

# Concepts in Practice: Geriatric Emergency Departments

Lauren T. Southerland, MD\*<sup>1</sup>; Alexander X. Lo, MD, PhD<sup>2</sup>; Kevin Biese, MD<sup>3</sup>; Glenn Arendts, MBBS, PhD<sup>4</sup>; Jay Banerjee, MBBS, MSc<sup>5</sup>; Ula Hwang, MD, MPH<sup>6</sup>; Scott Dresden, MD, MS<sup>7</sup>; Vivian Argento, MD, CMD<sup>8</sup>; Maura Kennedy, MD<sup>9</sup>; Christina L. Shenvi, MD, PhD<sup>10</sup>; Christopher R. Carpenter, MD, MSc<sup>11</sup>

\*Corresponding Author. E-mail: [lauren.southerland@osumc.edu](mailto:lauren.southerland@osumc.edu), Twitter: @LSGeriatricEM.

In 2018, the American College of Emergency Physicians (ACEP) began accrediting facilities as “geriatric emergency departments” (EDs) according to adherence to the multiorganizational guidelines published in 2014. The guidelines were developed to help every ED improve its care of older adults. The geriatric ED guideline recommendations span the care continuum from out-of-hospital care, ED staffing, protocols, infrastructure, and transitions to outpatient care. Hospitals interested in making their EDs more geriatric friendly thus face the challenge of adopting, adapting, and implementing extensive guideline recommendations in a cost-effective manner and within the capabilities of their facilities and staff. Because all innovation is at heart local and must function within the constraints of local resources, different hospital systems have developed implementation processes for the geriatric ED guidelines according to their differing institutional capabilities and resources. This article describes 4 geriatric ED models of care to provide practical examples and guidance for institutions considering developing geriatric EDs: a geriatric ED-specific unit, geriatrics practitioner models, geriatric champions, and geriatric-focused observation units. The advantages and limitations of each model are compared and examples of specific institutions and their operational metrics are provided. [Ann Emerg Med. 2019;■:1-9.]

0196-0644/\$-see front matter

Copyright © 2019 by the American College of Emergency Physicians.

<https://doi.org/10.1016/j.annemergmed.2019.08.430>

## INTRODUCTION

The traditional emergency department (ED) care model, both in the United States and internationally, is ill equipped to address the complex care needs of older adults.<sup>1-4</sup> Conventionally, emergency care has focused on aggressive diagnostic evaluation of acute chief complaints and the initiation of time-critical therapy. Although this approach remains essential to the mission of emergency care, it fails to address many subtler threats to an older adult’s health trajectory. These approaches can also have unintended adverse consequences for both patients and health care systems. For example, patients who are hospitalized for extensive evaluations are at risk for functional decline, mobility impairment, falls, and delirium.<sup>5-9</sup> Health care systems that are not optimized for the care of older adults with multiple comorbidities may struggle with prolonged or repeated ED visits and repeated hospitalizations, all of which are costly. As an example, the health care costs of 2 potentially preventable geriatric syndromes, delirium in the hospital and recurrent falls, are estimated to be \$83 billion a year in the United States.<sup>10,11</sup>

Despite widespread dissemination of the 2014 consensus geriatric ED guidelines through multiple high-profile peer-reviewed publications, geriatric ED care remains heterogeneous and the guidelines are not

implemented in most EDs.<sup>12,13</sup> There is no current framework for prioritization; the best or essential practices are not known.<sup>14</sup> The American College of Emergency Physicians (ACEP) provided some guidance on critical elements of high-quality geriatric care with the launch of the geriatric ED accreditation process in 2018.<sup>15</sup> The accreditation process is based on adherence to the geriatric ED guidelines, which recommend multidisciplinary innovations and quality improvement in geriatric emergency care from out-of-hospital to post-ED follow-up. The process is tiered, with the highest-level hospital (Level I) providing multidisciplinary geriatric assessment in the ED and adhering to 20 different best practices. The lowest level (Level III) requires some staff education and one quality improvement activity annually. As of July 2019, 76 EDs have been accredited. They range in size and scope, with the majority being community hospitals (71%). Two are Veterans Affairs hospitals (a Level I and a Level III). The 4 models described here are based on well-established geriatric ED programs previously described in the literature. With the increased attention to and applications for geriatric ED accreditation, it is reasonable to anticipate that variations, hybrids, or even newer models may emerge.

## EXPLORING MODELS OF GERIATRIC ED CARE

Early innovators developed 4 different models of comprehensive geriatric care in the ED setting (Table 1). These incorporate holistic, patient-centered care and interdisciplinary assessment, and they share common services such as case managers or social workers to assist with care transitions and referral to outpatient resources. Geriatric assessment tools are used to identify at-risk older ED patients who may benefit from interventions to prevent poor outcomes such as medication interactions, falls, functional decline, and delirium.<sup>16-20</sup> Although initially developed to directly improve care for patients, these programs also can improve systems-level metrics such as hospital throughput by reducing hospital and ICU admissions.<sup>21-23</sup>

The geriatric ED accreditation requirements were designed to provide flexibility for local innovation. For example, geriatric assessments can be conducted in the main ED, a dedicated geriatric ED unit, or an observation or short-stay unit, depending on the availability of clinicians and staff. The differing assessments can be conducted by a variety of staff, including a geriatrician, a geriatrics-trained nurse or advanced practice provider, a physical therapist, or pharmacist. Access to geriatrics-trained clinicians and services varies among the models, with some prioritizing embedding dedicated staff in the ED, whereas others focus on leveraging inpatient hospital or outpatient resources. As another example of how care can conform to local needs, EDs with high volumes and long wait times may be hesitant to reserve dedicated ED care space solely for older adults because this could impede patient flow. Conversely, EDs with larger geriatric populations may favor dedicated geriatric ED units to focus resources, training, and equipment. The description and nomenclature were agreed on by an expert panel consisting of leaders from the geriatric emergency medicine groups of the International Federation for Emergency Medicine, ACEP, the Society of Academic Emergency Physicians, and the Australasian College of Emergency Medicine.

Most studies of geriatric EDs have been observational and focused on short-term outcomes of ED metrics, such as reducing admissions and ED revisit rates.<sup>21,22,24-29</sup> The long-term effect of these models of care on patient outcomes is unknown, as is the effect of these programs on other patients in the ED. We lack randomized controlled trials that could better pinpoint the effects of these services on patients evaluated (and not evaluated) by these specialist teams, but further prospective data are forthcoming.<sup>29,30</sup> Additionally, there are limited data on relevant patient-centered outcomes such as function,

mobility, and health-related quality of life.<sup>31</sup> Therefore we cannot determine whether one model of care is “better” than another, but all have shown multiple years of continuing operation and institutional support.

### Geriatric ED Unit: St Joseph's Regional Medical Center in New Jersey (Level I Geriatric ED, Large Academic Hospital) and Mount Sinai Medical Center in New York (Level I Geriatric ED, Large Academic Hospital)

The first US geriatric ED opened in Silver Springs, MD, in 2009, and comprised a geriatric unit within the main ED. This model of a dedicated unit for geriatric patients has been implemented at Mount Sinai Hospital (New York, NY), University of California–San Diego's Thornton Hospital (San Diego, CA), and St. Joseph's Regional Medical Center (Paterson, NJ).<sup>20,21,32,33</sup> Having a dedicated space allows structural enhancements (eg, specialized amenities, flooring, beds) to better assist older adults with mobility and reduce risk of delirium. These units were designed in consultation with delirium management experts and elder-life specialists.<sup>34</sup> Screening assessments are used to ensure that the older patients who are most likely to benefit from the added resources are cared for in these units (Table 1). Screening tools or criteria for the unit are required because for most EDs the volume of older adults is higher than the capacity in these units, and ED resources must be focused on patients who will most benefit. For example, a patient who requires hospitalization for other reasons can be hospitalized and be evaluated by the physical therapist and case management team during his or her hospital stay, whereas a 75-year-old patient with a nonoperable ankle fracture may or may not need admission and so may benefit from further assessment by these services in the ED first. The latter patient would be best served in the geriatric ED unit.

Advantages of having a dedicated unit and staff are focused expertise for the patient, dedicated equipment and often structural changes to the area, and less initial investment in education because only one unit or team requires training instead of the entire ED staff. In addition to dedicated space and equipment, these units often have dedicated specialists such as geriatric practitioners, social workers, physical therapists, occupational therapists, palliative medicine consultants, and pharmacists. Limitations to this model include difficulties in triaging appropriate patients to this space and difficulties with patient flow if the ED has high rates of patient boarding. Additionally, staffing may limit these units to being open

**Table 1.** Examples of geriatric ED care provision in a range of situations, from large-volume academic centers to smaller community hospitals.

	<b>Geriatric ED Unit</b>	<b>Geriatrics Practitioner Model</b>	<b>Geriatrics Champion</b>	<b>Geriatric-Focused Observation Unit</b>
Examples of US institutions	Mount Sinai Medical Center, NY St. Joseph's Hospital, NJ	Northwestern University, IL Bridgeport Hospital, CT	University of North Carolina, Hillsborough, NC	Ohio State University, OH
Annual ED volume	MSMC: total 109,258; $\geq 65$ y 18,574 (17%) SJRMC: total 157,413; $\geq 65$ y: 16,218 (10%)	NW: total 86,998; $\geq 65$ y 16,530 (19%) BH: total 94,240; $\geq 65$ y 16,746 (18%)	Total 17,000; $\geq 65$ y 2,250 (15%)	Total 80,350; $\geq 65$ y 15,145 (18.8%)
Proportion of older adults receiving specialized care, %*	MSMC 10% SJRMC 9%	NW 12% BH 10%	50% screened by nurses	11.4% of patients $\geq 65$ y are assigned to ED observation unit
Criteria for specialized care	MSMC: ISAR score $\geq 4$ , ESI score $\geq 3$ , hospital discharge last 30 days, or ED clinician request SJRMC: $\geq 65$ y	NW: ISAR score $\geq 3$ or ED clinician request BH: TRST score $\geq 2$ , ED clinician request, BPA for advanced dementia and critical illness	Age $\geq 65$ y	Meets observation status criteria
Specialized care available, h/day	MSMC: 9, 7 days/wk SJRMC: 8, weekdays	NW: 11, weekdays BH: 10, weekdays; 8, weekends	24, 7 days/wk	Observation unit open continuously Geriatricians: weekdays PT, OT, pharmacy, and CM team: Monday-Saturday
Specialized care providers	Interdisciplinary team of care providers with specialized training in geriatric patient care: emergency physician, ED nurse, social worker or case manager, PT, OT, pharmacist and geriatrics consultants (physician or APP)	NW: specialized ED nurse-led program, with interdisciplinary team of SW, PT, OT, or pharmacist, as needed BH: specialized geriatric APRNs supported by geriatric and palliative care team and GENE-trained RN. Interdisciplinary team of SW, chaplains, PT, OT, CM, and pharmacist, as needed	Interdisciplinary team of social workers, PT, OT, or pharmacist available. Dedicated nurse champion and nurse team help develop protocols and lead nursing education, but are not present in the ED at all times.	Interdisciplinary team of ED care providers with specialized training in geriatric patient care: emergency physician, ED nurse, social worker or case manager, PT, OT, pharmacist, and geriatrics consultants (physician or APP)
Strengths	Cohorts of patients, resources, medical supplies, and care specialists for better care. Better management of delirious patients because of structural improvements. Education can be focused on nurses and staff in the unit.	Identifying high-risk patients, early intervention Safe discharge from ED to appropriate level of care Focused geriatric assessments with specialist level of training Lower cost and increased flexibility than dedicated geriatric ED unit Can improve ED wait times and length of stay for patients being discharged	Repurpose existing case management and nursing roles Lower cost and increased flexibility than dedicated geriatric ED unit	Preserves ED flow and length of stay Consultants able to keep normal business hours and bill professional fees for their evaluations, similar to inpatient care Prevents unnecessary admissions

**Table 1.** Continued.

	Geriatric ED Unit	Geriatrics Practitioner Model	Geriatrics Champion	Geriatric-Focused Observation Unit
Limitations	Sustainability in hospitals with boarding or difficulties with patient flow Requires dedicated space in the ED Staffing costs if geriatric specialists are assigned to the unit	ED nurse screening may be not be fully implemented and deferred to geriatrics practitioner. Geriatric assessments may increase length of stay. Staffing and training costs Staff turnover can lead to periods of reorientation and cultural adaptation.	No dedicated geriatric emergency care provider in the ED setting Geriatric assessments increase length of stay. Coordinating care with outpatient resources	Requires an ED observation unit and a geriatric champion Need consultant buy-in from hospital inpatient services to prioritize the observation unit Observation status does not count toward the qualifying inpatient stay for skilled nursing facility placement, which could increase hospital length of stay for patients requiring placement.

NY, New York; NJ, New Jersey; IL, Illinois; CT, Connecticut; NC, North Carolina; OH, Ohio; MSMC, Mount Sinai Medical Center (New York, NY); ESI, emergency severity index; SJRMC, St. Joseph's Regional Medical Center (Paterson, NJ); ISAR, Identifying Seniors at Risk Tool<sup>54</sup>; TRST, Triage Risk Screen Tool<sup>55</sup>; PT, physical therapy; OT, occupational therapy; CM, case management; APP, advanced practice provider; SW, social work; APRN, advanced practice registered nurse.

\*Proportion of total ED encounters for patients aged 65 years or older who are treated in the geriatric ED unit, evaluated by the geriatric practitioner, are screened for geriatric syndromes by ED nurses (geriatrics champion model), or receive placement in the geriatric-focused observation unit.

only certain hours of the day or during weekdays, which can limit flow through the area. Also, the advantage of having to train staff in only one area of the ED could lead to disparities in care when the unit is closed and that expertise is no longer available.

### Geriatrics Practitioner Model: Northwestern University in Illinois (Level I Geriatric ED, Large Academic Hospital) and Bridgeport Hospital in Connecticut (Level II Geriatric ED, Large Academic Hospital)

In this model, there is no dedicated unit for older adults. The entire ED adopts a geriatric-focused approach that may include structural changes, screening with geriatric assessment tools, or both. A geriatric nurse, nurse practitioner, allied health specialist, geriatrician, or all 4 are available in the ED. Evaluation by these geriatric practitioners occurs concurrently with routine ED care.<sup>21,26,29,35,36</sup> The geriatric practitioner is supported by social workers/case managers or nurses with expertise in care transitions and the ability to ensure that patients have access to community resources such as home health and nutrition services.<sup>21</sup> One limitation of this model is that interdisciplinary geriatric evaluations can extend ED length of stay, with an average ED stay of 6 hours in one institution.<sup>26</sup> Conversely, other sites have found that it can improve wait time to consult a provider and reduce time spent in the ED for patients being discharged.<sup>29,36</sup> Staffing constraints may limit the number of patients who receive geriatric evaluation before ED disposition. In the United

States and other countries, finding geriatrics practitioners willing to work full time in an ED setting can be difficult. For example, only 3.1% of nurse practitioners are trained in adult gerontology and acute care.<sup>37</sup> Although geriatric-trained nurses or advanced practice providers may be more common in the United States, in parts of Europe it is not unheard of to have a geriatrician making rounds in the ED.<sup>38,39</sup> A recent systematic review evaluating the benefits of this model found reduced admission rates.<sup>22</sup> Although training ED nurses to become geriatrics experts has multiple benefits, geriatric advanced practice providers working in collaboration with a consultative geriatrics team may be able to bill professional fees for consultative care, thereby offsetting staffing costs.<sup>35</sup>

### Geriatrics Champion: University of North Carolina–Hillsborough Hospital in North Carolina (Level II Geriatric ED, Small Community Hospital)

This model relies on a geriatric champion who leads initiatives and care coordination pathways. There is not a dedicated geriatrics provider in the ED. This model may be chosen because of small patient volumes or staffing costs of a geriatric practitioner. Instead, the model relies on initial assessment in the ED and close ties to outpatient resources and outpatient geriatric assessment for patients. The geriatric champion is a physician or nurse with expertise in geriatric ED care. He or she provides staff education and helps to develop and implement protocols to improve ED care. If the ED clinicians think that a patient requires comprehensive

geriatric assessment, he or she would typically be hospitalized (if indicated) or have quick outpatient follow-up with a geriatrician established because there is no dedicated ED resource for geriatric assessment. The ED may have the capacity to conduct other aspects of multidisciplinary geriatric assessment, such as physical therapy, pharmacy resources, and case management.<sup>28,40</sup>

This model can work in any ED to improve geriatric care. It does, however, require preestablished and sustained coordination among the local geriatrics champion, community resources, and outpatient geriatricians. Such a model exists at the University of North Carolina at Hillsborough. This site has several emergency medicine faculty who are fellowship trained in geriatric emergency medicine or have significant expertise in the area. It also supports a geriatric emergency medicine fellowship and maintains close ties to local paramedic agencies, nursing facilities, and community resources. Limitations of this model are that it depends on outpatient clinicians and follow-up. Outpatient care coordination can be challenging to initiate during an ED visit if appropriate resources are not in place, and clinicians may revert to traditional care practices on high-volume days or when time is limited. It is also unclear whether an interdisciplinary team without a geriatric practitioner reduces hospital admissions or ED revisits as well as the systems that provide for geriatric practitioner assessment in the ED.<sup>40</sup>

### **Geriatric-Focused Observation Unit: The Ohio State University in Ohio (Level I Geriatric ED, Large Academic Hospital)**

The observation unit model is a hybrid between the geriatric ED unit and the geriatrics practitioner models. An ED observation unit is a unit within the ED (typically 10 to 20 beds) that divides patients into cohorts for evaluations longer than a 4-hour ED stay but not requiring an inpatient stay beyond 48 hours. The targeted 8- to 24-hour observation period allows a full interdisciplinary geriatric assessment.<sup>22,27,41</sup> Comprehensive assessment can be challenging in the regular ED setting because of the additional time needed for physical therapy, case management, and geriatric assessments, and the lack of access to collateral and timely information.<sup>26,41</sup> Observation units negate the need for staffing of geriatric consultants, pharmacists, physical therapists, and social workers during evening hours. Outside of operational hours, candidate patients can remain in these units overnight and be evaluated by the geriatrics consultants or interdisciplinary teams the following morning. These

evaluations are most often contemporaneous with observation for other medical reasons, such as chest pain or transient ischemic attack.<sup>42</sup> However, observation for multidisciplinary geriatric assessment alone is appropriate if that information is being used to decide on need for admission or coordinate appropriate medical care, such as a safe transition to home. The need for geriatric assessments can be determined by ED provider gestalt or with nurse-led screening assessments.<sup>16</sup>

This model can be used with a dedicated geriatrics team in the observation unit or in conjunction with the hospital's inpatient geriatric consultation service, eliminating the need to hire ED-specific staff. This model adapts and repurposes already existing inpatient services (geriatrics, physical therapy, speech therapy, occupational therapy, pharmacists, case managers, and other consultants) for ED patients. Because these services (other than case management) can bill for their evaluations, if a high volume of consultations is needed, their salaries can be justified by the revenue brought in by their work. Evaluations by a geriatric nurse, case manager, or social worker (geriatric practitioner model) are not billable in the United States, which can limit adoption of models that rely on continuous staffing of these services. Geriatric observation units in the United Kingdom, Australasia, Singapore, Spain, and the United States have shown that comprehensive geriatric assessment in an ED observation unit decreases admission and readmission rates and reduces functional decline after ED discharge.<sup>27,42-44</sup> One limitation can be efficiently identifying patients who would most benefit from this model of care. High-risk patients may require greater resources than those available within a 24-hour stay, or may need a full qualifying admission for nursing facility placement. Additionally, ED observation units are not available in every ED, and all consultant services for a comprehensive geriatric assessment may not be available in every observation unit. Not having an ED observation unit does not mean that this model of care is not available to one's institution. Because observation is a status, not a space, patients can be assigned to observation status in any bed of the ED. However, it is possible that losing the cohort effect of a dedicated observation team and services will dilute the improved outcomes for the patients listed earlier.<sup>45</sup>

### **FURTHER CONSIDERATIONS FOR GERIATRIC EDs**

The models mentioned earlier provide some potential directions, examples, and guidance. Choosing a model of care depends on the hospital's existing resources both

**Table 2.** Elements to consider when choosing a geriatric ED model of care.

	Geriatric ED Unit	Geriatrics Practitioner Model*	Geriatrics Champion	Geriatric-Focused Observation Unit Program
Additional staff required	Geriatrics practitioner Case manager Pharmacy support Physical therapists Social worker	Geriatrics practitioner Case manager Pharmacy support Physical therapists Social worker	Case manager Pharmacy support Physical therapists Social worker	Inpatient geriatrics consultation service Case manager Pharmacy support Inpatient physical therapists Social worker
Initial training costs	Geriatrics training for unit nurses and providers	Geriatrics training for all ED nurses and providers Geriatrics training for practitioner	Geriatrics training for all ED nurses and providers	Geriatrics training for all ED nurses and providers
Physical space restraints	Yes	No	No	No
Effect on ED length of stay	Unknown	Increased	Unknown	None or decreased
Effect on hospitalization rates	Decreased <sup>21,22</sup>	Decreased <sup>26,29,31</sup>	Unknown <sup>40</sup>	Decreased <sup>42-44</sup>

\*Geriatrics practitioner is a dedicated staff member without other clinical duties who assesses older adults in the ED. The individual is most commonly a nurse or nurse practitioner, but can also be a geriatrician embedded in the ED.

in the ED and in the community. A health system that values avoiding admissions may tolerate longer lengths of stay in the ED for geriatric assessment, whereas another that values ED throughput may prefer to use an observation unit or rapid outpatient assessments (Table 2). An ED that is planning a renovation may want to build a geriatric ED unit, whereas another may not have the physical space for this type of endeavor. Smaller EDs may not have the patient volume to justify staffing a geriatric practitioner or geriatric unit and may find that the geriatrics champion model is more feasible. Identifying the priorities and metrics that are tracked by the health system and modeling how a geriatric ED would affect these metrics is an important step in determining how to design care.

Some barriers to implementing a geriatric ED include the costs of equipment and staff. Ameliorating this is the ability of consulting staff (therapists, pharmacists, and geriatric nurse practitioners/physicians) to bill professional fees for their care. However, case management services and additional nursing care are not reimbursable. Additionally, there is a shortage of geriatricians and geriatric nurse practitioners in the United States.<sup>37,46</sup> In areas without access to these specialists, the ED team has an even greater responsibility to provide the best care for vulnerable

older patients. The integration of the other elements of multidisciplinary geriatric assessment—case managers, pharmacists, and physical and occupational therapists—can assist the emergency physician in providing holistic, patient-centered care in accordance with geriatric principles. Northwestern University Hospital (geriatrics practitioner model) has developed internal training for a cohort of their emergency nurses to become geriatrics experts. By working with the other members of their multidisciplinary team, these nurses have improved care coordination and reduced admissions of older patients by 33%.<sup>21</sup> This model and the geriatric champion models show that a lack of geriatricians or geriatric nurse practitioners in the ED need not be an impediment to providing high-quality care to older ED patients.

Another consideration in the design of a geriatric ED is the capacity of the ED staff to perform assessments. Choosing screening tools or entry criteria into the geriatric-focused program or protocols will determine the proportions of patients who require additional assessments and staff time. Not every older adult requires comprehensive geriatric assessment in the ED or specialized equipment. The programs highlighted in Table 1 attempt to focus their care on patients who are at highest risk for poor outcomes after the ED visit, which

results in targeting geriatric care to 10% to 12% of older ED patients.

A final consideration is the work required to develop institution-specific protocols and staffing models, implement these models, and monitor outcomes. This work can be extensive, especially for Level I and II geriatric ED status, and requires a motivated multidisciplinary team and a physician medical director with administrative and quality improvement experience. Level III geriatric ED status was designed to be attainable by any ED. It requires one physician and one nurse to undergo additional geriatrics education and perform one quality improvement activity a year, which is highly attainable.

There are a number of Web sites and publications designed to help physicians and staff obtain more education in geriatric emergency medicine care.<sup>15,47-50</sup> In-person training is also available through geriatric emergency medicine groups in several countries, including the Geriatric Emergency Medicine Section of ACEP, the Academy of Geriatric Emergency Medicine of the Society for Academic Emergency Medicine, and the European Geriatric Medicine Society and European Society for Emergency Medicine.<sup>51-53</sup> Emergency medicine residents interested in pursuing a career in geriatric emergency medicine should consider a geriatric fellowship, which is available in the United States and the United Kingdom (Leicester Hospital) (<http://saem.org/resources/directories/fellowship-directory>). These fellowships are typically run in conjunction with established internal medicine fellowships but include a focus on high-acuity illnesses and transitions of care.

## SUMMARY

Incorporating higher-quality geriatric care is possible for any ED. All models of geriatric emergency care rely on enhancing conventional ED care with additional age-specific assessments and care pathways. The 4 models described are successful examples of how an ED can incorporate geriatric emergency medicine care into their practice. By using existing resources and geriatrics education, and adapting protocols and policies within local systems, all EDs of various sizes and ranges of resources and capabilities have the ability to bring the concepts of geriatric EDs into practice.

*Supervising editor:* Stephen Schenkel, MD, MPP. Specific detailed information about possible conflict of interest for individual editors is available at <https://www.annemergmed.com/editors>.

*Author affiliations:* From the Department of Emergency Medicine, The Ohio State University Wexner Medical Center, Columbus, OH (Southerland); the Department of Emergency Medicine, Center for

Healthcare Studies, Northwestern University Feinberg School of Medicine, Chicago, IL (Lo, Dresden); the Department of Emergency Medicine, University of North Carolina at Chapel Hill, Chapel Hill, NC (Biese, Shenvi); Emergency Medicine, School of Medicine, University of Western Australia, Perth, Australia (Arendts); the College of Life Sciences, University of Leicester and Department of Emergency Medicine, University Hospitals of Leicester NHS Trust, Leicester, United Kingdom (Banerjee); the Department of Emergency Medicine, Brookdale Department of Geriatrics and Palliative Medicine, Icahn School of Medicine at Mount Sinai, New York, NY, and the Geriatric Research, Education and Clinical Center, James J. Peters VAMC, Bronx, NY (Hwang); Geriatric Services, Bridgeport Hospital, Yale University School of Medicine, New Haven, CT (Argento); the Department of Emergency Medicine, Massachusetts General Hospital, Boston, MA (Kennedy); and the Department of Emergency Medicine, Washington University at St. Louis, St. Louis, MO (Carpenter).

*Authorship:* All authors attest to meeting the four ICMJE.org authorship criteria: (1) Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work; AND (2) Drafting the work or revising it critically for important intellectual content; AND (3) Final approval of the version to be published; AND (4) Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

*Funding and support:* By *Annals* policy, all authors are required to disclose any and all commercial, financial, and other relationships in any way related to the subject of this article as per ICMJE conflict of interest guidelines (see [www.icmje.org](http://www.icmje.org)). The authors have stated that no such relationships exist. Dr. Southerland reports receiving funding through the National Institute on Aging (K23AG061284-01). Dr. Biese reports receiving funding through the West Health Foundation. Dr. Hwang reports receiving funding through the National Institute on Aging (R21 AG058926-01). Dr. Dresden reports receiving funding (1R01HW026489-01) through the Agency for Healthcare Research and Quality.

*Publication dates:* Received for publication May 24, 2019.

Revisions received July 23, 2019, and August 16, 2019. Accepted for publication August 19, 2019.

## REFERENCES

1. Lennox A, Braaf S, Smit V, et al. Caring for older patients in the emergency department: health professionals' perspectives from Australia—the Safe Elderly Emergency Discharge project. *Emerg Med Australas*. 2019;31:83-89.
2. Lo AX, Biese K. Disseminating and sustaining emergency department innovations for older adults: good ideas deserve better policies. *Acad Emerg Med*. 2018;25:83-84.
3. Hwang U, Shah MN, Han JH, et al. Transforming emergency care for older adults. *Health Aff (Millwood)*. 2013;32:2116-2121.
4. Hwang U, Morrison RS. The geriatric emergency department. *J Am Geriatr Soc*. 2007;55:1873-1876.
5. Bo M, Bonetto M, Bottignole G, et al. Length of stay in the emergency department and occurrence of delirium in older medical patients. *J Am Geriatr Soc*. 2016;64:1114-1119.
6. Marcantonio ER. Delirium in hospitalized older adults. *N Engl J Med*. 2017;377:1456-1466.

7. Calero-Garcia MJ, Ortega AR, Navarro E, et al. Relationship between hospitalization and functional and cognitive impairment in hospitalized older adult patients. *Aging Ment Health*. 2017;21:1164-1170.
8. Zisberg A, Shadmi E, Gur-Yaish N, et al. Hospital-associated functional decline: the role of hospitalization processes beyond individual risk factors. *J Am Geriatr Soc*. 2015;63:55-62.
9. Kaye KS, Marchaim D, Chen TY, et al. Effect of nosocomial bloodstream infections on mortality, length of stay, and hospital costs in older adults. *J Am Geriatr Soc*. 2014;62:306-311.
10. Leslie DL, Marcantonio ER, Zhang Y, et al. One-year health care costs associated with delirium in the elderly population. *Arch Intern Med*. 2008;168:27-32.
11. Florence CS, Bergen G, Atherly A, et al. Medical costs of fatal and nonfatal falls in older adults. *J Am Geriatr Soc*. 2018;66:693-698.
12. Carpenter CR, Bromley M, Caterino JM, et al. Optimal older adult emergency care: introducing multidisciplinary geriatric emergency department guidelines from the American College of Emergency Physicians, American Geriatrics Society, Emergency Nurses Association, and Society for Academic Emergency Medicine. *Acad Emerg Med*. 2014;21:806-809.
13. Schumacher JG, Hirshon JM, Magidson P, et al. Tracking the rise of geriatric emergency departments in the United States. *J Appl Gerontol*. <https://doi.org/10.1177/0733464818813030>.
14. Arendts G. How comprehensive is comprehensive enough? emergency department assessment of older people. *Age Ageing*. 2017;46:340-341.
15. American College of Emergency Physicians GEDC. *Geriatric Emergency Department Accreditation Program*. Irving, TX: American College of Emergency Physicians; 2017.
16. Carpenter CR, Shelton E, Fowler S, et al. Risk factors and screening instruments to predict adverse outcomes for undifferentiated older emergency department patients: a systematic review and meta-analysis. *Acad Emerg Med*. 2015;22:1-21.
17. Brousseau AA, Dent E, Hubbard R, et al. Identification of older adults with frailty in the emergency department using a frailty index: results from a multinational study. *Age Ageing*. 2018;47:242-248.
18. Romero-Ortuno R, Wallis S, Biram R, et al. Clinical frailty adds to acute illness severity in predicting mortality in hospitalized older adults: an observational study. *Eur J Intern Med*. 2016;35:24-34.
19. Sanon M, Hwang U, Abraham G, Investigators GW, et al; Investigators GW. ACE model for older adults in ED. *Geriatrics (Basel)*. 2019;4:E24.
20. Hwang U, Dresden SM. Geriatrics emergency department—the GEDI WISE Program. In: Malone MCE, Palmer RM, eds. *Geriatrics Models of Care: Bringing "Best Practice" to an Aging America*. New York, NY: Springer; 2015:201-209.
21. Hwang U, Dresden SM, Rosenberg MS, et al. Geriatric emergency department innovations: transitional care nurses and hospital use. *J Am Geriatr Soc*. 2018;66:459-466.
22. Jay S, Whittaker P, McIntosh J, et al. Can consultant geriatrician led comprehensive geriatric assessment in the emergency department reduce hospital admission rates? a systematic review. *Age Ageing*. 2017;46:366-372.
23. Grudzen C, Richardson LD, Baumlin KM, et al. Redesigned geriatric emergency care may have helped reduce admissions of older adults to intensive care units. *Health Aff (Millwood)*. 2015;34:788-795.
24. Melady D. Quality Improvement Metrics. January 12, 2017. Available at: <https://geriatric-ed.com/quality-improvement-metrics>. Accessed January 15, 2018.
25. Burkett E, Martin-Khan MG, Gray LC. Quality indicators in the care of older persons in the emergency department: a systematic review of the literature. *Australas J Ageing*. 2017;36:286-298.
26. Aldeen AZ, Courtney DM, Lindquist LA, et al. Geriatric emergency department innovations: preliminary data for the geriatric nurse liaison model. *J Am Geriatr Soc*. 2014;62:1781-1785.
27. Conroy SP, Ansari K, Williams M, et al. A controlled evaluation of comprehensive geriatric assessment in the emergency department: the "emergency frailty unit." *Age Ageing*. 2014;43:109-114.
28. Bond CM, Freiheit EA, Podruzny L, et al. The emergency to home project: impact of an emergency department care coordinator on hospital admission and emergency department utilization among seniors. *Int J Emerg Med*. 2014;7:18.
29. Wallis M, Marsden E, Taylor A, et al. The geriatric emergency department intervention model of care: a pragmatic trial. *BMC Geriatr*. 2018;18:297.
30. Marsden E, Taylor A, Wallis M, et al. A structure, process and outcome evaluation of the geriatric emergency department intervention model of care: a study protocol. *BMC Geriatr*. 2017;17:76.
31. Akpan A, Roberts C, Bandeen-Roche K, et al. Standard set of health outcome measures for older persons. *BMC Geriatr*. 2018;18:36.
32. Kreshak AA, Neath SX, Tolia VM, et al. A multidisciplinary bootcamp as an educational launch to a geriatric emergency department. *J Emerg Med*. 2018;54:855-860.
33. Platts-Mills TF, Glickman SW. Measuring the value of a senior emergency department: making sense of health outcomes and health costs. *Ann Emerg Med*. 2014;63:525-527.
34. Burton JH, Young J, Bernier CA. The geriatric ED: structure, patient care, and considerations for the emergency department geriatric unit. *Int J Gerontol*. 2014;8:56-59.
35. Argento V, Calder G, Ferrigno R, et al. Geriatric emergency medicine service: a novel approach to an emerging trend. *Conn Med*. 2014;78:339-343.
36. Calder G. Nurse practitioners assess at-risk, elderly emergency department patients and educate clinicians on their needs, improving wait times, readmissions, and patient satisfaction. 2014. Available at: <https://innovations.ahrq.gov/profiles/nurse-practitioners-assess-risk-elderly-emergency-department-patients-and-educate>. Accessed January 15, 2019.
37. American Association of Nurse Practitioners. 2018 AANP National nurse practitioner sample survey. Available at: <https://www.aanp.org/practice/practice-related-research/research-reports>. Accessed January 15, 2018.
38. Tan KM, Lannon R, O'Keefe L, et al. Geriatric medicine in the emergency department. *Ir Med J*. 2012;105:271-274.
39. Nguyen A, Straney L, Cameron P, et al. Synthesised geriatric assessment in the emergency department setting: is it NEAT? *Aust Health Rev*. 2014;38:370-376.
40. Arendts G, Fitzhardinge S, Pronk K, et al. The impact of early emergency department allied health intervention on admission rates in older people: a non-randomized clinical study. *BMC Geriatr*. 2012;12:8.
41. Graf CE, Zekry D, Giannelli S, et al. Efficiency and applicability of comprehensive geriatric assessment in the emergency department: a systematic review. *Aging Clin Exp Res*. 2011;23:244-254.
42. Southerland LT, Vargas AJ, Nagaraj L, et al. An emergency department observation unit is a feasible setting for multidisciplinary geriatric assessments in compliance with the Geriatric Emergency Department Guidelines. *Acad Emerg Med*. 2018;25:76-82.
43. Foo CL, Siu VW, Tan TL, et al. Geriatric assessment and intervention in an emergency department observation unit reduced re-attendance and hospitalisation rates. *Australas J Ageing*. 2012;31:40-46.
44. Pareja-Sierra T, Hornillos-Calvo M, Rodriguez-Solis J, et al. Implementation of an emergency department observation unit for elderly adults in a university-affiliated hospital in Spain: a 6-year analysis of data. *J Am Geriatr Soc*. 2013;61:1621-1622.
45. Ross MA, Hockenberry JM, Mutter R, et al. Protocol-driven emergency department observation units offer savings, shorter stays, and reduced admissions. *Health Aff (Millwood)*. 2013;32:2149-2156.

46. Leipzig RM, Hall WJ, Fried LP. Treating our societal scotoma: the case for investing in geriatrics, our nation's future, and our patients. *Ann Intern Med.* 2012;156:657-659.
47. Melady D. Quality Improvement Metrics. 2017. Available at: <https://geriatric-ed.com/quality-improvement-metrics>. Accessed January 15, 2018.
48. Desy PM, Prohaska TR. The Geriatric Emergency Nursing Education (GENE) course: an evaluation. *J Emerg Nurs.* 2008;34:396-402.
49. Melady D. *Personalized E-learning in Geriatric Emergency Medicine.* Toronto, Canada: Mount Sinai Emergency Associates & LeaderLine Studios, Inc; 2013.
50. Arendts, G. Acute Geriatrics Emergency Medicine. Available at: <https://acem.org.au/Content-Sources/Advancing-Emergency-Medicine/Geriatric-Emergency-Medicine>. Accessed October 24, 2019.
51. European Geriatric Medicine Society. Emergency Geriatric Medicine. Available at: <http://www.eugms.org/research-cooperation/special-interest-groups/geriatric-emergency-medicine.html>. Accessed October 24, 2019.
52. Conroy S, Nickel CH, Jonsdottir AB, et al. The development of a European curriculum in geriatric emergency medicine. *Eur Geriatr Med.* 2016;7:315-321.
53. NHS Health Education East Midlands. *Leicester Geriatric Emergency Medicine Course.* Leicester, UK: National Health System; 2019.
54. McCusker J, Bellavance F, Cardin S, et al. Screening for geriatric problems in the emergency department: reliability and validity. Identification of Seniors at Risk (ISAR) Steering Committee. *Acad Emerg Med.* 1998;5:883-893.
55. Mion LC, Palmer RM, Anetzberger GJ, et al. Establishing a case-finding and referral system for at-risk older individuals in the emergency department setting: the SIGNET model. *J Am Geriatr Soc.* 2001;49:1379-1386.