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Concepts in Practice: Geriatric Emergency Departments

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Abstract

In 2018, the American College of Emergency Physicians began accrediting facilities as “Geriatric Emergency Departments” (GEDs) based on adherence to the multi-organizational guidelines published in 2014. The guidelines were developed in order to help every emergency department (ED) improve its care of older adults. The GED guideline recommendations span the care continuum from pre-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-

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effective manner and within the capabilities of their facilities and staff. Since all innovation is at heart local and must function within the constraints of local resources, different hospital systems have developed implementation processes for the GED Guidelines based on their differing institutional capabilities and resources. This paper describes four GED models of care to provide practical examples and guidance for institutions considering developing GEDs: a GED 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.

Introduction

The traditional emergency department (ED) care model, both in the U.S. and internationally, is ill-equipped to address the complex care needs of older adults.¹⁻⁴ Conventionally, emergency care has focused on aggressive diagnostic evaluation of acute chief complaints and the initiation of time-critical therapy. While 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 healthcare systems. For example, patients who are hospitalized for extensive evaluations are at risk for functional decline, mobility impairment, falls, and delirium.⁵⁻⁹ Healthcare systems that are not optimized for the care of older adults with multiple comorbidities may struggle with prolonged ED visits, repeat ED visits, and repeat hospitalizations, all of which are costly. As an example, the healthcare costs of two potentially preventable geriatric syndromes, delirium in the hospital and recurrent falls, are estimated to be \$83 billion dollars a year in the U.S.^{10, 11}

Despite widespread dissemination of the 2014 consensus Geriatric Emergency Department (GED) Guidelines through multiple high-profile peer-reviewed publications, GED care remains heterogeneous and the guidelines are not implemented in most EDs.^{12, 13} There is no current framework for prioritization; the best or essential practices are not known.¹⁴ The American College of Emergency Physicians provided some guidance on critical elements of high quality geriatric care with the launch of the GED Accreditation process in 2018.¹⁵ The accreditation process is based on adherence to the GED Guidelines, which recommend multidisciplinary innovations and quality improvement in geriatric emergency care from prehospital to post ED follow-up. The process is tiered, with the highest level hospital (Level 1) providing multidisciplinary geriatric assessment in the ED and adhering to 20 different best practices. The lowest level (Level 3) 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 Veteran's Affairs hospitals (a level 1 and a level 3). The four models described here are based on well-established GED programs previously described in the literature. With the increased attention to, and applications for, GED accreditation, it is reasonable to anticipate that variations, hybrids, or even newer models may emerge.

Exploring Models of GED Care

Early innovators have developed four 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 that may benefit from interventions to prevent poor outcomes such as medication interactions, falls, functional decline, and delirium.^{16–20} 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.^{21–23}

The GED Accreditation requirements were designed to provide flexibility for local innovation. For example, geriatric assessments can be done in the main ED, a dedicated GED unit, or an observation or short stay unit depending upon the availability of clinicians and staff. The differing assessments can be done 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 vary among the models, with some prioritizing embedding dedicated staff in the ED while 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 as this could impede patient flow. Conversely, EDs with larger geriatric populations may favor dedicated GED units to focus resources, training, and equipment. The description and nomenclature were agreed upon by an expert panel consisting of leaders from the geriatric emergency medicine groups of the International Federation for Emergency Medicine, the American College of Emergency Physicians, the Society of Academic Emergency Physicians, and the Australasian College of Emergency Medicine.

Most studies of GEDs have been observational and focused on short term outcomes of ED metrics, such as reducing admissions and ED revisit rates.^{21, 22, 24–29} The long-term impact of these models of care on patient outcomes is unknown, as is the impact of these programs on other patients in the ED. We lack randomized controlled trials which could better pinpoint the effects of these services on patients evaluated (and not evaluated) by these specialist teams, but further prospective data is coming.^{29, 30} Additionally, there is limited data on relevant patient-centered outcomes such as function, mobility, and health-related quality of life.³¹ Therefore we cannot say if one model of care is “better” than another, but all have shown multiple years of continuing operation and institutional support.

GED Unit:

St Joseph’s Regional Medical Center in New Jersey [Level 1 GED, large, academic hospital]
Mt. Sinai Medical Center in New York [Level 1 GED, large, academic hospital]

The first U.S. GED opened in Silver Springs, Maryland 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).^{20, 21, 32, 33} Having a dedicated space allows for structural enhancements (e.g. specialized amenities, flooring or 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.³⁴ 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 those patients who will most benefit. For example, a patient who requires hospitalization for other reasons can be hospitalized and be evaluated by the PT and case management team during their hospital stay, while a 75yo with a non-operable 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 GED unit.

Advantages of having a dedicated unit and staff are focused expertise for patient, dedicated equipment and often structural changes to the area, and less initial investment in education as only one unit/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 only certain hours of the day or during weekdays which can limit flow through the area. Also the advantage of only having to train staff in 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 1 GED, large, academic hospital] Bridgeport Hospital in Connecticut [Level 2 GED, large, academic hospital]

In this model, there is no dedicated unit for older adults. The entire ED adopts a geriatric-focused approach which may include structural changes and/or screening with geriatric assessment tools. Any or all of a geriatric nurse, nurse practitioner, allied health specialist or geriatrician is available in the ED. Evaluation by these geriatric practitioners occurs concurrently with routine ED care.^{21, 26, 29, 35, 36} The Geriatric practitioner is supported by social workers/case managers or nurses with expertise in care transitions and the ability to connect patients to community resources such as home health and nutrition services.²¹ 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.²⁶ Conversely, other sites have found that it can improve wait time to see a provider and reduce time spent in ED for patients being discharged.^{29, 36} Staffing constraints may limit the number of patients who receive geriatric evaluation prior to ED disposition. In the U.S. 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.³⁷ While geriatric-trained nurses or advanced practice providers may be more common in

the US, in parts of Europe it is not unheard of to have a geriatrician rounding in the ED.^{38, 39} A recent systematic review evaluating the benefits of this model found reduced admission rates.²² While 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.³⁵

Geriatrics Champion:

University of North Carolina-Hillsborough Hospital in North Carolina [Level 2 GED, 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 GED care. They provide staff education and help to develop and implement protocols to improve ED care. If the ED clinicians feel that a patient requires comprehensive geriatric assessment, the patient would typically be hospitalized (if indicated) or have quick outpatient follow up with a geriatrician established, as there is no dedicated ED resource for geriatric assessment. The ED may have capacity to do other aspects of multidisciplinary geriatric assessment, such as physical therapy, pharmacy resources, and case management.^{28, 40}

This model can work in any ED to improve geriatric care. It does, however, require pre-established and sustained coordination amongst the local Geriatrics Champion, community resources and outpatient geriatricians. Such a model exists at University of North Carolina at Hillsborough. This site has several emergency medicine (EM) faculty who are fellowship-trained in Geriatric EM (GEM) or have significant expertise in the area. It also supports a GEM Fellowship and maintains close ties to local paramedic agencies, nursing facilities, and community resources. Limitations of this model are that it is dependent 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.⁴⁰

Geriatric-Focused Observation Unit:

The Ohio State University in Ohio [Level 1 GED, large, academic hospital]

The Observation Unit model is a hybrid between the GED Unit and the Geriatrics Practitioner models. An ED Observation Unit is a unit within the ED (typically 10–20 beds) which cohorts patients for evaluations longer than a 4-hour ED stay but not requiring an inpatient stay beyond 48 hours. The targeted 8–24 hour observation period allows for a full interdisciplinary geriatric assessment.^{22, 27, 41} 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 lack of access to collateral and timely information.^{26, 41} 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 TIA.⁴² 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 using nurse led screening assessments.¹⁶

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. As 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 U.S., which can limit adoption of models that relay on 24/7 staffing of these services. Geriatric Observation Units in the United Kingdom, Australasia, Singapore, Spain and the U.S. have shown that comprehensive geriatric assessment in an ED Observation Unit decreases admission and readmission rates and reduced functional decline after ED discharge.^{27, 42-44} 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 your institution. As 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 cohorting effect of a dedicated observation team and services will dilute the improved outcomes for patients listed above.⁴⁵

Further Considerations for GEDs:

The models above provide some potential directions, examples, and guidance. Choosing a model of care depends on the hospital's existing resources both 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, while another that values ED throughput may prefer to utilize an Observation Unit or rapid outpatient assessments (Table 2). An ED which is planning a renovation may want to build a GED Unit, while 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 GED would impact these metrics is an important step to determining how to design care.

Some barriers to implementing a GED 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 is not reimbursable. Additionally, there is a shortage of geriatricians and geriatric nurse practitioners in the US.^{37, 46} 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 ED 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%.²¹ 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 GED 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 that 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 those patients who are at highest risk for poor outcomes after the ED visit, which results in targeting geriatric care to 10–12% 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 1 and 2 GED status, and requires a motivated multidisciplinary team and a physician medical director with administrative and quality improvement experience. Level 3 GED 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 websites and publications designed to help physicians and staff obtain more education in geriatric EM care.^{15, 47–50} In-person training is also available through geriatric emergency medicine groups in several countries, including the Geriatric Emergency Medicine Section of the American College of Emergency Physicians, 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.^{51–53} Emergency medicine residents interested in pursuing a career in Geriatric Emergency Medicine should consider a geriatric fellowship, which are available in the U.S. and the U.K. (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 four models described are successful examples of how an ED can incorporate GEM care into their practice. By utilizing existing resources, geriatrics education, and adapting protocols and policies within local systems, all emergency departments of varied sizes and ranges of resources and capabilities have the ability to bring the concepts of GEDs into practice.

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Geriatric Emergency Department care can be provided in a range of situations, from large volume academic centers to smaller community hospitals.

Table 1:

Examples of U.S. institutions:	GED Unit	Geriatrics Practitioner Model	Geriatrics Champion	Geriatric-Focused Observation Unit
• Mt. Sinai Medical Center, NY • St. Joseph's Hospital, NJ	• Northwestern University, IL • Bridgeport Hospital, CT	• Ohio State University, OH	• University of North Carolina Hillsborough, NC	• Ohio State University, OH
Annual ED volume	• MSMD: Total: 109,258; 65 years: 18,574 (17%) • SJRMC: Total: 157,413; 65 years: 218 (10%)	• NW: Total 86,998; 65 years: 16,530 (19%) • BH: Total: 94,240; 65 years: 16,746 (18%)	• Total: 17,000; 65 years: 2,250 (15%)	• Total: 80,350; 65 years: 15,145 (18.8%)
Proportion older adults receiving specialized care*	• MSMD: 10% • SJRMC: 9%	• NW: 12% • BH: 10%	• 50% screened by nurses	• 11.4% of patients 65 years are placed in ED Observation Unit
Criteria for specialized care	• MSMD: ISAR 4, ESI 3, hospital discharge last 30 days, or ED clinician request • SJRMC: age 65 years	• NW: ISAR 3, or ED clinician request • BH: TRST 2, ED clinician request, BPA for advanced dementia & critical illness	• Age 65 years	• Meets observation status criteria
Hours/days specialized care available	• MSMD: 9 hours/day; 7 days/week • SJRMC: 8 hours/day; weekdays	• NW: 11 hrs/day, weekdays • BH: 10 hrs/day, weekdays; 8 hrs/day, weekends	• 24hrs/day, 7days/week	• Observation Unit is open 24/7. • Geriatricians: weekdays. • PT, OT, Pharmacy & CM team: Monday-Saturday
Specialized care providers:	• Interdisciplinary team of care providers with specialized training in geriatric patient care: ED physician, ED nurse, social worker or case manager, PT, OT, pharmacist & 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 & Palliative Care team and GENE trained RN. Interdisciplinary team of SW, chaplains, PT, OT, CM, & 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: ED physician, ED nurse, social worker or case manager, PT, OT, pharmacist & geriatrics consultants (physician or APP)
Strengths:	• Cohorting of patients, resources, medical supplies and care specialists for better care • Better management of delirious patients due to 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 & increased flexibility than dedicated GED unit • Can improve ED wait times & length of stay for patients being discharged	• Repurpose existing case management and nursing roles. • Lower cost and increased flexibility than dedicated GED unit	• Preserves ED flow and length of stay. • Consultants can keep normal business hours and bill professional fees for their evaluations, similar to inpatient care. • Prevents unnecessary admissions
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.	• 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 towards the qualifying inpatient stay for

GED Unit	Geriatrics Practitioner Model	Geriatrics Champion	Geriatric-Focused Observation Unit
	• Staff turnover can lead to periods of reorientation and cultural adaptation		skilled nursing facility placement, which could increase hospital length of stay for patients requiring placement.

* Proportion of total ED encounters for patients 65 years in age who are either: treated in the GED Unit, evaluated by the Geriatric Practitioner, are screened for geriatric syndromes by ED nurses (Geriatrics Champion model), or placed in the Geriatric-Focused Observation Unit.

Abbreviations: GED – Geriatric emergency department; MSMC: Mt. Sinai Medical Center (New York, NY); SJRMC: St. Joseph’s Regional Medical Center (Patterson, NJ); NMH: Northwestern Memorial Hospital (Chicago, IL); UNC: University of North Carolina at Chapel Hill Medical Center (Chapel Hill, NC); NYWC – Weill Cornell Medical Center (New York, NY); PT: physical therapy; OT: occupational therapy; CM: case management; SW: social work; APRN: advanced practice registered nurse; APP: advanced practice provide; ISAR: Identifying Seniors at Risk Tool;⁵³ TRST: Triage Risk Screen Tool.⁵⁴

Table 2:

Elements to consider when choosing a Geriatric ED model of care.

	GED 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 consult 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 ^{21, 22}	decreased ^{26, 29, 54}	unknown ⁴⁰	decreased ^{42- 44}

* Geriatrics Practitioner is a dedicated staff member without other clinical duties who assesses older adults in the ED. Most commonly a nurse or nurse practitioner, but can also be a Geriatrician embedded in the ED.