**Chapter 57  
Approach to the geriatric patient**

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**Introduction**

The older adult (age ≥65 years) group is the fastest growing segment of the US population. In 2000, 40 million older adults lived in the United States and comprised 13% of the population. The Census Bureau estimates that this number will double by 2040 to 80 million, and older adults will then comprise 21% of the US population [1].

This large number of older adults and the rapid increase in their numbers will significantly affect prehospital physicians and providers. Assuming that use rates remain constant, EMS must prepare for a significant increase in the number of older adult patients requesting assistance, with approximately half of the EMS call volume being comprised of older patients by 2030. EMS leaders must ensure that the EMS system is prepared for this massive demographic change.

**Changes of normal aging**

The physiological changes of normal aging are important considerations in the approach to the geriatric patient. Aging itself is not a disease. Age should be viewed as a risk factor, but not sufficient in and of itself to cause disease. Aging produces a diminished physiological capacity; therefore, older adults may not have the same functional reserve in organ systems to recover from injury or illness. Even healthy and active older adults may need prolonged periods to recover from acute illness or trauma due to this reduced physiological capacity.

There are normal and predictable physiological changes that occur with normal aging ([Box 57.1](https://jigsaw.vitalsource.com/books/9781118990827/epub/OPS/c57.xhtml#c57-fea-0001)). The EMS medical director must consider these changes when developing protocols, and the EMS physician must be aware of these changes when caring for older patients in the field. For instance, as skin becomes thinner and less elastic with a reduction in subcutaneous fat, trauma patients can suffer skin tears, and pressure ulcers can form more easily when patients are on backboards. The EMS medical director must ensure that EMS providers understand these concepts. Otherwise, the providers may encounter difficulty while caring for their patients. For instance, there is a predictable reduction in pulmonary and cardiac function with older age. When an older adult is physiologically stressed, he or she will have reduced ability to compensate for changes in blood pressure or respiratory illness, leading to significant clinical consequences.

**Box 57.1 Common changes in normal aging**

* Skin is thinner and susceptible to trauma
* Greater difficulty in temperature regulation
* Risk of fractures from bone loss
* Reduced spine flexibility and loss of height
* Reduced cardiac and pulmonary reserve
* Reduced renal function and drug clearance
* Decline in hormone levels
* Reduced vision from cataracts
* Hearing loss from noise exposure

**Assessment of the geriatric patient**

For EMS professionals caring for the geriatric patient, the initial steps are unchanged. A primary survey should be completed, evaluating the patient’s ABCs. Vital signs should be obtained and considered while accounting for existing medical problems and medications. Any immediate interventions necessary should be completed. A full history should be taken, including the symptoms the patient has experienced, allergies, medications (including over-the-counter and herbal medications, and medications that the patient is not taking despite prescription), and past medical history. A full examination should be completed. Although not traditionally considered, an environmental assessment should also be completed because the environment can provide clues as to the extent of the disease or the precipitating factors for disease. Finally, a social history should be obtained because psychosocial issues could either be the primary reason for the request for assistance or could precipitate or exacerbate medical issues.

Communication with older patients is key in performing an effective assessment. A common error is to assume that an older patient is deaf, has dementia, or is otherwise unable to communicate or participate in medical evaluation or care. It is common for medical personnel to rely on family members of older patients to contribute collateral information regarding current illness or medical history. However, this often comes at the cost of speaking exclusively to others and entirely excluding the older patient. The general rule of thumb when caring for older patients is to always speak to the patient first and establish his or her level of understanding and participation. Use a strong, clear voice, but avoid shouting as this tends to distort words and makes it more difficult to understand. If hearing aids or eyeglasses are available and practical for the patient to use in the situation, these can make a dramatic difference in communication.

When obtaining the history, it is important to establish the baseline cognitive and physical functioning of the patient. If EMS is responding to a patient with reported “confusion” or “weakness,” does this patient have a history of dementia or physical limitations from a prior stroke or other condition? It is also relevant to consider the social context of the patient. Does he or she reside in an assisted living facility, nursing home, or his or her own home? This may influence the decision to transport a patient to the hospital if there are other caregivers available to be with the patient compared with one who lives alone without support. Family members and caregivers can also provide valuable information about the patient. A report by those present during a fall, episode of syncope, or witnessed seizure becomes a crucial element of the medical history, and it is important to communicate this information to subsequent emergency personnel.

The final area to consider is the presence of advance directives and communicating these treatment preferences and goals of care throughout the health system. Patient decisions regarding resuscitation, hospitalization, and appointment of health care agents (health care poxy or durable power of attorney for medical care) are relevant care directives for EMS personnel to quickly identify, honor, and transfer across care settings. Most states have standardized out-of-hospital “do not resuscitate” forms for patients which should be available for immediate review in a patient’s place of residence, whether it is a home or a long-term care facility. For patients with advanced chronic or life-threatening illness, these advance directive papers may be the most important tools in guiding subsequent decision making with regard to emergency care. See Volume 1, [Chapter 64](https://jigsaw.vitalsource.com/books/9781118990827/epub/OPS/c64.xhtml) for further information on this topic.

**Geriatric medical conditions**

**Cognitive impairment**

Cognitive impairment is a common condition among older adults and has been shown to increase as people age. Estimates show that up to 10% of non-institutionalized older adults, 13% of EMS patients, and approximately a quarter of older adult emergency department (ED) patients suffer from it [2]. Because cognitive impairment has been associated with significant morbidity and mortality, it is important to identify this condition, even in the EMS setting. A validated instrument to assess a patient’s cognitive function, particularly suited to EMS, is the Six-Item Screener ([Box 57.2](https://jigsaw.vitalsource.com/books/9781118990827/epub/OPS/c57.xhtml#c57-fea-0002)). This has been shown to have a sensitivity of 89% and specificity of 88% to identify cognitive impairment in a community sample and can be easily used by EMS professionals [3].

**Box 57.2 Six-Item Screener for cognitive impairment**

Ask the patient to repeat three words after you: apple, table, and penny. If not repeated correctly, the test cannot continue.

1. What year is this?
2. What month is this?
3. What is the day of the week?

What were the three objects I asked you to remember?

1. apple
2. table
3. penny

One point for each question answered correctly.

Three or more errors indicate possible dementia.

Source: Callahan CM. *Medical Care* 2002;40:771–81. Reproduced with permission from Lippincott Williams & Wilkins, Inc.

**Depression**

Depression is a common problem among older adults, with studies reporting that up to 20% of community-dwelling older adults suffer from depressed mood [4]. Depressive symptoms are a risk factor for increased use of medical services and for death and disability [5]. Thus, this could be a precipitating factor for repeated EMS use by a patient or deterioration of a patient’s medical condition. Due to this increased risk of morbidity and mortality, identification of depression is critical. However, estimates suggest that fewer than one half of depressed older adults receive the correct diagnosis or treatment [4,6]. A number of screening instruments exist for use in the outpatient setting with reasonable sensitivity and specificity to identify potential depression. The Patient Health Questionnaire-2, or PHQ-2, has been shown to be effective in identifying patients who may be depressed ([Box 57.3](https://jigsaw.vitalsource.com/books/9781118990827/epub/OPS/c57.xhtml#c57-fea-0003)). This tool can be easily used by EMS because it is short and has a simple scoring scheme and excellent sensitivity and specificity for major depressive disorder [7,8]. Recommendations can then be provided to the ED or primary care physician to ensure that the mood issues are considered.

**Box 57.3 The PHQ-2**

Ask the patient:

1. During the past 2 weeks have you often been bothered by little interest or pleasure in doing things?
   1. Not at all (0 points)
   2. Several days (1 point)
   3. More than half the days (2 points)
   4. Nearly every day (3 points)
2. During the past 2 weeks have you often been bothered by feeling down, depressed, or hopeless?
   1. Not at all (0 points)
   2. Several days (1 point)
   3. More than half the days (2 points)
   4. Nearly every day (3 points)

Scoring: Add the points from the two questions. A score greater than 2 indicates concern for major depressive disorder.

Source: Kroenke K. *Medical Care* 2003;41:1284–92. Reproduced with permission from Lippincott Williams & Wilkins, Inc.

**Falls**

Falls are a leading and preventable cause of morbidity, mortality, and loss of quality of life among community-dwelling older adults. Among older adults, 30% fall annually and 50% of them fall repeatedly [9]. Falls result in fear, functional deterioration, and even institutionalization. Up to 25% of those who fall suffer serious physical injuries including fractures, joint injuries, and intracranial injuries, and the remainder may suffer emotional consequences [10].

**Medications and drug toxicity**

A common problem in geriatric medicine is the phenomenon of “polypharmacy.” This problem stems from the fact that many older adults are on numerous medications, either due to their medical needs or because multiple medical providers have prescribed medications without full knowledge of the patient’s current medication list. The metabolism, distribution, elimination, and excretion of medications can be altered with aging. As patients take an increasing number of prescribed medications, the potential for adverse drug reactions and drug-to-drug interactions also increases. There are also inappropriate medications, particularly those with cardiovascular or anticholinergic side-effects, that can contribute significantly to cardiac or respiratory compromise, falls, urinary problems, delirium, hospitalizations, and even death. Older patients presenting to EMS and the ED are often taking many of these potentially inappropriate medications [11].

Patients may not report medication lists accurately, so it is important for EMS personnel to observe the environment for medications and to consider prescription, over-the-counter, herbal, and dietary supplement use. It often is helpful to ask the patient and family members or caregivers about other medical providers prescribing medications. For example, an older patient may consider medications prescribed by a cardiologist to be different from those prescribed by the primary care physician. A patient with cognitive difficulties may find it challenging to remember when and how to take prescribed medications, especially if he or she has multiple prescriptions. This cognitive impairment places older patients at risk for errors in taking medications and increases the chance for unintentional overdose. EMS physicians and personnel should look for pill-taking strategies and reminders in the patient’s home, including pill boxes, calendars, and prescription bottles. An empty (or full) prescription bottle may sometimes be the only clue as to the patient’s actual medication use at home.

**Altered mental status**

Altered mental status refers to a disturbance in consciousness and a change in the behavior of a patient. In geriatric medicine, this acute change in mental status is often referred to as “delirium.” Delirium usually occurs over a relatively short period of time and is marked by a reduced ability to focus, a change in cognition, and a fluctuation throughout the course of a day. Patients with delirium tend to have poor attention, are often disoriented, and have altered levels of consciousness ranging from alert, or even hypervigilant, to profound lethargy [12]. Older patients may be at risk for developing delirium simply because of their acute illnesses. Patients with dementia, cancer (especially brain tumors), stroke, renal or hepatic disease, and metabolic disturbances are at highest risk for developing delirium. A common condition such as pneumonia or a urinary tract infection is sometimes enough to precipitate an older patient’s decline in mental status with the development of acute confusion and altered behavior. Medication side-effects, drug toxicity, and overdosage of medications can also be precipitants of delirium.

A careful history from the patient or family caregivers is important in establishing if newly observed behavioral and cognitive symptoms are a change from a person’s baseline function, especially in cases with preexisting cognitive impairment or dementia. A recent history of an unwitnessed fall may raise the clinical suspicion for head trauma and resultant traumatic brain injury or even the development of an intracranial hemorrhage (subdural hematoma) which sometimes can manifest several days after the traumatic event. A focused neurological assessment is critical in establishing the urgency of new symptoms and communicating findings to hospital personnel for further evaluation.

**Cardiac arrest**

Approximately one half of EMS patients suffering from cardiac arrest are older adults. The overall survival rate for all patients suffering cardiac arrest is poor, with most studies reporting fewer than 10% of patients surviving to discharge home [13]. One challenge for field personnel is determining which patients suffering cardiac arrest should be transported to an ED and which should have interventions terminated in the field. Traditionally, EMS professionals have depended on direct medical oversight communication to terminate resuscitation efforts. However, Morrison et al. have found that for BLS systems, a patient who suffers a cardiac arrest not witnessed by EMS, does not receive a shock from an automated external defibrillator during resuscitation, and fails to have return of spontaneous circulation in the field can have the resuscitation appropriately terminated in the field (positive predictive value 99.5%). Applying these criteria to patients receiving ALS care has been reported to be 100% predictive by the same group [14]. These criteria should be considered but must be weighed against psychosocial issues related to leaving the newly deceased in the home or another setting and related to each family’s response to the death. These criteria should also be weighed against local system issues related to handling of the body. Local EMS protocols should address all of these issues.

### Trauma

The Guidelines for the Field Triage of Injured Patients, developed by the Centers for Disease Control and Prevention, guide EMS personnel in their trauma triage decisions and determining the receiving hospital to which an injured patient should be transported. The goal of the Guidelines is to minimize undertriage (patients who need the resources of a trauma center but are taken elsewhere) without excessive overtriage. Despite these formal guidelines, numerous studies suggest that older adults are less likely to receive trauma center care than younger adults with similar injury severity [15–17].

This variation in care may occur because the Guidelines are not age specific. No age-specific cut-offs for anatomical or physiological parameters exist, despite older adults having different physiological responses to injury and significantly worse outcomes than younger adults from minor injuries [18,19]. Additionally, the Guidelines poorly consider preexisting medical conditions and the use of multiple medications, both of which can affect response to injury and lead to worse outcomes.

The most recent revision of the Guidelines recognizes this and includes an expanded section on geriatric patients under Step Four, the “Special Considerations” section. Age >55 is a “special consideration,” meaning EMS providers should consider transporting those patients to trauma centers. However, age as a “special consideration” is subjective and does not *require* transport to a trauma center. Ultimately, the considerations rely on the ability of EMS personnel to recognize serious injury in older adults with limited testing and time, which studies suggest may be inadequate and result in undertriage [15,17,20].

Since time to definitive care is considered important in trauma care, EMS medical directors must focus their attention on destination decisions for older adults trauma patients to ensure that EMS providers can appropriately transport these patients to the correct destination.

## Social emergencies

Social issues can be the primary reason for which EMS was requested or may be an important precipitating issue that led to the need for EMS assistance. EMS physicians and medical directors must be sensitive to these issues. Efforts must be made to recognize and address them when caring for older adults. Gaps in social support, caregiver crisis, or evolving family conflicts could all be major underlying reasons for an older adult’s acute decompensation in health status or the reason behind requesting EMS. Addressing social issues may require system changes to truly integrate EMS into the health care system, including collaboration with social service agencies, primary care physicians, and others.

### Medication and alcohol abuse

Substance abuse is actually quite common among older adults, with over 17% of adults aged 60 and older misusing alcohol or prescription drugs [21]. This can result in frequent ED visits, as well as an increased risk for falls and hip fractures. Because older adult medication abusers tend to be more socially isolated and less public regarding their addiction and related problems, EMS professionals may be the first to truly identify the problem when they enter the home.

### Elder abuse and maltreatment

Unlike child abuse, elder abuse and mistreatment have not received much public attention. They are common, with studies reporting that 1–2 million older adults have been injured, exploited, or mistreated [22]. Elder mistreatment includes financial, psychological, physical, and sexual abuse. EMS professionals need training on the risk factors for mistreatment and ways to identify potential abuse. A number of risk factors for elder abuse have been examined and the literature is somewhat inconsistent. Risk factors that have been validated include social isolation of the older adult, dementia, and a shared living arrangement with the abuser. Characteristics of the abuser that have been identified include mental illness, alcohol abuse, and dependency on the older adult [23]. Each EMS agency should have an established protocol for reporting suspected cases of abuse, particularly if EMS providers are mandated reporters by state law.

### Caregiver distress

A third social emergency is sometimes identified by the EMS professionals: caregiver distress and burnout. Family members and friends may provide the majority of care for older adults with medical, psychological, or behavioral problems. Over time, this can be exhausting and lead to significant stress for families without sufficient social supports or opportunities for periods of respite. As such, when a request for assistance for elderly patients is made, EMS professionals should pay attention to the family members as much as the primary patient. If the primary caregiver seems to be stressed, overwhelmed, or unable to manage the patient, then he or she may also be in need of assistance. A caregiver may also feel a personal sense of failure if a loved one becomes ill under his or her care, adding to the perceived burden, and the caregiver may be seeking reassurance and support. The EMS professional can help address caregiver needs by reporting information to the ED providers, calling family or friends to provide further support, and by being a calm and professional presence during the care of the patient.

## Special considerations

There are a number of special considerations that EMS leaders must acknowledge and address in their systems. EMS professionals may need special equipment to care for older adults. Padding at the upper back is needed to properly stabilize and transport older adults with kyphosis. Padded backboards are needed to prevent the rapid development of decubitus ulcers. Protocols that minimize the use of backboards should be considered. Proper temperature control mechanisms and blankets are needed to prevent hypothermia or hyperthermia. Electronic medical records, preferably integrated through a regional health information organization, would be of particular benefit because older adults tend to have a number of comorbidities and medications, and having these data readily available can result in improved care.

The medical and social condition of an older adult who refuses transport to a hospital needs to be considered carefully before allowing him or her to “sign off.” Research has shown that approximately half of older adults cared for by EMS and transported to the ED are admitted to the hospital, and also that older adults experience a decline in functional status after ED visits [24]. Therefore, older adults are a high-risk group and EMS providers should not merely accept the refusal of care, but should instead work to convince the patient to accept transport so he or she can benefit from care in the ED. Potential options to convince a patient to accept transport may include speaking to a medical oversight physician or the patient’s primary care physician, or involving family. If the patient persists in refusing, EMS should consider notifying the patient’s primary care physician to ensure that careful follow-up occurs. An EMS physician on scene may be able to convince a patient to accept treatment and transport.

## Nursing homes and assisted living facilities

Long-term care facilities encompass a spectrum of services and housing options that are designed to address many of the needs of an older adult population. These facilities may include group homes, senior apartments, assisted living facilities, and nursing homes. Nursing homes remain key providers for the frailest older adults: those with complex care needs, high levels of functional dependence, advanced dementia, and those without sufficient social or financial supports to meet their needs at home.

Emergency medical services are often called to evaluate and transport residents of long-term care facilities to and from the hospital. Most commonly, the resident has experienced an acute illness, sustained traumatic injury following a fall, or exhibited a change in behavior. The transfer of appropriate information between these facilities and the hospital is often inadequate and has been recognized as a vital component in ensuring proper continuity of care for these patients [25]. Assisted living facilities and other senior housing centers are much more varied in the level of documentation available for their residents. It is of value for each EMS agency to collaborate with long-term care facilities in the community to improve access to information and ensure that copies of relevant documentation are readily available when patients are transported to and from the hospital.

## Public health

Although the EMS system was originally developed primarily to care for patients with acute injuries and illnesses [26], it is being increasingly recognized that EMS personnel can fulfill an important public health role, including preventing injuries and illnesses and helping patients maintain physical, social, and emotional function. This public health role is being called “community paramedicine.” Surveys of EMS providers have indicated that they believe that prevention is a core mission of EMS systems and should be implemented [27]. Work has shown that EMS personnel can successfully screen older adults and perform other public health roles [28,29]. However, the ideal structure, effectiveness, and cost-effectiveness of the screening programs and associated intervention programs still need to be evaluated.

One obstacle to EMS personnel involvement in public health activities is the fragmentation of the US health care system. This prevents EMS personnel from confirming public health needs and ensuring that interventions are provided. Furthermore, the financial fragmentation prevents EMS organization from realizing financial benefits from community paramedicine programs. EMS system leaders and medical directors are encouraged to work with the local medical and social service community to better integrate public health and medical care activities of the EMS system into the health care system, improve communications, and ensure patients receive the highest quality and safest care possible.

## Conclusion

Geriatric patients require a thoughtful and focused approach when they are experiencing acute illness or injury. Their chronic medical conditions, functional impairments, and social settings make the older adult population among the most complex that EMS providers may encounter. At the same time, the data gathered in the home setting, treatment interventions, and transfer of information to other providers can have a profound effect on the quality of health care for the most vulnerable of geriatric patients.

**References**

1. Howden LM, Meyer JA. *Age and Sex Composition*: 2010. Available at: [www.census.gov/prod/cen2010/briefs/c2010br-03.pdf](http://www.census.gov/prod/cen2010/briefs/c2010br-03.pdf)
2. Shah MN, Jones CMC, Richardson TM, et al. Prevalence of depression and cognitive impairment in older adult emergency medical services patients. *Prehosp Emerg Care* 2011;15:4–11.
3. Callahan CM, Unverzagt FW, Hui SL, et al. Six-item screener to identify cognitive impairment among potential subjects for clinical research. *Med Care* 2002;40:771–81.
4. Beekman AT, Copeland JR, Prince MJ. Review of community prevalence of depression in later life. *Br J Psychiatry* 1999;174:307–11.
5. Penninx BW, Guralnik JM, Ferrucci L, et al. Depressive symptoms and physical decline in community-dwelling older persons. *JAMA* 1998;279:1720–6.
6. Claassen CA, Larkin GL. Occult suicidality in an emergency department population. *Br J Psych* 2005;186:352–3.
7. Depression Management Tool Kit, Accessed November 1, 2005. Available at: [www.depressionprimarycare.org](http://www.depressionprimarycare.org/)
8. Kroenke K, Spitzer RL, Williams JBW. The Patient Health Questionnaire – 2. Validity of a two-item depression screener. *Med Care* 2003;41:1284–92.
9. Tinetti ME, Speechley M, Ginter SF. Risk factors for falls among elderly persons living in the community. *N Engl J Med* 1988;319:1701–07.
10. Tinetti ME, Williams CS. Falls, injuries due to falls, and the risk of admission to a nursing home. *N Engl J Med* 1997;337:1279–84.
11. Hustey FM, Wallis N, Miller J. Inappropriate prescribing in an older ED population. *Am J Emerg Med* 2007;25:804–7.
12. Inouye SK. Delirium in older persons. *N Engl J Med* 2006;354:1157–65.
13. Hostler D, Thomas EG, Emerson SS, et al. Increased survival after EMS witnessed cardiac arrest. Observations from the Resuscitation Outcomes Consortium (ROC) epistry-cardiac arrest. *Resuscitation* 2010;81:826–30.
14. Morrison LJ, Verbeek PR, Zhan C, et al. Validation of a universal termination of resuscitation clinical prediction rule for advanced and basic life support providers. *Resuscitation* 2009;80(3):324–28.
15. Lane P, Sorondo B, Kelly JJ. Geriatric trauma patients – are they receiving trauma center care? *Acad Emerg Med* 2003;10:244–50.
16. Chang DC, Bass RR, Cornwell EE, et al. Undertriage of elderly trauma patients to state-designated trauma centers. *Arch Surg* 2008;143:776–82.
17. Ma MH, MacKenzie EJ, Alcorta R, et al. Compliance with prehospital triage protocols for major trauma patients. *J Trauma* 1999;46:168–75.
18. Helling TS, Watkins M, Evans LL, et al. Low falls: an underappreciated mechanism of injury. *J Trauma* 1999;46:453–6.
19. Spaniolas K, Cheng JD, Gestring, ML, et al. Ground level falls are associated with significant mortality in elderly patients. *J Trauma* 2010;69:821–25.
20. Newgard CD, Nelson MJ, Kampp M, et al. Out-of-hospital decision making and factors influencing the regional distribution of injured patients in a trauma system. *J Trauma* 2011;70:1345–53.
21. Substance Abuse and Mental Health Services Administration. Available at: [www.oas.samhsa.gov](http://www.oas.samhsa.gov/)
22. Pillemer K, Finkelhor D. The prevalence of elder abuse: a random sample survey. *Gerontologist* 1988;28:51–7.
23. Lachs MS Berkman L, Fulmer T, et al. A prospective community based pilot study of risk factors for the investigation of elder mistreatment. *J Am Geriatr Soc* 1994;42:169–73.
24. Chin MH, Jin L, Karrison TG, et al. Older patients’ health-related quality of life around an episode of emergency illness. *Ann Emerg Med* 1999;34:595–603.
25. Terrell KM, Miller DK. Challenges in transitional care between nursing homes and emergency departments. *J Am Med Dir Assoc* 2006;7:499–505.
26. Shah MN. The formation of the emergency medical services system. *Am J Public Health* 2006;96:414–23.
27. Lerner EB, Shah MN, Fernandez AR. Do EMS providers think they should participate in disease prevention? *Prehosp Emerg Care* 2008;12:108–9.
28. Mosesso VN, Packer CR, McMahon J, et al. Influenza immunizations provided by EMS agencies: the Medivax project. *Prehosp Emerg Care* 2003;7:74–8.
29. Shah MN, Caprio TV, Swanson P, et al. A novel emergency medical services based program to identify and assist older adults in a rural community. *J Am Geriatr Soc* 2010;58:2205–11.