Geriatric Emergency Medicine - a model for frailty friendly healthcare

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Introduction

An ageing world has transformed the clinical populations for all non-paediatric physicians into one in which older people predominate. Life expectancy has increased, in part because more effective treatment options now exist for specific diseases like cancer and cardiovascular disease. These disease-specific advancements built upon improved foundations of knowledge ranging from the cellular level to clinical implementation. Continued progress in the quality of life in older persons will require a shift towards the geriatric paradigm.

Using Comprehensive Geriatric Assessment (CGA) contributes to better outcomes for older people in various healthcare settings [1-3], making CGA the bread and butter of geriatricians in the community, in nursing homes and in hospitals. However, the principles of holistic care that are the basis of CGA have not been integrated to the full extent in disease specific treatment guidelines. For example, randomised controlled trials are considered the highest level of evidence, but historically only 7% specifically studied older people [4] and poorly report the heterogeneity of the included older participants [5] and outcomes relevant to older people [6]. As a result, there is often uncertainty about the risks and benefits of disease specific interventions (as opposed to more holistic interventions) in older people [7].

As the world's population continues to age over the decades ahead, medical educators and researchers in every adult medical and surgical specialty will need to "geriatricise" their clinical science; many have already engaged with geriatrics. Here we describe the progress that has been made and the opportunities ahead in the field of Geriatric Emergency Medicine (GEM), a field that has taken large steps in integrating holistic care, which may serve as an example for other specialties.

GEM past and present

Since emerging as a specialty in the 1970s, Emergency Medicine has traditionally emphasised fast-paced and protocolised care for time-dependent health threats like sepsis, myocardial infarction, trauma, and stroke [8]. Although the philosophy of Emergency Medicine originally rooted in a singular "rule-out worst-case scenario" applied to populations of all ages, awareness gradually emerged that this approach was suboptimal for many older adults and that most emergency departments (ED) were ill-equipped to adapt this paradigm for aging populations [9,10]. An acute disease episode is often a pivotal incident in the life of an older person, especially in those living with frailty. Acutely ill older people suffer high risks of adverse outcomes, such as mortality and functional decline [11,12]. But do *all* older people benefit from the traditional model of standardised Emergency Care? GEM is an intriguing field that aims to deliver holistic care for acutely ill older people, often with frailty and comorbidity and complex care needs, within a fast-paced and clinically diverse environment.

Thirty years ago, the John A. Hartford Foundation recognised an opportunity to explore the impact of aging adults on one specialty and provided a grant to the Society of Academic Emergency Medicine (SAEM) [13] in the United States of America. As depicted in **Figure 1**, the growth of GEM since has included coordination of research [14], medical student and resident education [15,16], and multi-organisational clinical practice guidelines [17,18]. Subsequently, increasing numbers of research groups around the world focusing on GEM have emerged such as the European Task Force for Geriatric Emergency Medicine, a collaboration of European Geriatric Medicine Society and the European Society for

Emergency Medicine, the American College of Emergency Physicians (ACEP) GEM group, and the International Federation of Emergency Medicine (IFEM) GEM group. A timeline shows that the GEM movement is growing over time with more and more global initiatives especially in the last decade (**FIGURE 1**).

Current opportunities

The topic of care for older people in the ED is now widely recognised. The ongoing COVID-19 global pandemic amplified the unique challenges of providing emergency care to large numbers of older patients. This recognition catalyses opportunities to evolve ED care towards a more holistic model with improved patient outcomes. These opportunities exist in the three domains of evidence-based medicine [19]: patient preferences and needs, scientific evidence, and physician knowledge and expertise. Implementation requires new innovations also in the organisation of care (**FIGURE 2**).

Element 1: focusing on patient preferences and individual situation. Clinical guidelines, including in the ED, aspire to improve patient-oriented outcomes via the transparent application of research evidence to bedside care with a focus on the balance of potential benefits and harms, as well as costs and potential health inequities. Whereas many guidelines focus on mortality or disease duration, older people often prioritise outcomes of maintaining independence or quality of life [20]. Interestingly, older people consider a holistic approach of their health and an assessment of frailty to be a very logical item to discuss in the ED [21]. The shift towards aiming at patient prioritised outcomes or values has become prominent in the movement towards 'value-based healthcare' yet requires fundamental understanding of patient goals and preferences. Measuring outcomes using Patient Reported Outcome and Experience Measures (PROMs and PREMs) provides the opportunity to quantify outcomes preferred by patients, and can be used to study the effect of interventions to improve patient experience [22]. To date, no such measures have been developed specifically for the older patients with frailty and urgent care needs [23]. Developing PROMs and PREMs for this particular patient group, preferably by co-creating with older people, and implementing them in clinical studies and service development may greatly impact outcomes relevant to older people.

Element 2: increasing the knowledge and expertise of professionals on the ED regarding the specific needs of older people. A key element of the GEM movement is its collaborative nature. GEM has recognised the importance of competencies from both Emergency Medicine and Geriatrics specialties and their role in improving outcomes. This blended approach is more than the sum of its parts. The combination of both Geriatric and Emergency competencies are too important to be solely practiced in the ED. Blended competencies that address urgent care for undifferentiated medical and surgical patients with often non-specific presentations, requires coordinated geriatricisation of surgical and medical consulting services. For example, frailty assessment, holistic person-centered focus, and sometimes end of life care are relevant throughout a patient's care journey, extending beyond the ED through to the hospital ward, intensive care unit, or primary care [24]. The second version of the Silver Book [25] provides an overview of the state of the art on all these topics and will fuel new education endeavors around the globe. Recently developed pragmatic clinical guidelines [18] may be used for teaching purposes targeting the diverse group of professionals who care for older adults in the acute setting.

Element 3: increasing the evidence-base with relevant and high-quality clinical studies. One obstacle to overcome is the fact that interventions to improve outcomes in the ED are often multifactorial and complex. This leads to the Catch-22 that the effectiveness of such can only be tested after implementation in clinical practice, yet implementation is halted by the lack of proven effectiveness [26]. Alternative approaches, such as pragmatic trials and implementation science [27] may help to overcome these barriers, under the condition that scientists and funding bodies accept that not all effectiveness studies can be randomised trials. Another way to increase scientific impact is by generating international standards. Healthcare systems around the world are very different, so one-size-fits-all solutions are unlikely. By generating a transdisciplinary and international vocabulary, while synchronising the timeframe and most clinically impactful outcomes, professionals around the globe can benefit from each other's research. For example, if orthopedic surgery, trauma surgery, physiotherapy, emergency medicine, and geriatrics can reach agreement around measures of frailty, future fall-risk and whether to focus on fall rates or injurious falls, then subsequent fall prevention studies could attain scales of efficiency by empowering clear clinical communication and apples-to-apples comparisons across studies [28,29]. An Utstein style approach has been suggested to come to similar international standards in GEM [30]. Another yet unexplored layer of complexity is defining and adjusting for the impact of the individuality of each emergency department as well as the transportability of recommendations across international healthcare settings. Even within one city, each ED has a unique context of resources, opinion leaders, and priorities. An illustration of this exists in the wide array of geriatric quality improvement efforts to address the same guideline recommendations as the ACEP accredits geriatric ED's [31]. Expanding this context across borders adds both constraints and opportunities as some countries' spending on older adults includes private insurance, while others are completely government funded [32]. Structural funding opportunities are crucial to initiate and sustain research and quality improvement [33]. Unfortunately, federal and transnational GEM funding opportunities are currently non-existent. Hypothetically, this funding shortfall exists because GEM is not about a deadly disease, exists without an active patient-lobby, and is not organ-based.

Element 4: organisation of care and network medicine. The ED is only one node in the healthcare chain or - from patient perspective - only one stop in the patients' journey. There is a growing evidence base to support networked GEM care, for example through enhanced training for prehospital teams. Some centres are offering real-time senior GEM support to first responders, using a range of communication mechanisms. In early service development, not only is there evidence of more frailty attuned care, but a reduction in conveyances to hospital - potentially a good outcome for patients but also for the system. Similarly, Hospital at Home services now have a robust evidence base showing that frailty care provided at home can provide better outcomes than acute hospital care - similar reductions in mortality and institutionalisation to CGA in hospital, but with lower rates of delirium and at reduced costs [2]. Given the limitations of providing hospital wide CGA [24], it could be that the combination of GEM support to pre-hospital teams, alongside greater Hospital at Home services might permit the transformation from hospital to home based care for older people living with frailty that has been the subject of policy for so long, but without tangible traction [9].

Conclusion

The development of GEM has been relatively rapid and is accelerating in the last decade in parallel with the increasing healthcare demands of older people. Future opportunities for further development of GEM follow the elements of Evidence Based Medicine and organisation of care and may serve as an exemplar path for other fields of medicine also experiencing an increasing demand by older people, such as critical care, nephrology, cardiology, and surgery. The required changes show parallels to the proposed model of macro-meso-micro levels in changes management in multi-disciplinary healthcare [34] where activities encompassing the broad spectrums of generating awareness, education, research and implementation act in concert. Macro level activities (such as guidelines, policy, funding, curriculums) and Meso level conditions (collaborative working, shared common vision, joint accountability) ultimately facilitate the desired Micro level change at the level of clinician-patient interactions. Similar strategies may be useful in other fields of medicine, in making holistic care the standard for older people.

194 Figure 1. History of Geriatric Emergency Medicine: selected achievements
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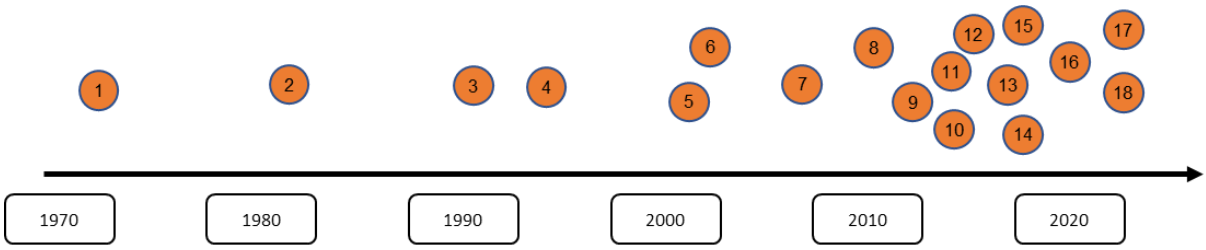

Nr.	Year	Activity
1	1971	First EM Residency
2	1982	Initial EM studies on geriatric populations
3	1991	Hartford SGI Grant awarded to SAEM
4	1996	First Geriatric EM Textbook
5	2001	SAEM Geriatric Task Force and ACEP Geriatric Section formed
6	2003	AGS/NIA EM Research Agenda Setting Process
7	2009	Initial Geriatric EM Quality Improvement metrics published
8	2010	EM residence geriatric core competencies published
9	2013	European Task Force on GEM established by EuGMS and EUSEM
10	2013	Silver Book version 1 published
11	2013	Geriatric ED guidelines published
12	2014	Geriatric Emergency Department Collaborative created
13	2016	European Curriculum for GEM published
14	2018	International Federation of Emergency Medicine minimal international standards of GEM published
15	2018	ACEP accreditation program for geriatric ED's
16	2020	European Research Agenda for GEM published
17	2021	European Guidelines on GEM published
18	2021	International Federation of Emergency Medicine white paper on GEM published

Abbreviations:

ACEP (American College of Emergency Physicians), AGS (American Geriatrics Society), ED (emergency department), EM (emergency medicine), ENA (Emergency Nurses Association), GEAR (Geriatric Emergency care Applied Research network), GED (geriatric emergency department), GEDIWISE (Geriatric Emergency Department Innovations in Care through Workforce Informatics and Structural Enhancements), GSI (geriatrics for specialty initiative), NIA (National Institute of Aging), RASP (research agenda setting process), SAEM (Society for Academic Emergency Medicine),

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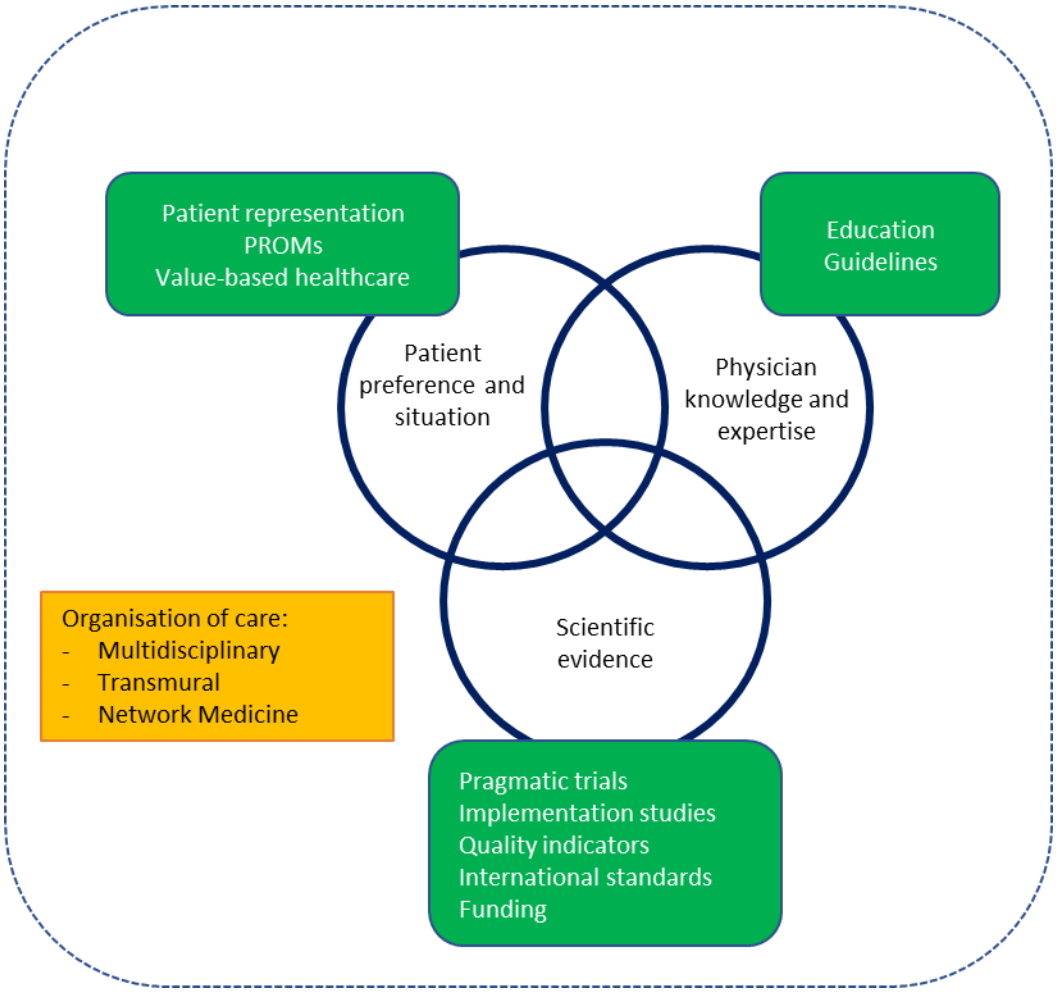
Figure 2. Opportunities for improving evidence-based medicine in GEM



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