and highly valued interventions for acute and chronic diseases of older adults.⁴⁰ Older adults, generally, have more comorbidities and receive a greater number of medications than younger persons.^{41,42} People aged 65 years and older account for 12.4% of the U.S. population⁴³; however, this group consumes more than 30% of all prescription drugs.⁴⁴ More than 90% of elders who present to the ED are already taking at least one medication,³⁶ and these older adults take four to eight medications on average.^{36,45,46} When released from the ED, 30%–50% are prescribed at least one new medication.⁴⁷⁻⁴⁹

There are additional items that EPs should consider when prescribing to older patients in the ED. These factors include 1) the changes in physiology that are associated with normal aging, 2) the potential risk of each medication specifically in the older adult population, and 3) other medications the patient is taking.⁵⁰

Coordination and Communication with Extended Care Facilities

Nearly 25% of nursing home residents are transported at least once each year to an ED.⁵¹ Nursing home residents, as a group, present to the ED with medical and surgical problems that differ from community-dwelling older adults.⁵² Two thirds of nursing home residents who present to the ED have cognitive impairment,⁵² which makes the collection of historical data more challenging. Both the nursing home and the ED perform tests, provide medications, and establish therapeutic plans that directly affect care at the other site.⁵³ Therefore, EDs and nursing homes both have a responsibility to share patient information. However, 10% of nursing home residents are transported to the ED without any written documentation, and important patient information is nevertheless usually missing in the 90% who arrive with paperwork.^{54,55} Nursing home personnel similarly report that residents often return from the ED without notification, written documentation, or recommendations for care.⁵⁶ From this information, we can draw four important conclusions: 1) nursing home residents present frequently to the ED; 2) they generally present for different reasons than other older adults; 3) providing emergency care to nursing home residents is usually accompanied by added challenges, such as difficulty in gathering historical data because of cognitive impairment; and 4) nursing home

residents are often transported without adequate interinstitutional communication.

In the 2003 American Geriatrics Society Health Care Systems Position Statement, transitional care was defined as “a set of actions designed to ensure the coordination and continuity of health care as patients transfer between different locations or different levels of care within the same location.”⁵⁷ However, similar to other health care settings, nursing homes and EDs provide care independently of one another, often providing patient care without the benefit of complete patient information, such as past medical history, current medications, services provided in the other setting, or medications prescribed in the other site of care.⁵⁸ Poorly executed transitions can needlessly increase the cost of care and lead to greater utilization of health care services.⁵⁹ Most importantly, ineffective transitions of care put the patient’s safety at great risk.⁵⁸

Alternatives to Hospitalization

The decision to admit or discharge home is made in the ED. A Cochrane review of “Hospital at Home” care as an alternative to inpatient management of common admitting diagnoses demonstrated a trend toward decreased mortality for stroke and chronic obstructive pulmonary disease.⁶⁰ Studies of “Hospital at Home” programs in the United States have demonstrated improved satisfaction, lower rates of depression, and lower rates of nursing home admissions, without a difference in functional status or mortality for a wide range of medical conditions including pneumonia, heart failure, cellulitis, chronic obstructive pulmonary disease, and uncomplicated ischemic stroke.^{61–63}

The CMS should support studies to assess alternatives to inpatient management of selected conditions in appropriate subsets of acutely ill older adults to assess optimal candidate selection, patient and caregiver satisfaction, cost-effectiveness, mortality, and functional outcomes. If a subset of these older adults can be reliably identified in whom traditional hospital care might be both equally efficacious and preferentially rendered at home, this may provide one solution to hospital and ED overcrowding.

In addition, CMS should consider modifying or eliminating the requirement for a three-day inpatient hospital stay to qualify for Medicare skilled nursing facility coverage. This requirement for coverage was created decades ago; since then, there have been substantial changes to inpatient, ED, and skilled nursing facility care. Patients who would have met this criterion years ago, such as nonoperative fractures with functional decline, could currently be directly admitted from the ED or observation unit to a skilled nursing facility, where rehabilitation could immediately begin. However, under the current system, there is no alternative to inpatient admission for the safe care of these patients.

Research

There has been a rapid increase in the number of articles that focus on the emergency care of elders. There has been a fourfold increase in publications indexed as aged and emergency between 1981 and 1985 and between 2001 and 2005. Nevertheless, the complex

problems of elders remain underresearched. The American Geriatrics Society recognized that research in emergency medicine and other surgical and surgically related specialties needed attention. The American Geriatrics Society Council on Surgery and Related Specialties, with assistance from the John A. Hartford Foundation (New York, NY), conducted a project to examine important research questions in each of ten specialties. The project identified 34 research questions for emergency medicine and trauma. The key questions centered on processes of care, diagnostic and therapeutic interventions, and invasive monitoring and aggressive treatment for blunt trauma.⁶⁴

CONCLUSIONS

The three recently published IOM reports on the future of emergency care highlight the growing concerns with the state of emergency medicine in the United States. However, these reports did not examine the impact of the aging population of the United States on emergency care in the future. The rapid growth of older persons in the United States will have a substantial impact on the already-overburdened emergency care system. Specific health and psychosocial needs unique to elders must be studied and considered in planning the emergency care system of the future.

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