Improving outcomes for older people with emergency care needs

Abstract

This article describes work on emergency care for older people. It summarises patient experience in emergency care settings, the evidence base relating to improvement of outcomes and emerging interventions and describes tools that can support teams as they work on service improvement. Finally, it calls for the measurement of outcomes that matter to older people, as a mechanism to drive more person-centred approaches to emergency care.

Key words: Comprehensive geriatric assessment; Emergency care; Frailty; Older people; Person-centred care; System dynamics

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Introduction

Major international organisations have identified older people as having specific needs in emergency care (Ellis et al, 2020; Lucke et al, 2022). Those older people living with frailty are especially vulnerable to poor outcomes during healthcare crises requiring attention in emergency care systems (Elliott et al, 2021). Frailty – the vulnerability to adverse outcomes which people may experience during a health crisis – results from cumulative decline and decreased reserve across multiple physiological systems (Ferrucci et al, 2004). This risk is consistently apparent across community, emergency and hospital settings, even after adjusting for age and comorbidities (Clegg et al, 2016; Keeble et al, 2019; Elliott et al, 2021).

The first hours of emergency care have a powerful influence over the remaining episode of hospitalisation and recovery (Carpenter et al, 2021). Atypical presentation patterns and combination problems (such as delirium) are common in frailty. Their delayed recognition manifests in compounded crises and treatment complications (such as reduced mobility and pressure ulcers) (Dani et al, 2018). It is not only admitted older people who are at risk; those discharged from emergency departments are also at risk of significant functional decline (Keeble et al, 2019).

This article provides an overview of emergency care intervention and issues from a National Institute of Health Research-commissioned research programme on emergency care for older people in 2018. Its focus was emergency department interventions that might improve outcomes for older people.

The problem: emergency services configuration

Early in the emergency care for older people study, older people were recruited for in-depth interviews about their recent experience of emergency care (Regen et al, 2022). Unsurprisingly, people wished to be treated by caring, responsive and respectful staff in a calm and safe environment. Clear, timely communication of information was also highlighted as a means of enabling patients' involvement in decision making about their own care. However, these basic tenets of dignified and appropriate care were not always perceived as being fulfilled.

This perhaps explains the frequently expressed reluctance to attend hospital in the first place: people living with frailty have different healthcare goals for emergency care, and these often remain unmet (Phelps et al, 2022; van Oppen et al, 2022a).

Current systems for emergency care are typically not designed to meet the needs of older people living with frailty. Rather, systems tend to prioritise the streamlined detection

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of single problems suitable for direction into care pathways, instead of the comprehensive assessment and holistic management of multiple and perhaps interacting issues. This is a missed opportunity, as there is evidence that outcomes for people with frailty can be improved by providing comprehensive care early.

Whole system improvement

In the UK, the 2019 NHS Long Term Plan attempted to unify health and social care providers through partnerships and integrated systems. A key aim was to promote older people's independence and person-centred care and reduce inequalities and institutionalisation (NHS Improvement and NHS England, 2019). This integration sought to support professionals to better coordinate care. Rather than alter isolated elements of emergency care, this enabled interventions, such as same day emergency care, to be implemented across whole systems (NHS Improvement and NHS England, 2019). In doing so, in this particular instance, this could see GPs, rapid community response teams and emergency department clinicians collaborate to prevent unnecessary emergency department attendances and speed up discharge from hospital.

There is an ongoing need and opportunity for a whole-system approach grounded in frailty-attuned care to improve outcomes for older people living with frailty experiencing healthcare crises (NHS RightCare, 2019). This article outlines the evidence for whole system models in this setting and to help systems select an evidence-based approach.

Potential system models

Within acute hospital settings, there is robust evidence to support the role of comprehensive geriatric assessment to reduce mortality and institutionalisation for older people with acute illness (Ellis et al, 2017). Typically, comprehensive geriatric assessment involves a team of professionals from multiple backgrounds working together to perform a multidimensional assessment (Table 1). Comprehensive geriatric assessment has been tested in many parts of the urgent care system. Some of the resulting care models were appraised in the Emergency Care for Older People programme, as summarised by Preston et al (2020).

Proactive care

Proactive care describes a range of schemes that share common elements, including primary care-based population risk stratification (for example, using the electronic Frailty Index; Clegg et al, 2016) and interventions tailored to the level of frailty. These interventions range from promoting healthy lifestyles to polypharmacy, falls management and advance care planning. While popular with policymakers, patients and practitioners, proactive care has limited potential to prevent frailty crises (Blom et al, 2018) and associated hospital admissions, but systems do have some choice about how and where crises are managed, as described in the following sections.

Pre-hospital geriatric care

Schemes that support paramedics with additional training to enable them to provide more holistic care to older people have shown a reduction in conveyance to hospital, as well as

Table 1. Components of comprehensive geriatric assessment

Diagnoses (there will usually be multiple interacting comorbidities, with associated polypharmacy)
Physical function (activities of daily living)
Psychological function (especially confusion and mood)
Environment in which the individual functions
Social support networks present or required to maintain ongoing function, and a focus on what matters to the patient

hospital admissions (Mason et al, 2007; Snooks et al, 2017). Other efforts to bring point of care diagnostics into the community offer some promise (Novak et al, 2022), and schemes involving secondary care outreach for adults of all ages have also shown a reduction in conveyance to hospital (Joy et al, 2020).

In an approach termed 'silver triage', developments in Leicester and London involve senior clinicians supporting ambulance services in their clinical decision making relating to older people living in long-term care (care homes) at the point of conveyance. Initial service evaluations have indicated that this scheme can reduce conveyance to hospital from 75% to around 20%, while still facilitating holistic, person-centred care in people's own homes. Figure 1 situates schemes such as silver triage in the whole system context. Key elements of the intervention include:

1. Silver Ttriage: pre-conveyance clinical discussion between paramedics and a consultant geriatrician or emergency physician with geriatric expertise, accessed via a single telephone number, to support decision making around admission and exploring safer alternatives (eg rapid response treatment at home). This includes supporting the interpretation of treatment escalation plans and guiding discussions with patients and families
2. A follow-up visit from a geriatrician (where available) or community services (eg community matron) if a particularly rapid response is needed, if the situation is complex, or if the usual GP cannot provide the appropriate response within a clinically appropriate timescale. These visits might include initiation of treatment or referrals for follow-up treatment, initiation or updating of treatment escalation plans and support for care home staff in undertaking the necessary next steps for care and monitoring of the patient
3. Structured feedback to the usual GP, paramedics and community services.

Hospital at home

Hospital at home schemes, sometimes referred to as 'virtual wards,' provide holistic care to people with urgent care crises in their own homes. Patients are referred onto the scheme by their GP or from acute hospitals, and receive multidisciplinary care similar to that delivered by doctors, nurses, therapists and others in hospital in their own private residence. a hospital at home-delivered comprehensive geriatric assessment results in a similar mortality incidence rate when compared to a hospital-delivered comprehensive geriatric assessment at 6 months (risk ratio = 0.98, 95% confidence interval (CI) = 0.65–1.47) (Shepperd et al, 2021). It can also reduce admissions to long-term residential care (risk ratio = 0.58, 95%

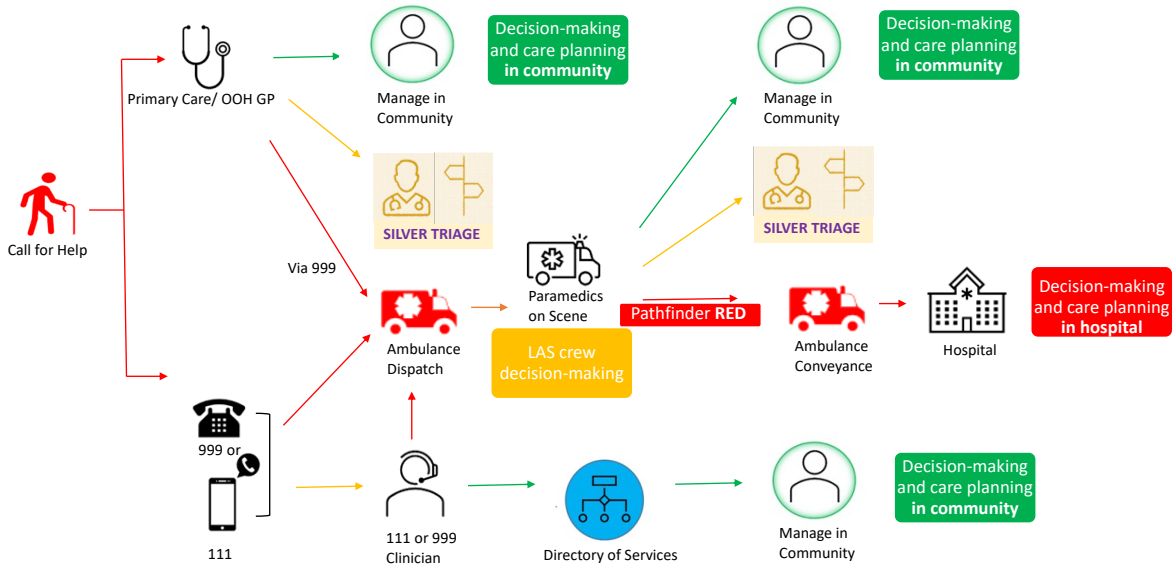

Figure 1. Silver triage pathway. LAS = London ambulance service; OOH = out of hours.

CI = 0.45–0.76). The incidence of delirium is lower in hospital at home schemes compared to acute hospitals, and it appears to be cost-effective (Singh et al, 2022).

Geriatric emergency medicine

There is now a growing body of evidence to support the role for commencing comprehensive geriatric assessment in emergency settings, although the mechanism of delivery will vary according to the local context and resources (Carpenter et al, 2021). Early identification of people with frailty could direct multidisciplinary resources to provide comprehensive geriatric assessment for those with greatest potential benefit. Geriatrician-led comprehensive geriatric assessment reduces admissions (absolute risk reduction 2.6–19.7%) and 30-day readmissions (risk ratio = 0.74, CI = 0.55–1.00) (Preston et al, 2020).

Front-door frailty services

Front-door frailty services (or frailty at the front door) involves nurse- or allied health professional-led comprehensive geriatric assessment, often involving integration with community teams. Evidence on effectiveness is uncertain in relation to hospital-related mortality (risk ratio = 0.92, CI = 0.55–1.52), admissions (risk ratio = 0.9, CI = 0.7–1.16), 30-day readmissions (risk ratio = 0.95, CI = 0.83–1.08) and institutionalisation at 4–18 months (risk ratio = 0.75, CI = 0.44–1.29) (Preston et al, 2020).

Acute frailty units

Geriatrician-led comprehensive geriatric assessment delivered in short-stay areas for admitted patients can reduced hospital-related mortality (risk ratio = 0.86, CI = 0.68–1.1) and readmissions at 12 months (risk ratio = 0.78, CI = 0.67–0.92) (National Institute for Health and Care Excellence, 2018).

In the acute hospital setting, comprehensive geriatric assessment delivered in dedicated geriatric wards saves lives and reduces institutionalisation (Ellis et al, 2017). Multidisciplinary teams providing post-acute care rehabilitation and recovery can reduce readmissions (Gonçalves-Bradley et al, 2017).

Effect on the system

Developing a frailty service takes time and effort, and resources may not permit the simultaneous improvement of its different facets. Healthcare systems are incredibly complex, with their component elements interacting, interrelated or interdependent (Ackoff, 2010). These elements may not have the same properties, purpose or product as the system as a whole. Thus, specific attention to the individual elements may not improve, or may even impair, a whole system's performance. System-level quality improvement prioritises a shared vision over linear iteration of components, thereby enabling people to appreciate the structures and patterns causing problems and to effect more sustainable change (Senge, 2006).

Having explored experiences of emergency care and identified potential intervention models, the final element of the Emergency Care for Older People programme considered how care models might perform within the system context. A computer simulation model was developed – termed system dynamics – to allow testing of service design ideas on a computerised version (a model) of the real-world system, without incurring the risks and costs of implementation. System dynamics takes a high-level, strategic view, and depicts the interactions between the different parts of a system over time (Darabi and Hosseinichimeh, 2020). The system dynamics model was developed from system-wide data from the UK Yorkshire and Humber region. Its translation to an interface tool allows users to simulate the likely impact of five different evidence-based interventions using their own or example data. The user can test different care models with working hours to predict the optimal impact before setting up new services. As an example, the system predicted that 15 fewer hospital beds would be occupied following the introduction of a silver triage scheme, as described earlier (Figure 2).

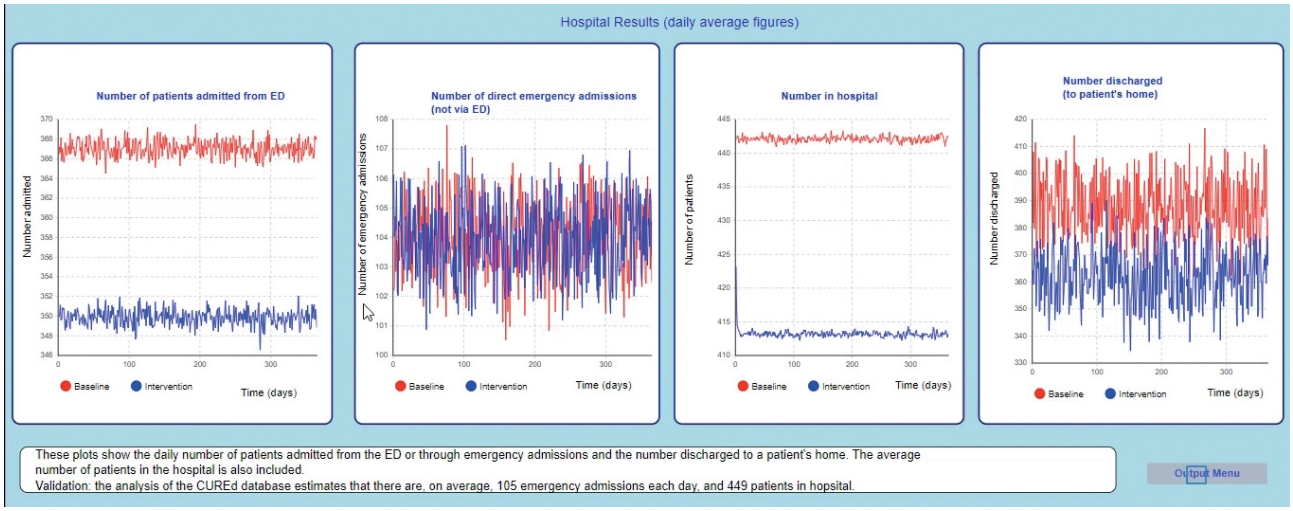

Figure 2. Use of the systems dynamics model to predict the impact of a silver triage scheme working 8am–8pm, 7 days per week, and achieving 50% reduction in ambulance conveyances from care homes.

Unanswered questions

Person-centred outcomes

The described care model interventions were predicted to achieve reductions in conveyance, hospitalisation and institutionalisation – but does this matter? Understanding the negative experience of older people in emergency care settings and avoiding unnecessary emergency care seems, intuitively, to be an advantage. However, people living with frailty will still have health crises requiring care, regardless of whether hospital attendances or admissions are avoided. These needs may increasingly be met in community settings through pre-hospital support and hospital at home schemes, with reduced hospital conveyances potentially representing system-level success.

There are limitations in the data with which these system-level impacts can be measured. The systems dynamics modelling in the Emergency Care for Older People study used outcomes data routinely collected throughout the NHS and, indeed, most healthcare systems internationally. Predicted outcomes included mortality, duration of emergency department and hospital episodes, readmission rates and institutionalisation. However, the rationale presented earlier was that older people with frailty often had more holistic, self-determined outcome goals that were unmet in emergency care. These meaningful outcome goals are poorly represented in the more quantitative service metric outcomes that we were able to analyse.

To predict the effect of interventions on these more meaningful person-centred outcomes, what matters to people would need to be routinely measured. This is possible using patient-reported outcome and experience measures (van Oppen et al, 2021). These are self- or proxy-completed questionnaires, developed and validated using psychometric methods. While there is no validated patient-reported outcome or experience measure for immediate use by older people with frailty and emergency care needs, preliminary measures are currently being appraised in the UK and are expected imminently (Graham et al, 2022; van Oppen et al, 2022b).

Conclusions

This article has described the poor outcomes frequently experienced by many older people living with frailty who have with urgent care needs. Interventions have been identified that could improve patient and service outcomes, as well as implementation tools and strategies to help professionals, including clinicians, service managers and commissioners, to further develop emergency care for older people. These findings support policy initiatives in the UK, such as acute and hospital at home services (virtual wards). The importance of measuring what matters to the patient in addition to service metrics has also been highlighted.

Key points

- Emergency care for older people is a major international issue. Older people report poor patient experience and unmet goals and needs following an emergency care episode.
- Frailty-attuned holistic interventions have been shown to save lives, reduce hospitalisation and reduce institutionalisation.
- Systems dynamics modelling can help teams decide upon which interventions might best achieve their aims in their given context.
- Alongside service metrics, there is a need to measure patient experience and outcomes, to drive more person-centred care.

Future work should explore implementation of patient-reported outcome and experience measures, as well as evaluate novel schemes, such as silver triage. Workforce issues require greater focus to ensure that clinicians are equipped with the relevant knowledge, skills and behaviours to care for older people living with frailty.

Conflicts of interest
The authors declare that there are no conflicts of interest.

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References

Ackoff R. Systems thinking for curious managers. Axminster: Triarchy Press; 2010

Blom JW, Van den Hout WB, Den Elzen WPJ et al. Effectiveness and cost-effectiveness of proactive and multidisciplinary integrated care for older people with complex problems in general practice: an individual participant data meta-analysis. Age Ageing. 2018;47(5):705–714. https://doi.org/10.1093/ageing/afy091

Carpenter C, Banarjee J, Conroy S. Silver Book II. 2021. https://www.bgs.org.uk/resources/resource-series/silver-book-ii (accessed 10 February 2023)

Clegg A, Bates C, Young J et al. Development and validation of an electronic frailty index using routine primary care electronic health record data. Age Ageing. 2016;45(3):353–360. https://doi.org/10.1093/ageing/afw039

Dani M, Owen LH, Jackson TA et al. Delirium, frailty, and mortality: interactions in a prospective study of hospitalized older people. J Gerontol A Biol Sci Med Sci. 2018;73(3):415–418. https://doi.org/10.1093/gerona/glx214

Darabi N, Hosseinichimeh N. System dynamics modeling in health and medicine: a systematic literature review. Syst Dyn Rev. 2020;36(1):29–73. https://doi.org/10.1002/sdr.1646

Elliott A, Taub N, Banerjee J et al. Does the clinical frailty scale at triage predict outcomes from emergency care for older people? Ann Emerg Med. 2021;77(6):620–627. https://doi.org/10.1016/j.annemergmed.2020.09.006

Ellis G, Gardner M, Tsiachristas A et al. Comprehensive geriatric assessment for older adults admitted to hospital. Cochrane Database Syst Rev. 2017;2017(9):CD006211. https://doi.org/10.1002/14651858.CD006211.pub3

Ellis B, Lowthian J, Melady D. White paper on the care of older people with acute illness and injury in the emergency department. West Melbourne (VIC): International Federation for Emergency Medicine; 2020

Ferrucci L, Guralnik JM, Studenski S et al. Designing randomized, controlled trials aimed at preventing or delaying functional decline and disability in frail, older persons: a consensus report. J Am Geriatr Soc. 2004;52(4):625–634. https://doi.org/10.1111/j.1532-5415.2004.52174.x

Gonçalves-Bradley D, Iliffe S, Doll H et al. Early discharge hospital at home. Cochrane Database Syst Rev. 2017;6(6):CD000356. https://doi.org/10.1002/14651858.CD000356.pub4

Graham B, Smith J, Nelmes P, Latour J. 1148 Harnessing a student network to support validation of the patient reported experience measure for over 65s attending the emergency department (PREM-emergency department 65+): initial findings from a novel collaborative project. Emerg Med J. 2022;39(3):253. https://doi.org/10.1136/emermed-2022-RCEM.21

Joy T, Ramage L, Mitchinson S et al. Community emergency medicine: taking the ED to the patient: a 12-month observational analysis of activity and impact of a physician response unit. Emerg Med J. 2020;37(9):530–539. https://doi.org/10.1136/emermed-2018-208394

Keeble E, Roberts HC, Williams CD, Van Oppen J, Conroy SP. Outcomes of hospital admissions among frail older people: a 2-year cohort study. Br J Gen Pract. 2019;69(685):e555–e560. https://doi.org/10.3399/bjgp19X704621

Lucke JA, Mooijaart SP, Heeren P et al. Providing care for older adults in the emergency department: expert clinical recommendations from the European Task Force on Geriatric Emergency Medicine. Eur Geriatr Med. 2022;13(2):309–317. https://doi.org/10.1007/s41999-021-00578-1

Mason S, Knowles E, Colwell B et al. Effectiveness of paramedic practitioners in attending 999 calls from elderly people in the community: cluster randomised controlled trial. BMJ. 2007;335(7626):919. https://doi.org/10.1136/bmj.39343.649097.55

National Institute for Health and Care Excellence. Emergency and acute medical care in over 16s: service delivery and organisation. 2018. https://www.nice.org.uk/guidance/ng94 (accessed 10 February 2023)

NHS England. The NHS Long Term Plan. 2019. https://www.longtermplan.nhs.uk/ (accessed 10 February 2023)

NHS Improvement, NHS England. Ambulatory emergency care guide: same-day acute frailty services: same day acute frailty services. 2019. https://www.england.nhs.uk/wp-content/uploads/2021/02/SDEC_guide_frailty_May_2019_update.pdf (accessed 24 February 2023)

NHS RightCare. NHS RightCare: frailty toolkit. 2019. https://www.england.nhs.uk/rightcare/wp-content/uploads/sites/40/2019/07/frailty-toolkit-june-2019-v1.pdf (accessed 24 February 2023)

Novak A, Cherry J, Ali N et al. Point-of-care blood testing with secondary care decision support for frail patients. J Paramed Pract. 2022;14(2):54–62. https://doi.org/10.12968/jpar.2022.14.2.54

Phelps K, Regen E, van Oppen JD et al. What are the goals of care for older people living with frailty when they access urgent care? Are those goals attained? A qualitative view of patient and carer perspectives. Int Emerg Nurs. 2022;63:101189. https://doi.org/10.1016/j.ienj.2022.101189

Preston L, van Oppen JD, Conroy SP et al. Improving outcomes for older people in the emergency department: a review of reviews. Emerg Med J. 2020;38(12):882–888. https://doi.org/10.1136/emermed-2020-209514

Regen E, Phelps K, van Oppen JD et al. Emergency care for older people living with frailty: patient and carer perspectives. Emerg Med J. 2022;39(10):726–732. https://doi.org/10.1136/emermed-2022-212420

Senge P. The fifth discipline: the art and practice of the learning organisation. New York (NY): Random House Business; 2006

Shepperd S, Butler C, Cradduck-Bamford A et al. Is comprehensive geriatric assessment admission avoidance hospital at home an alternative to hospital admission for older persons?: a randomized trial. Ann Intern Med. 2021;174(7):889–898. https://doi.org/10.7326/M20-5688

Singh S, Gray A, Shepperd S et al. Is comprehensive geriatric assessment hospital at home a cost-effective alternative to hospital admission for older people? Age Ageing. 2022;51(1):afab220. https://doi.org/10.1093/ageing/afab220

Snooks HA, Anthony R, Chatters R et al. Paramedic assessment of older adults after falls, including community care referral pathway: cluster randomized trial. Ann Emerg Med. 2017;70(4):495–505.e428. https://doi.org/10.1016/j.annemergmed.2017.01.006

van Oppen JD, Valderas JM, Mackintosh NJ, Conroy SP. Patient-reported outcome and experience measures in geriatric emergency medicine. Z Gerontol Geriatr. 2021;54(2):122–124. https://doi.org/10.1007/s00391-020-01777-4

van Oppen JD, Coats TJ, Conroy S, Valderas JM, Mackintosh N. Patient-reported outcome measure for older people living with frailty receiving acute care (PROM-OPAC): a programme of development and field-testing. Emerg Med J. 2022a;39:A991–A992. https://doi.org/10.1136/emermed-2022-RCEM2.54

van Oppen JD, Coats TJ, Conroy SP et al. What matters most in acute care: an interview study with older people living with frailty. BMC Geriatr. 2022b;22(1):156. https://doi.org/10.1186/s12877-022-02798-x