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ROYAL COLLEGE OF EMERGENCY MEDICINE CARE OF OLDER PEOPLE QUALITY IMPROVEMENT PROJECT AT UNIVERSITY HOSPITAL OF NORTH DURHAM

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Abstract— Older adults constitute a growing proportion of emergency department (ED) attendances and hospital admissions. Delirium, frailty, and falls represent major clinical risks in this population, yet screening and management remain inconsistent. This study evaluated a local quality improvement (QI) project at the University Hospital of North Durham (UHND) aimed at improving the assessment and management of older patients in the ED. Prospective data were collected between February and November 2024 (n = 158) using the Royal College of Emergency Medicine (RCEM) Care of Older People Quality Improvement Project (QIP) criteria and benchmarked against national data (n = 1,997).

Local outcomes demonstrated improved completion rates for falls-risk and frailty screening compared with national averages and markedly higher implementation of falls-mitigation strategies. However, delirium screening and comprehensive geriatric assessments (CGA) remained below national levels. The project also explored staff engagement, barriers to consistent screening, and follow-up interventions such as targeted teaching and a re-audit cycle. Findings highlight the value of structured QI initiatives in improving targeted care processes and outcomes for older patients while underscoring ongoing challenges in embedding systematic delirium assessment within busy ED environments.

Keywords— older adults, delirium, frailty, falls, emergency department, quality improvement, patient safety

I. INTRODUCTION

The ageing population in the United Kingdom presents one of the most significant and enduring challenges to acute and emergency care. Adults aged 75 years and older now account for over a fifth of all ED attendances, with projections suggesting continued growth due to demographic trends and improved longevity (NHS England, 2023). This demographic shift has profound implications for healthcare systems, particularly emergency medicine, which must manage the complex interplay of multimorbidity, polypharmacy, cognitive impairment, and social vulnerability (Conroy et al., 2016).

Among older adults, delirium, frailty, and falls constitute a "triple threat" that directly impacts patient outcomes, length of stay, and healthcare costs. Delirium, an acute neurocognitive disorder, is associated with a two-fold increase in mortality and higher rates of institutionalisation post-discharge (British Geriatrics Society, 2021). Frailty, defined as decreased physiological reserve and reduced resilience to stressors, predicts prolonged hospitalisation, functional decline, and frequent re-attendance (Rockwood et al., 2005). Falls are a leading cause of injury-related death, disability, and healthcare utilisation among older adults (Rubenstein, 2006).

Recognising these challenges, the Royal College of Emergency Medicine (RCEM) developed the Care of Older People QIP to standardise key assessments across UK EDs. The QIP focuses on three measurable domains:

1. Delirium screening, typically using the 4 'A's Test (4AT) (Bellelli et al., 2014),
2. Frailty assessment, using the Rockwood Clinical Frailty Scale (CFS) (Rockwood et al., 2005), and
3. Falls-risk assessment and documentation of mitigation actions.

From a psychometric perspective, reliable and valid screening instruments are essential to detect these risks accurately in a busy ED environment. Delirium can be rapidly screened using the 4 'A's Test (4AT), a tool demonstrating high sensitivity (88%) and specificity (88%) in acute hospital settings (Bellelli et al., 2014). Frailty assessment often employs the Rockwood Clinical Frailty Scale (CFS), a 1–9 ordinal scale with strong predictive validity for adverse outcomes, including mortality and hospital readmissions (Rockwood et al., 2005). Falls-risk assessment, though less standardised psychometrically, utilises a combination of clinical history, mobility

evaluation, and environmental factors. Embedding such tools into ED workflows requires careful consideration of psychometric properties, feasibility, and clinician adherence.

Despite national guidance and accessible tools, compliance in real-world EDs remains inconsistent. Barriers include competing clinical priorities, limited geriatric training, uncertainty regarding ownership of assessments, and high cognitive load among staff (Samaras et al., 2019). Research in applied psychology highlights that cognitive load, time pressure, and task-switching in emergency environments can reduce adherence to systematic screening, particularly for complex cognitive assessments like delirium (Sweller, 2011).

Quality improvement (QI) methodologies provide structured frameworks to bridge the gap between guidelines and practice. By integrating iterative Plan–Do–Study–Act (PDSA) cycles, data feedback, and staff engagement, QI initiatives foster measurable behavioral change, improve process reliability, and support sustainable clinical outcomes (Batalden & Davidoff, 2007). This study implemented the RCEM Care of Older People QIP at the University Hospital of North Durham (UHND) to evaluate the effectiveness of local interventions in improving screening and management of older patients in the ED.

II. AIMS

The specific aims of this project were to:

1. Enhance the screening of delirium, frailty, and falls risk among older patients in the ED.
2. Ensure appropriate management actions are taken based on screening outcomes.
3. Improve the documentation of patients' basic care needs during their ED stay.
4. Compare local performance against national QIP benchmarks to identify strengths and opportunities for improvement.
5. Develop and implement targeted interventions based on audit results and measure impact through re-audit.

These objectives reflect both clinical priorities and psychometric considerations, as accurate assessment and reliable documentation form the foundation for evidence-based interventions.

III. METHODS

A. Design and Setting

A prospective QI evaluation was undertaken in the Emergency Department of the University Hospital of North Durham, a district general hospital serving a mixed urban–rural population in County Durham. The study spanned February to November 2024 and employed three iterative Plan–Do–Study–Act (PDSA) cycles, allowing for rapid-cycle evaluation and incremental improvement. Each cycle involved:

1) Data collection using standardised proformas and RCEM QIP criteria.
2) Presentation of findings to the ED team in monthly feedback sessions.
3) Team discussion to identify barriers and opportunities for improvement.
4) Implementation of refinements based on feedback.

The PDSA methodology is widely endorsed in applied psychology and healthcare research as a structured, iterative approach to behaviour change, supporting learning from real-world practice while minimising risk to patients (Taylor et al., 2014).

B. Participants

Patients aged ≥ 75 years were eligible if their National Early Warning Score 2 (NEWS2) was < 4, in line with RCEM guidance to exclude critically ill patients. A total of 158 patients were included. Direct intensive care admissions were excluded to minimise duplication and confounding.

Demographic and clinical characteristics, including age, sex, comorbidities, and presenting complaints, were recorded. These variables allowed exploration of potential moderators of screening compliance, such as polypharmacy, cognitive impairment, and mobility limitations.

C. Data Collection and Instruments

Data collection adhered to RCEM's Care of Older People QIP methodology.

1) Delirium Screening: The 4AT was used for rapid assessment. The 4AT evaluates alertness, cognition (orientation and recall), attention, and acute change, taking under 2 minutes. Psychometric evaluation indicates high sensitivity and specificity in both research and clinical settings (Bellelli et al., 2014).

2) Frailty Screening: The Rockwood Clinical Frailty Scale (CFS) rates overall fitness or frailty on a 1–9 scale. Scores ≥ 5 indicate moderate to severe frailty. Reliability and predictive validity are well-established, with inter-rater agreement ranging from 0.72–0.85 (Rockwood et al., 2005).

3) Falls Assessment: Documentation included recent fall history, gait stability, use of mobility aids, and physiological risk factors. While standardised psychometrics are limited, structured assessment promotes reliability and guides intervention.

All data were recorded on paper proformas and later entered into the national RCEM portal. Monthly feedback reports summarised performance metrics and identified action points for subsequent PDSA cycles.

D. Data Analysis

Descriptive statistics were used to summarise completion and management rates. Local results were benchmarked against aggregated national data (n = 1,997) provided by RCEM (2023). Differences were interpreted qualitatively rather than statistically given sample size limitations.

Qualitative feedback from staff, collected during PDSA meetings, was analysed thematically using an applied psychology framework, focusing on barriers, cognitive load, and adherence to screening protocols.

E. Ethical Considerations

As a registered RCEM Quality Improvement Project, this study was exempt from formal research ethics committee review. All data were anonymised prior to submission, and no patient-identifiable information was collected. The project adhered to the principles of the Caldicott Guidelines and the NHS Data Security and Protection Toolkit.

IV. RESULTS

Overall, UHND demonstrated improved performance in key domains compared with national averages. The most marked improvement was observed in falls-risk mitigation, reflecting enhanced staff engagement and systematic post-screening interventions.

TABLE I RESULTS: **LOCAL VS. NATIONAL PERFORMANCE**

Indicator	Description	Local Performance (%)	National Performance (%)
Delirium Screening (4AT)	Completion of delirium screening in eligible patients	4.0	15.0
Falls Risk Assessment	Completion of falls risk assessment	55.7	43.8
Frailty Screening (Rockwood)	Completion of frailty screening	60.0	53.0
Delirium Management Plans	Initiation of management plans in identified cases	33.0	28.8
Falls Mitigation	Implementation of mitigation strategies in at-risk patients	91.9	32.6
Comprehensive Geriartric Assessment (CGA)	Initiation of full geriartric assessment	6.5	35.5
Safety Rounds Documented	Documentation of patient safety rounds	24.0	31.0

Key Findings include:

- Falls Mitigation: High compliance (91.9%), reflecting successful integration of safety interventions such as low-bed usage, environmental adjustments, and early mobility review.
- Frailty Screening: Exceeded national average (60% vs. 53%).
- Delirium Screening: Remained low (4%), highlighting ongoing barriers in rapid cognitive assessment.
- Comprehensive Geriatric Assessment (CGA): Limited referrals (6.5%), consistent with ED resource constraints.
- Qualitative Feedback: Identified barriers including competing priorities, high staff turnover, limited familiarity with screening tools, and incomplete documentation during shift handovers.

V. DISCUSSION

This local QI project demonstrates measurable improvements in older adult care in the ED, particularly in falls-risk identification and mitigation. High compliance suggests that structured interventions, clear guidance, and staff engagement can drive behavioural change even in high-pressure clinical environments.

A. Interpretation of Findings

The substantial improvement in falls-risk management reflects the translation of audit feedback into actionable practice, supported by clinical leadership and nursing engagement. This aligns with evidence showing that QI initiatives with visible local ownership achieve higher sustainability (Batalden & Davidoff, 2007).

Conversely, the persistently low rates of delirium screening highlight ongoing barriers to implementing cognitive assessments in the fast-paced ED environment. Studies indicate that emergency clinicians often perceive delirium tools as time-consuming or secondary to acute stabilisation priorities (Samaras et al., 2019). Enhanced education on the brevity and utility of the 4AT, coupled with integration into electronic documentation, may increase compliance.

Frailty screening using the Rockwood CFS achieved moderate success, suggesting growing familiarity with the tool. Embedding frailty scores into triage systems or electronic patient records could further support systematic assessment and continuity of care.

B. Comparison with National Data

Relative to national averages, UHND outperformed in process-driven measures (falls and frailty) but underperformed in multidisciplinary assessments requiring inter-team collaboration (delirium and CGA). This

pattern mirrors broader trends across UK EDs, where resource and time constraints limit access to geriatric teams during peak hours (RCEM, 2023).

C. Actions Taken and Next Steps

In response to the findings, several targeted interventions have been introduced:

1) Delirium Education: Teaching sessions for all ED clinicians have been delivered, focusing on delirium recognition and assessment using the 4AT. The training highlights practical scoring techniques, interpretation of results, and initiation of appropriate management plans.

2) Falls Documentation Improvement: Clinicians received dedicated teaching on comprehensive post-fall assessment, including top-to-toe examination, ECG, blood investigations, and postural blood pressure measurements to ensure holistic evaluation and documentation.

3) Frailty and Rockall Scoring: Efforts are underway to enhance the accuracy and consistency of Rockall scoring at triage. Nursing staff, who often complete these assessments, have been invited to provide feedback and contribute to refining local processes.

4) Second-Cycle Reaudit: A re-audit cycle is currently in progress to evaluate the impact of these interventions on documentation rates, screening accuracy, and management outcomes.

These actions form the foundation for continuous improvement and aim to embed structured care processes for older adults into routine ED practice. These steps align with applied psychological principles, such as iterative feedback, reinforcement, and proceduralisation of clinical behaviour (Michie et al., 2011).

D. Implications for Practice and Policy

Embedding care of older people within emergency medicine aligns with national priorities for safer, integrated urgent care (NHS England, 2023). Locally, the project has prompted consideration of introducing automatic electronic prompts for 4AT and CFS documentation and developing a joint ED–geriatrics frailty pathway. Incorporating audit metrics into departmental performance dashboards could further normalise ongoing monitoring.

D. Limitations and Future Directions

Limitations include the single-centre design, small sample size, reliance on documentation as a proxy for care delivery, and short data-collection duration. These constraints limit generalisability and the ability to detect sustained improvement.

Future directions include:

1) Expanding collaboration with inpatient geriatrics teams to improve CGA completion.
2) Evaluating long-term outcomes, such as admission rates, length of stay, and readmissions.
3) Conducting psychometric validation studies to assess inter-rater reliability and predictive validity of screening tools in ED populations.
4) Investigating cognitive load and behavioural determinants of adherence using applied psychology frameworks.

E. Methodological Refinements and Psychometric Considerations

A central challenge in older adult care in ED settings is balancing assessment thoroughness with practical feasibility. From a psychometric perspective, tools like the 4AT and Rockwood CFS must be implemented in ways that maintain their reliability and validity under real-world conditions. For instance, inter-rater variability in frailty scoring can arise due to inconsistent understanding of functional benchmarks, such as differentiating between “mild” and “moderate” frailty. In this project, training sessions included vignettes and real-case simulations, which research suggests improves scoring consistency and reduces measurement error (Rockwood et al., 2005).

Moreover, falls-risk assessments, while less psychometrically formalised, rely on structured data collection and interpretation. The project team developed a standardised checklist incorporating intrinsic risk factors (e.g., muscle weakness, orthostatic hypotension), extrinsic environmental hazards, and patient-reported prior falls. This systematic approach enhanced both inter-rater reliability and reproducibility of findings, enabling better comparison against national benchmarks.

From an applied psychology standpoint, implementing these tools effectively requires understanding human factors, cognitive load, and behavioural reinforcement. High-pressure ED environments often induce stress and attentional overload, which can compromise adherence to screening protocols (Sweller, 2011). The project addressed this through workflow integration, embedding screening prompts into patient notes and triage checklists, thereby reducing reliance on memory and free recall. Additionally, positive reinforcement through monthly feedback reports highlighted successes, fostering intrinsic motivation among staff—a strategy supported by behaviour change theory (Michie et al., 2011).

VI. CONCLUSIONS

The Care of Older People QI Project at UHND successfully improved falls-risk assessment and mitigation within the emergency department, demonstrating the value of localised audit-driven quality improvement. While frailty screening showed encouraging progress, delirium assessment and comprehensive geriatric liaison remain key targets for enhancement. Embedding structured audit cycles, cross-disciplinary teaching, and digital documentation prompts offers a pathway to sustainable improvement.

The implementation of targeted teaching, improved documentation guidance, and ongoing re-audit cycles represents a proactive response to audit findings. These actions will strengthen the consistency and accuracy of care for older adults and ensure alignment with RCEM national quality standards over time.

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