



Demography is destiny: An agenda for geriatric emergency medicine in Australasia

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Abstract

The present paper presents an agenda for geriatric emergency medicine research, education and policy development. Herein we will argue:

1. Population ageing is the definitive health policy challenge in Australasia, and the greatest stressor for emergency medicine posed by population ageing is the disproportionate contribution of older people to hospital occupancy.
2. ED practices and models of care may on occasions contribute to rather than reduce high hospital occupancy in older people, benefitting neither individual patients nor the community at large.
3. Geriatric emergency medicine priorities can be conceptualised using a simple framework, and this process will facilitate a research and policy focus on how to achieve equivalent or improved care for older people with less hospital occupancy.

Key words: *demography, geriatrics, hospitalisation.*

Introduction

The face of emergency medicine in Australia and similar countries worldwide is changing. When the Australasian College for Emergency Medicine was founded in the 1980s, it was based on the requirement to train specialists to manage ‘acute and urgent aspects of illness and injury’.¹ Although diagnosis and resuscitation of the critically ill remains the *raison d’être* of emergency medicine, older people presenting to EDs with decompensation of chronic illness and complex geriatric syndromes are increasingly commonplace. This pattern of change in presentations poses serious structural issues for emergency medicine that need to be addressed in a systematic manner if we are to maintain

an effective and responsive system of care in the ED. In the present paper, we show how population ageing is impacting ED care and how some policies and practices within ED can perversely exacerbate this impact. We present a proposed framework whereby practitioners working in emergency care can engage in research and policy development to achieve improved care for older people in our community, whereas addressing the negative influence some ED processes can have on hospital occupancy.

Population ageing

Changing demographics and increased life expectancy are regularly referenced in association with the rise in

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demand for emergency health services. Australia's age structure is shifting upwards as a result of declining fertility and delayed mortality. Population projections predict that by 2050, 25% of the population will be aged 65 years or over,² with the proportion aged 85 years or more rising from 1.5% to 5% of the population.³ Similar trends are expected elsewhere.⁴

The growing burden of chronic disease disproportionately affects older people, with over half of the population aged 65 years and over reporting a disability, and 19% reporting profound limitations.⁵ Additionally, the proportion of people needing assistance with core self-care activities because of a health condition or disability lasting more than 6 months rises with age.⁶ Therefore, it is not surprising that the average number of hospital bed-days utilised per annum rises from 1.5 days per persons aged 65–69 years old, to 6.3 days per persons aged 85 and over.⁷ People aged 65 and over comprise 13% of the population yet contribute 35% of hospital admissions and 47% of hospital occupied bed-days.⁸ Using multiple estimation methods, it is projected that by 2050, people aged 65 and over will be responsible for two-thirds of all hospital bed-day utilisation.⁷

Commensurately, ED attendances among older people are high in relative and absolute terms, with the fastest growth in ED presentations by patients aged 65 years or older.⁹ These trends are likely to continue into the future. A recent 14-year study showed an acceleration over time in the rate of transportation by ambulance to the EDs of the population aged 85 years or more. Predictive modelling forecasts the transportation rate will rise from 474 per 1000 population in 2007–2008 to a rate of 844 per 1000 population aged ≥ 85 years by 2014–2015.¹⁰

This older age group is estimated to represent 17–20% of all ED presentations in the UK, USA, Canada and Australia,¹¹ and almost 60% of the population aged 85 years and over presented for emergency care in 2008/2009.¹² Many carry a high burden of chronic disease, multiple comorbidities and polypharmacy issues,¹³ contributing to increasing workload and utilisation of ED resources with longer ED stays.^{12,14,15} Older patients also have a greater likelihood of admission, with those aged 85 years or more 5.1 times as likely to be admitted for an overnight stay compared with patients aged 35–59 years, and 11.1 times as likely to be admitted for a multiday inpatient stay.¹⁶

The association between hospital occupancy, ED access block and adverse patient outcome is well documented.^{17,18} Older people are disproportionate contributors to hospital occupancy but also disproportionately

suffer the consequences of access block.^{19,20} In addition to adverse outcomes associated with boarding older people in ED, there is a large body of evidence pointing to negative consequences of hospitalisation in older people.^{21,22}

Increasing demand for hospital beds and improved knowledge of the negative sequelae of hospitalisation has provided the impetus for technological advances and efficiency gains to reduce the average hospital length of stay for many conditions. This is an appropriate response but without adequate safety measures, it might result in increased ED utilisation because of unplanned consequences of premature discharge leading to early ED re-attendance.²³ Clearly, the challenge is to achieve the balance between minimising hospitalisation and maintaining safe care in the community.

ED care for the older person

The redistribution of ED demography towards older people has a number of implications. Population ageing is an inexorable force that will inevitably change the face of EDs. It is important, however, that the response to population ageing is not fatalistic. It has been argued with some cogency that emergency physicians are not suitably equipped to optimally manage older patients with complex needs in traditional ED environments.²⁴ ED care of the older person can be associated with unintended consequences of both omission and commission. It is well within the remit of ED planning to address these, as they harm individual older patients and the broader system. A number of rational solutions to access block have been proposed, emphasising that the bulk of these lie beyond the walls of the ED.²⁵ Nonetheless, there are several loci where ED processes can be highlighted for improvement as part of the response to the challenges posed by population ageing.

Improved clinical care

It is self-evident that older people attending ED are presenting with a wide spectrum of illness and injury, including 'classical' acute single system clinical emergencies in which emergency physicians are expert. However, relative to younger adults, the patterns of ED presentation vary in older adults in important ways, and there is clear evidence that if these are unrecognised, negative consequences result. Deficiencies in

geriatric clinical care within the ED that result in prolonged hospital stay, greater resource utilisation and patient morbidity occur in several areas.

Geriatric syndromes that are seen largely or exclusively in older people

The term geriatric syndrome has no universal definition but refers to conditions rather than specific illnesses that contribute to morbidity and mortality risk in older people. Important syndromes commonly encountered that can influence ED presentations and care include cognitive impairment, sarcopenia, malnutrition, frailty, impaired homeostasis and chronic inflammatory states.²⁶ These syndromes can be poorly recognised, understood or managed in the time critical environment of ED yet an appreciation of them is fundamental to medical care of the older adult. For example, delirium is present in at least 10% of all older people on presentation to ED;²⁷ poorly recognised by ED staff with the diagnosis missed in up to 80% of cases;²⁸ sometimes caused or contributed to by work practices and systems within the ED;²⁹ a major contributor to prolonged hospital stay and morbidity in older inpatients;³⁰ and independently associated with increased mortality when undetected in ED.³¹ Despite this, very few EDs have any formal approach to delirium identification, even though simply administered screening and diagnostic tools exist.³² It is interesting to speculate on the response if it were shown, for example, that a sequelae of high velocity trauma was associated with increased mortality, occurred in 10% of trauma victims and was missed by ED physicians eight times in 10.

Atypical presentations and age related variance of common illnesses

It is commonly stated that older ED patients have a higher likelihood of atypical illness presentations, although the published evidence for this in many conditions is lacking. In some circumstances, 'atypical' presentations really reflect communication difficulties between staff and older people with unrecognised cognitive impairment, speech and/or language deficits or social/cultural barriers to history taking rather than actual atypicality.⁴ The presence of multiple comorbidities and multiple medications can confound the assessment of common symptoms and contribute to the impression of atypicality. Nonetheless, there is clear evidence of pathophysiological differences in illness presentation in older compared with younger adults among emergencies such as acute coronary syndrome,³³

surgical abdominal pathology³⁴ and sepsis³⁵ that increases the likelihood of diagnostic error and adverse outcome.

Polypharmacy and drug prescribing

Pharmacological misadventure in older people in ED is common.³⁶ Problems most commonly arise through a lack of understanding of specific age-related changes in drug pharmacokinetics and the association between medication use and exacerbations of comorbid disease states common in older people.³⁷ Drug interactions when ED physicians prescribe new medications to patients on a large array of drugs (some of which may be unknown) are also frequent. All of these issues are in addition to the often cited problem that many ED presentations are due to medication side-effects or toxicity. The strongest evidence for improving ED care regarding the complexities of polypharmacy in older people is found through the introduction of a dedicated pharmacist to the emergency care team, which has realised an improved approach to medication review; therapeutic monitoring throughout longer ED stays; education of patients, nurses and physicians; and a reduction in adverse events.^{38,39}

Discharge planning

Early ED re-attendance in older patients post-discharge is common and has been suggested as a quality indicator for ED care.⁴⁰ A number of screening tools have been developed to holistically evaluate the older patient from a psychosocial perspective, and so assist in the identification of patients at increased risk of re-attendance.⁴¹ Furthermore, there is evidence that referral to targeted post-discharge services can reduce this risk.⁴² ED attendance may represent a sentinel event in a patient with functional or other decline, and as such the acute episode of care in the ED and the discharge decision needs to be viewed in context – the acute event may be of minor importance relative to other factors that can pose a risk to safe discharge. It is now common for ED services to include multidisciplinary nursing/allied health teams that assume these aspects of ED care,⁴³ but the true impact of such services needs further evaluation.

Improved workforce and training

North American emergency physicians report relative difficulties in the assessment and management of geriatric patients and believe there is insufficient time spent

on geriatric medicine during their training.⁴⁴ To the authors' knowledge, no surveys have been similarly conducted in Australasia. It is reasonable, however, to assume that some of the deficiencies in clinical care we have highlighted will in part reflect deficiencies in skills and training. Training of emergency physicians by the Australasian College for Emergency Medicine is of high quality but has few specific requirements for training in geriatrics. The practice of paediatric emergency medicine has some similarities to geriatric emergency medicine in terms of there being specific paediatric syndromes and age specific variance in presentation of illness. Patients aged 0–14 comprise 22%, and aged 65 or over 19%, of all ED attendees in Australia.⁴⁵ Table 1 contrasts the training requirements and other college processes related to paediatric and geriatric emergency medicine.

In general terms, the appropriate response to any perceived shortfall in emergency physician skills is either the upgrading of clinician training and skills, the 'outsourcing' of the care of geriatric patients in emergency departments to other parties, or both. Altered college processes, hospital- or university-based geriatric emergency medicine fellowships, the use of multidisciplinary geriatric teams in ED to supplement the roles of ED physicians, or the referral of older people from the point of triage to the care of non-ED physicians⁴⁶ are all options for consideration without overwhelming supportive evidence.

Improved models/systems of care

There is substantial argument that EDs are unsuitable environments for the care of older people, leading to the call for dedicated redesigned departments that may better meet the need of older patients.⁴⁷ Although

Table 1. Comparison of geriatric and paediatric ACEM processes

Parameter	Paediatric	Geriatric
Mandatory accredited training	Yes	No
Log book of exposure	Yes	No
Mandatory component of fellowship examination	Yes†	No
Formal arrangement with RACP for joint training	Yes	No
ACEM special interest group	Yes	No

†25% of MCQ section, minimum of one of each of SAQ, VAQ and SCE sections.

intuitively attractive, there is as yet no trial evidence that this redesign leads to improved outcomes.⁴⁴

As already noted, one response to the perceived deficiencies in ED environment and clinical care of older people is to minimise the amount of time older people with complex illness presentations spend in ED. When coupled with time-based targets in ED that mandate rapid disposition decisions, there is inevitably an incentive to increase the hospital admission rate for older ED attendees.⁴⁸ This response could be appropriate with evidence that it reduces adverse event rates, overall length of stay or costs. However, as we have previously shown, hospital occupancy is already very high and accelerating in older people, and the opportunity cost of rapid transfer from ED to an inpatient bed must be considered as part of the drive towards time based targets in this population.

A proposed framework for research and policy development

As we have shown, ED demand will be increasingly driven by larger numbers of older people with complex illness that have until now been managed with hospitalisation. Population ageing is contributing to this trend and is unmodifiable from a clinician's perspective. However, clinician engagement at a research, education and policy level can provide improvements in the myriad areas where current ED care contributes to, rather than reduces, hospital occupancy.

The vast bulk of ED research, unsurprisingly, focuses on care within the confines of the ED. We have shown that improving clinical and systems of care within the ED may contribute to better clinical outcomes and reduced hospital use. However, this narrow focus is inadequate to address the challenges posed by population ageing. To address these fully, ED clinicians need to engage with a research and policy agenda that extends well beyond the brief period of contact typical of an ED clinical encounter.

Conceptually, we advocate a research and policy focus that is represented by an inverse pyramid (Fig. 1). The greatest gains that are likely to be achieved in terms of ameliorating the impact of population ageing on ED will be from avoiding ED attendance, and so on down the pyramid. Critical illness research in older people is important and reflects the skill mix of ED clinicians but in itself is likely to have a much narrower impact on the overall care of older people.

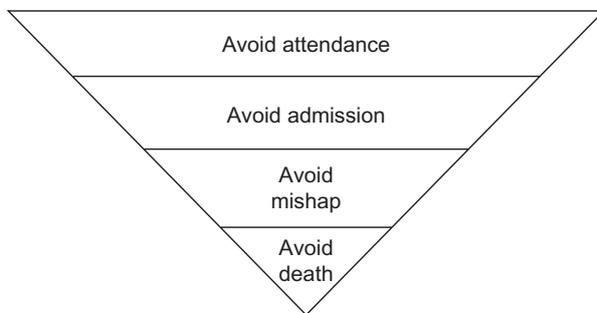


Figure 1. Framework for geriatric emergency medicine policy and research.

Attendance avoidance

Developing programmes that facilitate avoidance of ED attendance will have most ‘bang for the buck’ in this area. Conceptually, ED attendances in older people mainly occur because of exacerbations of chronic illness, acute new illness or injury or a combination of both. Chronic disease management strategies are varied, beyond the realm of ED expertise and have often shown no or modest benefit on reducing hospital attendances in target populations.^{49,50} There is argument for regarding ED care as part of a seamlessly integrated system of care for a patient with a chronic illness,⁵¹ but as of yet what role if any ED physicians should assume in this is undefined.

There is more obvious scope for ED engagement with community-based services that provide alternatives to ED care and meet the acute healthcare needs of older people outside of hospital. Although there are currently challenges with workforce shortages and timely accessibility to acute community-based care, this is predicted to alter as a result of growth in medical workforce training capacity, raising the potential for primary healthcare reform including implementation of ‘patient-centred medical home’ models of care that have experienced success in the United States.⁵² ED engagement with ambulance⁵³ and community-based⁵⁴ services to provide home-based rather than hospital-based acute care shows some promise in diverting people from ED, but there is a clear research need for defining how ED diversion and alternative community-based acute care models can be developed to maximise efficacy, efficiency and acceptability.

Of particular mention is the care of older people living in residential aged care. Although transfers from aged care facilities to ED represent only a small proportion of ED workload,⁵⁵ there is considerable policy emphasis on

attendance avoidance from this sector. Multiple studies have demonstrated modest benefits in attendance avoidance from a variety of interventions, including ED outreach/primary care collaborations.⁵⁶

A number of evaluations in the field of ED substitution services use episodes of care as a measure of successful outcome, equating an episode of care in the community with an avoided ED attendance. Because of the vast amount of unmet need for chronic and acute care in the older population, this usually represents an overestimation of the impact of these services. It is vital that outcome measures beyond episodes of care are used by researchers in this area.

Admission avoidance

As we have shown, admission rates in older people attending ED are high. Therefore, even small reductions in these rates for common conditions will have meaningful impact,⁵⁷ benefitting the health system as well as avoiding the negative clinical consequences of hospitalisation such as deconditioning and delirium.

Some alternatives to admission, such as hospital in the home programmes, are already well established.⁵⁸ Not infrequently such programmes exclude complex older patients with multiple comorbidities. As previously alluded to, the emphasis on time-based targets for ED care perversely incentivises admission of older people, and admission avoidance research and policy development needs to work within this framework. The challenge of discharging such patients with confidence, and the fact that a ‘failed’ discharge resulting in ED re-attendance is often measured as an ED performance indicator but an unnecessary admission is not, may also contribute to high admission rates. Admission decisions are highly variable among individual ED physicians and frequently not evidence-based and yet the cost to the health system and to individual patients through unnecessary admission decisions by ED physicians is potentially vast.⁵⁹ Complex systems research that defines and expands the scope of conditions that are able to be managed via discharge pathways and community-based services is imperative.

Avoiding mishap: improved ED clinical care of common geriatric presentations

We have shown that deficiencies in ED care can result in poor outcomes and unnecessary morbidity for older people. Clinical research to continuously improve diagnosis and interventions for older patients in ED is

self-evidently important. The evidence base for emergency care of older people is lacking as many trials have an upper age limit cut-off. This is important not only because older people may receive therapies that provide no benefit from inappropriate extrapolation of results from trials in younger patients but also because they may be excluded from therapies that could provide benefit if trial evidence existed.

Beyond clinical studies, research into whether changed systems of care within ED such as the expanded use of ED short stay wards and development of specialist and standalone geriatric ED can improve clinical care for older people is warranted.

Appropriate resuscitative care for critically ill older patients

It has been reported that an increasing number of older patients at the end-of-life are susceptible to intrusive, ineffective or medically futile treatment at times of acute illness.^{60,61} There is an enormous amount of uncertainty regarding prognosis decision making in critically ill older people, which when coupled with a deeply conditioned preference among ED physicians for resuscitation understandably results in a default of resuscitation even in those people with grim prognoses. Mechanistic research that allows an understanding of critical illness⁶² will enable a better discernment of prognosis and the limits beyond which resuscitative care represents invasive futility. This will also enable targeted therapeutic trials to improve resuscitation of older people with critical illness. Importantly, end-points of such research in older will look beyond survival to ICU admission to examine outcomes such as functional dependence and quality adjusted life years gained such that the goals of such treatment will avoid undesired outcomes.

It could be reasonably argued that the agenda we propose here is well beyond the scope that should be expected to arise from within the confines of the ED alone. One of the inherent strengths and attractions of emergency medicine has been to foster a right of access for the community to excellent, around the clock acute care for unforeseen illness and injury, with early referral to other providers for conditions outside this scope of practice. The reality of emergency medicine in the future is somewhat distant from this picture. Current models of ED care are not foreseeably sufficient to cope with the numerous challenges ahead associated with continuing demand and an ever increasing load of chronic illness exacerbations and geriatric syndromes

in an ageing population. Therefore, it is timely that emergency research and policy development ventures beyond the walls of the acute hospital. Through engagement and collaborative research with community-based providers, it will be possible to develop innovative evidence-based models of acute care that are not only cost-effective but also ensure timely responses across the health system to manage the health and social care needs of older people.

Author contributions

GA conceived the paper and was primarily responsible for drafting the “ED care for the older person” and “A proposed framework for research and policy development” sections. JL was primarily responsible for drafting the “Population ageing” section. Both authors edited and revised the final manuscript.

Competing interests

None declared.

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