

Impact case study (REF3)

Institution: University of Leicester		
Unit of Assessment: UoA2		
Title of case study: Improving outcomes for older people with frailty and urgent care needs		
Period when the underpinning research was undertaken: 2008 - present		
Details of staff conducting the underpinning research from the submitting unit:		
Name(s): 1. Simon Conroy 2. Jay Banerjee	Role(s) (e.g. job title): 1. Professor of Geriatric Medicine 2. Honorary Professor of Emergency Care University Hospitals of Leicester NHS Trust	Period(s) employed by submitting HEI: 1. 2008 - Present 2. N/A
Period when the claimed impact occurred: 2013 - 2020		
Is this case study continued from a case study submitted in 2014? N		
1. Summary of the impact		
<p>In England, half of frail older people will die within two years of an urgent care episode. One million older people are admitted to UK hospitals annually, using two-thirds of hospital beds at a cost of >£5 billion p/a. Over the last 15 years, researchers at the University of Leicester have developed a range of novel, urgent care attuned interventions, some resulting in a 10% reduction in hospitalisations. Care models based on these interventions have been successfully implemented in over 100 hospitals nationally and internationally in Sweden, Finland, Netherlands, Spain, Ireland, Australia and Canada, enabled by the Acute Frailty Network led by Conroy.</p>		
2. Underpinning research		
<p>Frailty describes a state of vulnerability, identification of which helps clinical teams understand why apparently innocuous challenges such as minor infections can result in catastrophic declines in patients' function. It is complex in nature, requiring delivery of multifaceted, multidisciplinary responses to achieve improved patient outcomes. Frailty impacts massively on hospitals, with the one million frail older people admitted occupying ~two-thirds of English hospital beds at a cost of almost £5 billion annually [E1]. Research at the University of Leicester led by Professor Simon Conroy demonstrated that 75% of these patients have one or more adverse outcomes within 90 days of an urgent care episode and up to 50% mortality by two years [R1]. Conroy's team developed a Hospital Frailty Risk Score (HFRS) that, for the first time, allowed healthcare systems internationally to implement reliable and systematic stratification of older people admitted to hospital [R2]. The significance of the HFRS was recognised by winning the Royal College of Physicians' 2019 The Lancet research award. Their research demonstrated that these patients benefit from holistic care via a Comprehensive Geriatric Assessment (CGA); adopting this approach reduces the Number Needed to Treat (NNT) to 17 to prevent 1 death [R3]. Conroy's research identified a major evidence gap for CGA in urgent care settings [R4] and was subsequently able to demonstrate the efficacy of new provision models at the acute and community care interface, in emergency departments and across the whole healthcare system [R6].</p>		

In 2012, Conroy co-authored the 'Silver Book' quality care guidelines [R5] which >20% of UK hospitals had adopted by 2016. This highly influential output established the crucial evidence base required to underpin service developments in healthcare settings. Since publication, it has been downloaded over 200,000 times. It has been used nationwide to promote improvements in urgent care for frail older people and informed NHS policy including NHS building design guidance [E4] and the NHS RightCare Frailty Toolkit [E5]. The significance of this research led in 2015 to the creation of the Acute Frailty Network (AFN) and Conroy's appointment as national Clinical Lead. In this capacity, Conroy has supported over 100 UK hospitals in their development of urgent care responses for frail older people with substantial positive outcomes. The importance of the AFN's work was recognised in 2018 when it won the Royal College of Physicians' 'Excellence in Patient Care Award' for quality improvement.

Implementation of Conroy's research has expanded to non-geriatric settings, for example in cancer care and surgery, to facilitate embedding of 'frail friendly' care pathway mechanisms throughout the healthcare system [R7]. This led to the development of the Specialised Clinical Frailty Network (SCFN), which since 2018 has worked with 61 cardiac, renal, cancer, critical care, spinal, vascular, cardiac, and neurosurgical teams to embed specialist frailty-attuned care within their services. Many collaborators demonstrated improvements in both care processes and health outcomes for frail older people in their care. Conroy personally was awarded the William Farr medal in 2018, a singular annual award for leadership in the care of older people, and was profiled in BMJ Confidential in 2017.

3. References to the research

R1. Keeble E, Roberts H, Williams C, Van Oppen J and **Conroy SP**. Outcomes of hospital admissions among frail older people: a 2-year cohort study. *British Journal of General Practice* 2019;69(685):e555-e60. doi: 10.3399/bjgp19X704621 AND Elliott, A., et al., Does the Clinical Frailty Scale at Triage Predict Outcomes From Emergency Care for Older People? *Annals of Emergency Medicine*, 2020.

R2. Gilbert T, Neuburger J, Kraindler J, **Conroy SP**, et al. Development and validation of a Hospital Frailty Risk Score focusing on older people in acute care settings using electronic hospital records: an observational study. *The Lancet* 2018;391(10132):1775-82. doi: 10.1016/S0140-6736(18)30668-8

R3. Ellis G, Gardner M, Tsiachristas A, **Conroy SP**, et al. Comprehensive geriatric assessment for older adults admitted to hospital. *Cochrane Database of Systematic Reviews* 2017(9):CD006211. doi: 10.1002/14651858.CD006211.pub3.

R4. **Conroy SP**, Stevens T, Parker SG, et al. A systematic review of comprehensive geriatric assessment to improve outcomes for frail older people being rapidly discharged from acute hospital: 'interface geriatrics'. *Age and Ageing* 2011;40(4):436-43. doi: 10.1093/ageing/afr060

R5. Banerjee J, **Conroy SP**, others. *The Silver Book: quality care for older people with urgent & emergency care needs*, 2012

R6. Wilson A, Baker R, Bankart J, **Conroy SP** et al. Understanding variation in unplanned admissions of people aged 85 and over: a systems-based approach. *BMJ Open* 2019;9(7):e026405. doi: 10.1136/bmjopen-2018-026405

R6. Kocman D, Regen E, Phelps K, **Conroy SP** et al. Can comprehensive geriatric assessment be delivered without the need for geriatricians? A formative evaluation in two perioperative surgical settings. *Age Ageing* 2019 doi: 10.1093/ageing/afz025

G1. Conroy PI. A comparison of two national approaches to identify frail older people with urgent care needs. EM CLAHRC, £28,700 2019-20

G2. Conroy PI. Identifying models of care to improve outcomes for older people with emergency and urgent care needs. NIHR HSDR, £931,653, 2018-2021

G3. Conroy & Martin Cols. Acute hospital care for frail older people. NIHR HSDR, £1,038,561, 2014-17

G4. Conroy Col. Medical Crises in Older People. NIHR programme grant, £2,200,000, 2008-13

4. Details of the impact

Since 2005, Conroy's team have improved outcomes for older people with acute care needs in emergency departments, acute medical units and specialised services. Their work has improved identification of patients at risk of poor outcomes, developed and implemented novel interventions at all levels of urgent healthcare provision, and shaped global policy and practice relating to frailty. Through a unique combination of high-quality research and individual expertise utilising the apparatus of the AFN (itself created and led by Conroy), the Leicester team have translated research to impact nationwide and internationally.

Identifying Frailty

Conroy's research conclusively demonstrated the robust, timely and user-friendly predictions of adverse outcomes and mortality provided by the Clinical Frailty Scale (CFS). By 2016, >two-thirds of English hospitals had adopted the CFS with 100% adoption achieved by December 2020 [E2, E14]. As a result of their expertise, the Leicester team were commissioned to author updated national policy guidelines to ensure this target is met [E3 (Citing R2, R3)]. Conroy's team developed, validated and supported the implementation of the HFRS as a benchmarking tool for use at health system level (downloaded by over 80 health systems in England [E10] - see: Frailty Opportunity Identifier Tool, NHS England). The HFRS underpins NHS work on outcomes-based healthcare, and Conroy is supporting its implementation in Europe, North America, Singapore and Australia.

Conroy supported over 100 UK hospitals in development of urgent care responses for frail older people. Many have achieved substantial benefits including 38% reduced admissions, 54% reduced length of stay and a 35% reduction in the number of frail older people hospitalised for >10 days. Based on the Audit Commission's £59 daily bed-day cost, hospitals implementing AFN recommendations saved ~£372,379 annually, translating to a national saving of up to £30.5million to the NHS achieved by participating sites. Demonstrations of the positive patient impact include Medway NHS Trust who achieved a 58% reduction in patients aged 75+ staying in hospital for >7 days, Wolverhampton NHS Trust who reduced readmissions within 30 days by 45% and Bournemouth NHS Trust whose average stay length reduced by 24%, saving up to £3million p/a [E7]. The Acute Frailty Network created the Clinical Frailty Scale (CFS) app, free to download. In the first three months following launch, there have been over 5000 downloads worldwide. The feedback from colleagues has been very positive, with comments revealing that they have found it very helpful in their assessment of older people with frailty: "This is a great resource, simple and intuitive to use"; "...will save me digging in diary cover for laminated version and trying to read the small print!"; "Fantastic, very useful"; "This is very helpful, it simply works!"; and "Very helpful, makes life so much easier" [E10].

In addition to practice changes, Conroy's research also resulted in significant structural changes within the NHS. In 2017 Western Sussex Hospitals Trust established a permanent Acute Frailty Programme Board with hospital-wide, multi-disciplinary representation as a direct result of Conroy's research and guidance [E8]. Similar changes were also made in the North East and North Cumbria 'Care Closer to Home' programme which fully implemented Conroy's research

findings and recommendations [E8]. Conroy and SCFN colleagues led on national intercollegiate frailty guidance for critical care decision-making during COVID outbreak, 2020 – also used in Canada [E12].

Internationally, Conroy's work has led to structural changes in Malaysia, Singapore, Canada [E10] and Ireland [E8]. Ireland East Hospitals Group (IEHG), the largest hospital group in Ireland, collaborated with AFN to design and implement frailty-friendly care pathways across their 11 sites. Conroy visited IEHG to deliver masterclasses and guide implementation. Prior to this, IEHG had no operating screening process. Within 1 year, 98% of patients >75 were screened for frailty on arrival with positive results triggering CGA; 75% completed within 24hrs. IEHG achieved a two-day median reduction in LOS for admissions to geriatric wards and hospital-wide reductions of 0.7% admission rate for patients 75+, 2.1% bed days, and 6% reduction in Emergency Department conversion rates [E8].

Developing, Implementing and Evaluating Acute Frailty Interventions

Conroy's Leicester Emergency Frailty Unit's considerable success resulted in similar services being established in >57% of UK acute hospitals. The AFN is the largest improvement collaborative of its kind globally. It focusses on the first 72hrs of urgent care for frail older people, disseminating cutting-edge best practice via site visits, training and workshops to >80 UK sites.

Embedding CGA in care pathways is critical to achieving improvements beyond specialist geriatric units. This was enabled by Conroy's ground-breaking 'Hospital-Wide Comprehensive Geriatric Assessment' (HoW-CGA) study which provided new tools to enable CGA hospital-wide. HoW-CGA succeeded in building capacity and capability in hospital staff, such as those in the Specialised Clinical Frailty Network (SCFN) [E11]. SCFN's focus on frailty identification and patient-centred treatment decisions using QI data underpinned by the HoW-CGA care bundle has improved outcomes in renal, cardiac, chemotherapy, complex spinal surgery, neurosurgery and intensive care areas. Collaborating sites receive continued expert support via learning opportunities, national events, masterclasses, site visits and specialised service principles. All sites now use CFS as standard, with six changing patient-related decision making and improving patient outcomes.

In 2016, Conroy authored European curricula on emergency physician geriatric competencies accompanied by 'bootcamps' and annual symposia to support uptake. This led to adoption of the approach in many nations including Germany and Italy and the development of a White Paper on Geriatric Medicine in Canada [E9]. During the COVID-19 pandemic, Conroy was lead author of national intercollegiate frailty guidance for critical care decision-making [E15].

Influencing Policy and Practice

In 2018, Conroy's team interviewed global experts in acute care for frail older people. The results revealed that despite increasing awareness of potential harm/deterioration in acute and emergency medicine for frail patients, care provision remained a global concern. Feedback highlighted AFN as the most impactful initiative, praised for establishing a conclusive evidence base to guide and underpin service developments and for achieving rapid service improvements. The 'Silver Book' was also identified as crucial in both promoting frailty-attuned urgent care improvements and in the genesis of the AFN [E13]. The unique combination of formal and real-world evidence generated and significant policy influence sees the Leicester team highly regarded in the healthcare world as innovators. Their hosting of >45 visits from both national and

international teams for care process guidance to enable local implementation of the Leicester model resulted in direct implementation in 20% of UK hospitals and 50% changing policies response to it.

Conroy's expertise was instrumental in formulating the 2018 NICE Guideline on emergency care for adults **[E6 (citing 4 outputs including R4)]** and resulted in international adoption of CGA in Italy, Germany, Australia, New Zealand, the USA **[E9]** and Ireland **[E8]**. The NHS has benefitted substantially from Leicester research: care pathway and treatment procedure policies pertaining to frail older people have been shaped by the AFN, HRFS and HoW-CGA success culminating in the 2019 NHS RightCare Frailty Toolkit **[E5]**. This defines assessment methods, system benchmarks, improvement identification protocols and system development support to all NHS CCGs to enable implementation of Leicester's research nationally, thus improving long-term patient outcomes nationwide **[E5 (citing AFN Case Studies, R5, E3 and E8)]**. This was followed by the inclusion of CGA as an expected standard protocol in the NHS Long Term Plan 2019 **[E1]**.

Beyond clinical practice, Conroy's research has redefined NHS hospital design. The team established the UK's first 'frail-friendly' emergency department in Leicester, the success of which directly led to updated NHS guidance on proper building design to ensure full, equitable access for frail patients nationwide. Banerjee sat as an expert panel member on the drafting committee of this policy and the 'Silver Book' is cited extensively as a key evidence/guidance source **[E4]**.

5. Sources to corroborate the impact

- E1.** NHS England. The NHS Long Term Plan 2019
- E2.** NHS Benchmarking Network. Older People in Acute Settings, 2016.
- E3.** NHS Improvement. Ambulatory emergency care guide: same day acute frailty services, 2019.
- E4.** Health Building Note 08-02 Dementia-friendly Health and Social Care Environments
- E5.** NHS RightCare: Frailty Toolkit. London: NHS England, 2019:
- E6.** National Institute for Clinical Excellence. Emergency and acute medical care in over 16s: service delivery and organisation: National Institute for Clinical Excellence; 2018. Available from:
- E7.** NHS Acute Frailty Network Impact Report 2018
- E8.** Collated Reports from NHS Clinical Commissioning Groups
- E8.** International Clinical Practice Guidelines
- E10.** International uptake - testimonials
- E10a.** Sinai Health Systems and University Health Network (Canada)
- E10b.** Division of Geriatric Medicine, University of Malaya, Kuala Lumpur (Malaysia)
- E10c.** Geriatric Medicine Clinic, St Vincent's University Hospital, Dublin (Ireland)
- E10d.** President and Chief Executive Officer, Institute for Healthcare Improvement (international)
- E11.** NHS Specialised Clinical Frailty Network 2019
- E12.** NICE COVID-19 Rapid Guideline: Critical Care in Adults 2020
- E13.** Rumley-Buss A, Thompson D, Gladman J, Guest J, Hawkins J, Smith L, et al. 'Improving acute care for older people at scale - the Acute Frailty Network.' *Acute Medicine*. 2016;15(4):165 - 220.
- E14.** NHS England Report on Frailty in Emergency Departments
- E15.** Intercollegiate National Frailty Guideline 2020