

# Older Patients in the Emergency Department: A Review

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Older patients account for up to a quarter of all emergency department (ED) visits. Atypical clinical presentation of illness, a high prevalence of cognitive disorders, and the presence of multiple comorbidities complicate their evaluation and management. Increased frailty, delayed diagnosis, and greater illness severity contribute to a higher risk of adverse outcomes. This article will review the most common conditions encountered in older patients, including delirium, dementia, falls, and polypharmacy, and suggest simple and efficient strategies for their evaluation and management. It will discuss age-related changes in the signs and symptoms of acute coronary events, abdominal pain, and infection, examine the yield of different diagnostic approaches in this population, and list the underlying medical problems present in half of all "social" admission cases. Complete geriatric assessments are time consuming and beyond the scope of most EDs. We propose a strategy based on the targeting of high-risk patients and provide examples of simple and efficient tools that are appropriate for ED use. [Ann Emerg Med. 2010;56:261-269.]

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## INTRODUCTION

Older patients represent an ever-increasing population in emergency medicine.<sup>1</sup> Such patients often present with atypical signs and symptoms and multiple comorbidities that complicate diagnosis and treatment.<sup>2</sup> They are at increased risk of emergency department (ED) return visits, hospitalization, and death.<sup>2</sup> Furthermore, outcomes may be related in part to issues such as functional status,<sup>2-4</sup> comorbidity score,<sup>2,5</sup> age,<sup>2</sup> social supports,<sup>2,3</sup> polypharmacy,<sup>2</sup> cognitive impairment,<sup>2</sup> and depression.<sup>2,3</sup>

Most emergency physicians have not been trained in specific geriatric approaches, and many report being less comfortable when dealing with older patients.<sup>6</sup>

This article reviews the most common conditions affecting older patients in the ED, points out the main pitfalls and difficulties that may be encountered, and provides a brief description of appropriate instruments that can be easily used in the ED setting to assess older individuals and target high-risk patients for referral to a specialized physician or ward.

## EPIDEMIOLOGY

Overall, older people account for 12% to 24% of all ED visits<sup>7-11</sup> (Table 1). They visit the ED more frequently than younger adults (during 2006, the annual ED visit rate was of 49/100 persons older than 65 years and 60/100 persons older than 75 compared with an overall rate of 41/100 persons in the United States<sup>12</sup>). ED visits of patients aged 65 to 74 years increased by 34% between 1993 and 2003.<sup>13</sup>

Older patients present with a higher level of emergency<sup>12,14</sup> and more serious medical illness.<sup>15,16</sup> They arrive more often by ambulance<sup>12,14-16</sup> and have higher rates of test use and longer

ED stays.<sup>15</sup> They have a 2.5 to 4.6 times higher risk for hospitalization<sup>2</sup> and a 5-fold higher admission rate to an ICU.<sup>17</sup> They are also more likely to be misdiagnosed and, consequently, are more frequently discharged with unrecognized and untreated health problems.<sup>2</sup>

## CONDITIONS FREQUENTLY ENCOUNTERED

### Neuropsychiatric Disorders

Impaired mental status occurs in approximately one quarter of all older patients presenting to the ED as a result of delirium, dementia, or both.<sup>18,19</sup> The Geriatric Emergency Medicine Task Force recommends a mental status assessment for all older patients in the ED.<sup>20</sup>

Delirium is by definition a result of an underlying condition, potentially severe and important to recognize quickly.<sup>18,21</sup> It occurs in 7% to 10% of this population<sup>18,19,21,22</sup> and is associated with increased mortality<sup>18,23</sup> and higher risk of admission to the hospital.<sup>22</sup> Fifty percent of patients with delirium in the ED also have an underlying dementia;<sup>23</sup> thus, distinguishing the 2 pathologies may be complicated. Table 2 summarizes the principal characteristics and differences between the 2 entities. Studies show that delirium in the ED is recognized with a high specificity (98% to 100%) but a fairly low sensitivity (16% to 35%).<sup>19,22</sup> The Confusion Assessment Method<sup>24</sup> (Figure 1) is quick and easy to use and has a high specificity (100%) and sensitivity (86%) for the diagnosis of delirium.<sup>25</sup> This simple tool has been validated in acute settings and could greatly improve the detection of delirium in the ED.

Once delirium has been excluded, patients can be screened for the presence of the chronic cognitive deficits observed in dementia, a condition that affects medication compliance and adherence to

**Table 1.** Percentage of ED visits concerning older patients (on the total number of ED visits).

Study	Age Limits, Years	Year of Publication	Percentage	Country
Roussel-Laudrin et al <sup>7</sup>	>75	2002	12-14	France
Hu et al <sup>8</sup>	>65	1999	24	Taiwan
Lim and Yap <sup>11</sup>	>60	1999	12.4	Singapore
Wofford et al <sup>9</sup>	>65	1996	19.6	United States
Strange et al <sup>10</sup>	>65	1992	15	United States

**Table 2.** Differential diagnosis between dementia and delirium.

	Dementia	Delirium
Onset	Progressive	Acute (associated with acute disease, drug modifications, changes in the patient's environment, etc)
Moment of onset	Uncertain, hard to identify	Usually precise, easy to identify
Progression	Slow chronic decline (years)	Condition fluctuates and is reversible
Duration	Long (years)	Short (hours to weeks)
Vigilance	Normal	Altered, varies between states of hyper- and hypovigilance
Orientation	Space and time orientation disorders present in late stages of the disease	Disorders present early and may fluctuate

1. Is there evidence of an acute change in mental status from the patient's baseline?
- 2a. Did the patient have difficulty focusing attention, for example, being easily distractible, or having difficulty keeping track of what was being said?
- 2b. Did the behavior fluctuate during the interview, that is, tend to come and go, or increase and decrease in severity?
3. Was the patient's thinking disorganized or incoherent, such as rambling or irrelevant conversation, unclear or illogical flow of ideas, or unpredictable switching from subject to subject?
4. Overall, how would you rate this patient's level of consciousness?
  - alert (normal)
  - vigilant (hyperalert)
  - lethargic (drowsy, easily aroused)
  - stupor (difficult to arouse)
  - coma (unarousable)
 (feature shown by any answer other than "alert")

**Figure 1.** Confusion Assessment Method: The diagnosis of delirium by the Confusion Assessment Method requires the presence of features 1 and 2 and either 3 or 4; adapted from Inouye et al.<sup>24</sup> Reproduced from *Ann Intern Med.*, Inouye et al, Clarifying confusion: the confusion assessment method: a new method for detection of delirium, 1990, with permission from the American College of Physicians.

discharge instructions<sup>18</sup> and increases the risk of repeated ED visits.<sup>4</sup> Complete diagnosis of such disorders relies on long and time-consuming neuropsychological evaluations, which are beyond

**Table 3.** Six-Item Screener.

Reproduced from *Med Care*, Callahan et al, Six-item screener to identify cognitive impairment among potential subjects for clinical research, 2002, with permission from Wolters Kluwer Health. The interviewer says the following: I would like to ask you some questions that ask you to use your memory. I am going to name 3 objects. Please wait until I say all 3 words and then repeat them. Remember what they are because I am going to ask you to name them again in a few minutes. Please repeat these words for me: apple, table, penny. (Interviewer may repeat names 3 times if necessary, but repetition is not scored.)

Did patient correctly repeat all 3 words?	Yes	No
<b>Item</b>	Incorrect	Correct
What year is this?		
What month is this?		
What is the day of the week?		
<b>What are the 3 objects I asked you to remember?</b>		
Apple		
Table		
Penny		

A score less than or equal to 4 (each correct answer counts as 1 point) corresponds to a positive screen for cognitive impairment<sup>20</sup>; adapted from Callahan et al.<sup>26</sup>

the scope of any ED. The Six Item Screener<sup>26</sup> (Table 3) is short and easy to use and detects cognitive impairment with a sensitivity of 94% and a specificity of 86% in the ED context.<sup>20</sup>

Depression may be present in up to one third of older ED patients.<sup>27-29</sup> It may interfere with the clinical presentation of acute medical disorders<sup>27,29</sup> and results in a greater number of ED visits.<sup>29</sup> The ED-DSI (Table 4) is appropriate for the detection of depression in the ED because it is brief (3

**Table 4.** ED depression screening instrument.

Question	Response	
1. Do you often feel sad or depressed?	Yes	No
2. Do you often feel helpless?	Yes	No
3. Do you often feel downhearted and blue?	Yes	No

At least one positive response corresponds to a positive screening result for depression; adapted from Fabacher et al.<sup>30</sup> Reproduced from *The American Journal of Emergency Medicine*, Fabacher et al, Validation of a brief screening tool to detect depression in elderly ED patients, 2001, with permission from Elsevier.

- |          |   |
|----------|---|
| <b>C</b> | Caregiver and housing (information on the circumstances of present fall and falls history)                      |
| <b>A</b> | Alcohol (including withdrawal)  |
| <b>T</b> | Treatment (medications, recently added or stopped, compliance)  |
| <b>A</b> | Affect (depression or lack of initiative)   |
| <b>S</b> | Syncope (any episodes of fainting)  |
| <b>T</b> | Teetering (dizziness)   |
| <b>R</b> | Recent illness  |
| <b>O</b> | Ocular problems   |
| <b>P</b> | Pain with mobility (as the reason for falls in chronic joint pain or as the result and proof of repeated falls) |
| <b>H</b> | Hearing (necessary to avoid hazards)  |
| <b>E</b> | Environmental hazards (rags, steps, etc)  |

**Figure 2.** A mnemonic for important elements to consider when retracing the history and analyzing the differential diagnosis of an older patient's fall; adapted from Sloan.<sup>32</sup> Reproduced from *Protocols in Primary Care Geriatrics*, Sloan JP, 1997, with permission from Springer.

questions) and has a sensitivity of 79% and a specificity of 66% compared with the longer Geriatric Depression Scale.<sup>30</sup>

### Falls

Falls are the main cause of ED admissions for elderly patients (15% to 30%).<sup>7,31</sup> A targeted interview of the patient and the caregiver on previous falls, as well as location, activity, and symptoms preceding the actual fall, assisted by the mnemonic "CATASTROPHE"<sup>32</sup> (Figure 2), may help to distinguish between an isolated episode and a fall as a result of an underlying pathology or general frailty. Twenty percent of elderly patients with cardiovascular syncope present with a complaint of unexplained falls, whereas older patients with carotid sinus syndrome or documented orthostatic hypotension and documented falls may not recall loss of consciousness before falling.<sup>33</sup> Falls may also be the chief symptom of other pathologies such as acute myocardial infarction, sepsis, medication toxicity, acute abdominal pathology, and elder abuse.<sup>34</sup> Inability to recollect the falls' circumstances, fall recurrence, impossibility to get up after a fall (also a risk factor for health decline, hospitalization, and death<sup>35</sup>) and inability to

arise from the hospital bed and walk should incite emergency physicians to admit the older patient for further assessment.

Four percent to 6% of falls result to fractures,<sup>34,35</sup> hip fractures accounting for 1% to 2% of them.<sup>34</sup> Two percent to 10% of falls produce other major injuries requiring hospitalization or immobilization.<sup>34</sup> Hip fractures are more frequently missed on radiographs in this population, and admission for further investigations should be considered when hip pain is present.<sup>36</sup> Vertebral fractures are also common, and elderly patients with back pain should undergo radiographic control.<sup>37</sup> The presence of coexisting medical illness makes this group vulnerable to complications, and the premature mortality after hip (25% at 1 year<sup>38</sup>) and vertebral fractures is now well recognized.<sup>38-41</sup> Finally, pelvic fractures in elderly patients carry a higher risk of bleeding and need for angiography,<sup>42</sup> as well as high inhospital mortality (12% versus 2% for younger patients<sup>43</sup>).

Age-related physiologic changes such as lower elasticity and higher fragility of vessels, modified mechanical properties of bridging veins, and stress placed on venous structures as a result of cerebral atrophy increase the brain's vulnerability to injury. The increase in space between the brain and skull permits the expansion of intracranial content, with fewer symptoms.<sup>44</sup> Even trivial injury mechanisms such as falls from standing could result in serious intracranial injury with an atypical presentation.<sup>45</sup> Thus, chronic subdural hematoma may be present for weeks or months before symptoms appear and motivate an ED visit, whereas the initial head trauma may be so trivial that it is not recalled in 30% to 50% of cases. Various degrees of altered mental state, focal neurologic deficits, headache, and falls are some of its possible presentations.<sup>46</sup> Acute subdural hematoma, on the other hand, is mostly encountered in younger patients after severe trauma and presents with initial coma in 40% to 80% of cases.<sup>47</sup> No validated guidelines exist for older patients with blunt brain trauma. High suspicion index, prolonged observation, and a more frequent use of brain imaging is a reasonable approach for these patients.<sup>45</sup>

### Coronary Disease

Age is a well-known risk factor for coronary artery disease, with 30% of acute myocardial infarction occurring in patients older than 75 years<sup>48</sup> and more than 60% of patients hospitalized for unstable angina being older than 65 years.<sup>49</sup> In the ED, approximately 20% of older patients have dyspnea or chest pain as principal complaints.<sup>7,31</sup> Coronary disease mortality is also high,<sup>50,51</sup> with 80% of deaths caused by ischemic heart disease occurring in patients older than 60 years.<sup>52</sup>

According to the American Heart Association, "because of the high prevalence of atypical features and associated worse outcomes in the elderly, a high index of suspicion for acute coronary disease is advisable."<sup>50</sup> Acute myocardial infarction presentation in older patients is frequently atypical, presenting as shortness of breath, syncope, nausea and vomiting,<sup>50,52</sup> and

falls.<sup>34</sup> Only 40% of patients older than 85 years and with non-ST-elevation myocardial infarction (STEMI)<sup>50</sup> and 57% with STEMI<sup>51</sup> have chest pain as their main complaint compared with 77% non-STEMI<sup>50</sup> and 90% STEMI<sup>51</sup> patients younger than 65 years. Moreover, ECG is nondiagnostic in 43% of patients older than 85 years and with non-STEMI compared with only 23% of patients younger than 65 years.<sup>50</sup> Additionally, left bundle branch block on ECG is present in 34% of patients older than 85 years and with STEMI compared with only 5% of those younger than 65 years,<sup>51</sup> making diagnosis harder. Because ECG abnormalities are relatively common at an advanced age, it is particularly important to obtain old ECG results whenever possible so that findings in the ED can be compared with previous changes and interpreted accordingly.

The likelihood for treatment with aspirin and  $\beta$ -blockers decreases by 15% and 21%, respectively, for every 10 years of increasing age after aged 65 years. Patients older than 80 years are also less likely to receive thrombolytics than younger patients.<sup>53</sup> Atypical presentation, diagnostic difficulties, and a less clear benefit/risk ratio<sup>50,51</sup> certainly have a role. Nevertheless, a recent study showed that the main factor related to a lower use of recommended medical and interventional therapies in older patients is age itself.<sup>54</sup> Treatment decisions should rely more on a thorough evaluation of comorbidities, functional status, and quality of life.<sup>50</sup> Unfortunately, there is a lack of data on outcomes of acute coronary events treatment according to the older patient's functional status.

### Polypharmacy and Adverse Drug Effects

Adverse drug effects lead to 11% of ED visits in patients older than 65 years versus 1% to 4% in the general population.<sup>55</sup> Higher numbers of medications and age-related modifications in pharmacokinetics and pharmacodynamics participate in the higher rates of adverse drug effects.<sup>55</sup> Older patients admitted to the ED receive an average of 4.2 medications per day (ranging from 0 to 17 medications), with 91% receiving at least 1 and 13% receiving 8 or more.<sup>55</sup> On presentation, 11% of these patients receive at least 1 inappropriate medication,<sup>56</sup> according to the Beers criteria.<sup>57</sup>

Emergency physicians must be acutely aware of the particularities of drugs prescription in older individuals. Unfortunately, no validated screening method exists, and obtaining an accurate list of drugs is frequently difficult. A recent study based on the National Electronic Injury Surveillance System–Cooperative Adverse Drug Event Surveillance system showed that 3 medication classes caused 48% of all ED visits for adverse drug effects in patients older than 65 years: oral anticoagulant or antiplatelet agents (warfarin, aspirin, and clopidogrel), antidiabetic agents (insulin, metformin, glyburide, and glipizide), and agents with a narrow therapeutic index (digoxin and phenytoin). Most frequently implicated medications from these classes, accounting for one third of adverse-effect-induced ED visits, were warfarin, insulin, and digoxin.<sup>58</sup>

A heightened awareness of this issue and systematic screening for use of the above medications should lead to better detection of adverse drug events in the ED. Communicating with the patient's primary physician is also crucial.

### Alcohol and Substance Abuse

Alcohol disorders are present in 5% to 14% of older patients in the ED,<sup>59,60</sup> depending on the criteria used. In a French study, the most frequent alcohol-induced disorders were alcohol intoxication (36%), alcohol withdrawal or intoxication-related delirium (21%), and alcohol-induced mood disorders (15%).<sup>61</sup> Compared with that for alcohol abuse, few data exist on substance abuse. Illicit drugs use is rare in this population but widely recognized as a growing problem.<sup>62,63</sup> Substance abuse by older patients is more often related to prescription drugs such as benzodiazepines, sedative-hypnotics, and opioid analgesics.<sup>62</sup> A study that used saliva tests for alcohol and urine test to detect drug consumption found that undeclared substance abuse was strongly related to an age older than 65 years and mainly involved opioids, benzodiazepines, and stimulants.<sup>64</sup>

Only 21% of elderly current alcohol abusers are detected in the ED.<sup>60</sup> Some screening questionnaires specific for older patients have been developed such as the Michigan Alcoholism Screening Test Geriatric Version.<sup>65</sup> Many physicians use existing screening tools such as the CAGE.<sup>66</sup> Nevertheless, some authors have questioned their usefulness in older age groups.<sup>67-70</sup> To our knowledge, no validated screening instruments for substance abuse in geriatric patients are available.<sup>62,71</sup>

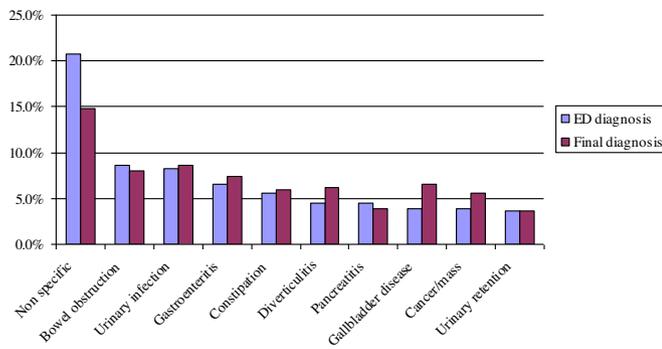
Despite the abovementioned screening difficulties, alcohol and substance abuse are involved in various geriatric conditions such as falls, delirium, and agitation<sup>61,62,70,72</sup> and should be considered in older patients in the ED.

### Abdominal Pain

Abdominal pain is the main complaint in 3% to 13% of ED visits in older patients.<sup>7,31,73</sup> Compared with that of younger patients, mortality rates are 6 to 8 times higher and surgery rates are increased 2-fold.<sup>73</sup> The rates of correct diagnoses for abdominal pain in the ED differ greatly throughout the literature and range from 40% to 82%.<sup>73,74</sup> Seventy-eight percent of emergency physicians report greater difficulty with abdominal pain management in older patients.<sup>75</sup> Discrepancies between ED and final diagnosis concern more often gallbladder disease, nonspecific abdominal pain, cancer, and diverticulitis<sup>73</sup> (Figure 3).

Abdominal computed tomography (CT) is well studied and has proved its efficacy in this context. It is performed for 37% to 59% of older patients<sup>73,76,77</sup> and leads to a diagnosis in 57% to 67% of cases.<sup>73,76</sup> In one study, it modified the admission decision for 26% of cases, the need for surgery for 12%, antibiotics prescription for 21%, and the suspected diagnosis in almost half.<sup>75</sup>

Abdominal ultrasonography is a less common modality for the diagnosis of abdominal pain in elderly ED patients (used in only 9% to 11% of cases<sup>73,76</sup>). The American College of



**Figure 3.** Diagnosis for abdominal pain at the ED and 2 weeks after ED or hospital discharge, adapted from Lewis et al.<sup>73</sup>

**Table 5.** Best imaging examination, depending on pain location according to the American College of Radiology Appropriateness Criteria;<sup>78-80</sup> adapted by Cartwright and Knudson.<sup>81</sup> Reproduced from *American Family Physician*, Cartwright and Knudsen, Evaluation of acute abdominal pain in adults, 2008, with permission from the American Academy of Family Physicians.

Pain Location	Radiologic Examination
Right upper quadrant	Ultrasonography
Right lower quadrant	CT with intravenous contrast media
Left lower quadrant	CT with oral and intravenous contrast media
Left upper quadrant	CT
Suprapubic	Ultrasonography

Radiology suggests ultrasonography as a first-choice examination for certain cases of right upper quadrant pain and jaundice in general population<sup>78-81</sup> (Table 5). However, because age is a main risk factor for contrast-induced nephropathy,<sup>82</sup> ultrasonography and abdominal CT without contrast may be most appropriate for patients at high risk for renal complications such as chronic kidney disease, diabetes, chronic heart failure, or significant volume depletion.

High morbidity and mortality in older patients with abdominal pain manifest the necessity of heightened awareness concerning its clinical, radiologic, and prognostic characteristics. Emergency physicians should more readily perform abdominal CT and admit older patients for further observation, diagnostic tests, and treatment.

### Infections

Infection is the main complaint of 4%<sup>7,31</sup> of elderly ED patients. The most frequent conditions are pneumonia (25%), urinary tract infection (22%), and sepsis and bacteremia (18%).<sup>83</sup> Infection presentation is frequently atypical in this population.<sup>83,84</sup> Falls<sup>34</sup> or delirium<sup>84</sup> may be the only clinical manifestations of otherwise serious infections, whereas more classic symptoms such as tachycardia and fever may be absent.<sup>84</sup> Thus, acute cholecystitis may present without pain (5%), fever (56%), or complete blood count modifications (41%).<sup>85</sup>

Appendicitis presents with classic symptoms in only 20% of geriatric cases, and fever occurs in less than half the cases.<sup>86</sup>

There are no well-established guidelines for identification of infection in older ED populations. A 2-step protocol used an electronic notification system for the presence of 2 or more criteria for systemic inflammatory response syndrome during the first 6 hours of ED stay and then confirmation by the physician in charge of the absence of a noninfectious explanation. It led to improved identification of serious infection, with a specificity of 98% but fairly low sensitivity (11%), because nonserious infections were less well identified by the systemic inflammatory response syndrome criteria.<sup>87</sup> Unfortunately, the authors did not comment on the role of atypical presentation of infection in this age group.

Infections are related to higher morbidity and mortality in elderly patients. Old (aged between 65 and 84 years) and oldest old (older than 85 years) patients with community-acquired bacteremia have a higher risk of developing organ failure and higher 90-day mortality rates (15% for young patients versus 20% and 26%, respectively, for old and oldest old).<sup>84</sup> To our knowledge, risk-stratification scores such as the Mortality in Emergency Department Sepsis score<sup>88</sup> lack specific validation in this population.

### Social Cases, the Search for Hidden Illness

A number of geriatric ED admissions appear to have no medical basis and seem motivated by the impossibility of the family, including the nurses and neighbors, to maintain the patient at home. Although purely “social” ED admissions certainly occur (eg, hospitalization or death of primary caregiver, formal home care services withdrawal), emergency physicians must always consider that subacute or acute illness can present as functional decline, motivating the social ED visit. In fact, 74% of older patients report that functional decline resulting from initial symptoms determined their ED consultation.<sup>89</sup> Thus, delirium, infections, acute pain, recently prescribed medications, cardiovascular disease, and chronic disease exacerbation may result in acute modifications of the patient’s functional status and an ED visit. Chronic orthopedic, cardiovascular, and neurologic conditions may also lead to altered functional status, primary caregiver exhaustion, and social ED admission. A recent study reported that although 9% of older patients were admitted to the ED ostensibly for social reasons (inability to take care of self), 51% of these patients had an underlying acute medical problem such as infectious (24%), cardiovascular (14%), neurologic (9%), digestive (7%), pulmonary (5%), or other disorders (delirium, fractures, anemia, acute renal failure, uncontrolled pain, etc).<sup>90</sup> In another study, the 1-year mortality of such patients was as high as 34%.<sup>91</sup>

### Elder Abuse and Neglect

Elder abuse or neglect is defined by the American Medical Association as “actions or the omission of actions that result in harm or threatened harm to the health or welfare of the

elderly.<sup>92</sup> It includes battery, psychological abuse, abandonment, exploitation, and neglect and may be intentional or unintentional.<sup>93</sup> Among a multitude of risk factors, the most important are a relationship of dependency, social isolation, and psychopathology of the abuser.<sup>94</sup> Elder abuse prevalence in the United States is approximately 10%.<sup>93</sup> In a state elderly protective program, 66% of older patients who visited the ED in a 5-year period had an injury-related discharge diagnosis.<sup>95</sup> Only 9% of these ED visits resulted in referral to appropriate services.<sup>95</sup> Lack of specific protocols and time constraints make elder abuse recognition difficult and result in less referral to the appropriate authorities.<sup>93</sup>

The majority of caregivers and families demonstrate a high level of selflessness and devotion in taking care of their spouses and relatives. Nevertheless, emergency physicians should have high levels of awareness for such incidents and include elder abuse more frequently in their differential diagnosis.

### TARGETING “HIGH-RISK” ELDERLY

Given the lack of time and important workload in the ED, considering every patient older than 65 years for a thorough geriatric evaluation is not realistic. Moreover, the needs of older patients in the ED concerning such evaluations vary. Appropriate screening and elaboration of specific intervention protocols may help emergency physicians target patients prone to benefit from a more detailed evaluation in the ED on one hand and better orient such patients toward the correct ward or community service provider on the other.

Several scales have been used to screen high-risk older patients in the ED. Most studied, the Identification of Seniors at Risk tool<sup>96</sup> (Figure 4) is a 6-item self-report screening tool with simple yes/no questions that can be administered to the patient or the primary caregiver. It performs as well as other screening tools developed for hospitalized and community-based elderly populations and was developed for the ED.<sup>97</sup> Well-known risk factors for adverse health outcomes in older patients are included among the questions (activities of daily living, visual and cognitive impairment, hospitalization history, and polypharmacy).<sup>96</sup> The Identification of Seniors at Risk tool is known to have an excellent concurrent validity for detecting impaired functional status and depression at the evaluation.<sup>96,98</sup> It also predicts ED revisits<sup>3,98</sup> and hospitalization after the index ED visit,<sup>96-98</sup> mortality,<sup>96</sup> admission to a nursing home,<sup>96</sup> use of community services,<sup>98</sup> and decrease in functional status<sup>96</sup> in a 4-month<sup>98</sup> or 6-month<sup>3,96</sup> follow-up. Consequently, it has both immediate clinical relevance and good predictive validity.<sup>96</sup> Other screening tools have been developed such as the Triage Risk Screening Tool, the Runciman Questionnaire, and the Rowland Questionnaire but are less studied and seem less efficient.<sup>99,100</sup>

High-risk older patients may benefit from a more thorough geriatric evaluation in the ED, including mood, cognition, and functional status evaluation, as well as referral to an onsite geriatrician. Several EDs have developed protocols to target high-risk elderly patients and provide a comprehensive geriatric

1. Before the illness or injury that brought you to the emergency department, did you need someone to help you on a regular basis? (yes)
2. Since the illness or injury that brought you to the emergency department have you needed more help than usual to take care of yourself? (yes)
3. Have you been hospitalized for one or more nights during the past 6 months (excluding a stay in the emergency department)? (yes)
4. In general, do you see well? (no)
5. In general, do you have serious problems with your memory? (yes)
6. Do you take more than 3 different medications every day? (yes)

**Figure 4.** Identification of Seniors at Risk tool. Each high-risk response indicated on this table counts as 1 point for a total score ranging from 0 to 6. A patient is considered at high risk when the score is 2 or more; adapted from McCusker et al.<sup>96</sup> Reproduced from *Journal of the American Geriatrics Society*, McCusker et al, Detection of older people at increased risk of adverse health outcomes after an emergency visit: the ISAR screening tool, 1999, with permission from Blackwell Publishing.

assessment to detect geriatric syndromes, increase referrals to community service providers, and avoid hospital admissions and ED revisits.<sup>2</sup> No widely accepted protocol is actually available; some use a 2-step evaluation pattern (screening and then assessing “high-risk” patients)<sup>101,102</sup> and others, a 1-step pattern with<sup>103</sup> or without<sup>104</sup> follow-up by a hospital-based multidisciplinary team. Such interventions demonstrated moderate but encouraging results, with a reduction in post-ED discharge hospital admissions,<sup>103</sup> ED revisits,<sup>104</sup> and functional decline<sup>101-103</sup> and an increase in home care services referrals.<sup>102</sup> We believe that a “target and refer” model using the Identification of Seniors at Risk tool is realistic in the ED context and may help physicians provide high-quality care to older patients.

### CONCLUSION

Older people visit the ED ever more frequently and can benefit from a targeted approach. A greater knowledge of the atypical presentation of disease, the complex interrelated acute medical and psychosocial issues of such patients, and the appropriate use of available screening and assessment tools can help emergency physicians provide high-quality care to this increasing population.

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