

The contribution of implementation science to improving the design and evaluation of integrated care programmes for older people with frailty

Euan Sadler

*King's Improvement Science and Centre for Implementation Science,
Health Service & Population Research Department,
King's College London, London, UK and
NIHR Collaboration for Leadership in Applied Health Research and
Care South London (CLAHRC South London),
King's College Hospital NHS Foundation Trust, London, UK*

Jane Sandall

*Department of Women and Children's Health, St Thomas' Hospital, London, UK and
NIHR Collaboration for Leadership in Applied Health Research and
Care South London (CLAHRC South London),
King's College Hospital NHS Foundation Trust, London, UK*

Nick Sevdalis

*Centre for Implementation Science,
Health Service & Population Research Department,
King's College London, London, UK and
NIHR Collaboration for Leadership in Applied Health Research and
Care South London (CLAHRC South London),
King's College Hospital NHS Foundation Trust, London, UK, and*

Dan Wilson

*Department of Clinical Gerontology,
King's College Hospital NHS Foundation Trust, London, UK*

Abstract

Purpose – The purpose of this paper is to discuss three potential contributions from implementation science that can help clinicians and researchers to design and evaluate more effective integrated care programmes for older people with frailty.

Design/methodology/approach – This viewpoint paper focuses on three contributions: stakeholder engagement, using implementation science frameworks, and assessment of implementation strategies and outcomes.



Findings – Stakeholder engagement enhances the acceptability of interventions to recipients and providers and improves reach and sustainability. Implementation science frameworks assess provider, recipient and wider context factors enabling and hindering implementation, and guide selection and tailoring of appropriate implementation strategies. The assessment of implementation strategies and outcomes enables the evaluation of the effectiveness and implementation of integrated care programmes for this population.

Research limitations/implications – Implementation science provides a systematic way to think about why integrated care programmes for older people with frailty are not implemented successfully. The field has an evidence base, including how to tailor implementation science strategies to the local setting, and assess implementation outcomes to provide clinicians and researchers with an understanding of how their programme is working. The authors draw out implications for policy, practice and future research.

Originality/value – Different models to deliver integrated care to support older people with frailty exist, but it is not known which is most effective, for which individuals and in which clinical or psychosocial circumstances. Implementation science can play a valuable role in designing and evaluating more effective integrated care programmes for this population.

Keywords Integrated care, Older people with frailty, Implementation science

Paper type Viewpoint

Introduction

Frailty is a broad clinical concept. It has been defined medically as an age-related reduction in the reserve capacity of multiple physiological systems resulting in an increased risk of a sudden decline in health status, usually triggered by a minor stress, such as a fall or infection (Campbell, 1997; Clegg, 2011; NHS England, 2014). Older people with frailty commonly have complex health and social care needs (Manthorpe and Iliffe, 2015) but are a population group who are likely to receive less coordinated care and fragmented service provision (Oliver *et al.*, 2014).

Integrated care, broadly defined as “an organising principle for care delivery that aims to improve patient care and experience through improved coordination” (Shaw *et al.*, 2011, p. 3), has been proposed as one solution to improve the quality of care and related outcomes for older people with frailty (Baker *et al.*, 2016). Such interventions usually involve multi-disciplinary team, whole system programmes to improve the co-ordination and provision of health and social care tailored to the individual’s needs, in which providers from different organisations work collaboratively together towards a common shared purpose. Different models to deliver integrated care to support older people with frailty exist, such as continuity of care, care co-ordination and case management approaches, but it is not known which model is most effective (Hoogendijk, 2016), and for which patients and in which clinical or psychosocial circumstances. As integrated care interventions are complex, it is difficult to know what works for whom, and in what circumstances. The field of implementation science looks at how best to help implement evidence-based practice and clinical research within health services. To our knowledge, publications on implementation science as applied to integrated care programmes for older people with frailty are scarce.

The aim of this paper is to discuss three potential contributions of implementation science which are central to the field that could help clinicians and researchers better design and evaluate more effective integrated care programmes for older people with frailty. These are: stakeholder engagement; using implementation science frameworks; and assessment of implementation strategies and outcomes. We consider these domains important because such programmes tend to cross traditional organisational boundaries which means that stakeholder buy-in can be complicated and stakeholder engagement complex and needs greater attention. Breaking down components of integrated care for this population to examine where implementation is effective or not is challenging, which is where implementation science frameworks, strategies and outcomes can come into play. We draw out implications from our discussion for policy, practice and future research.

Three contributions of implementation science

Stakeholder engagement

Stakeholder engagement at the beginning and throughout the research process can enhance the acceptability of interventions to recipients and providers and improve reach (number of eligible people taking part in the intervention) and sustainability (changes over time in numbers of eligible people taking part in the intervention). Recent conceptual development of stakeholder engagement has identified three core elements: active participation from committed stakeholders; stakeholder connectedness around a shared purpose; and meaningful, respectful interaction (Norris *et al.*, 2017). Stakeholder analysis provides a useful heuristic tool which focuses on how to identify and involve key stakeholders in relation to their likely interest, influence and position in the system (Varvasovsky and Brugha, 2000). Bringing key stakeholders together to co-design logic models, i.e. a visual display of the relationship between resources, activities, outputs and outcomes (theory of change) to assess the effectiveness of an intervention or programme (McLaughlin and Jordan, 1999); and driver diagrams, i.e. mapping out the key drivers and change ideas needed to improve the existing system to optimise the effectiveness and implementation of an intervention or programme (NHS Improvement, 2017), are important steps forward.

Implementation science aims to improve practice, quality of care and outcomes for populations, therefore effective collaboration between service users and providers of healthcare as key stakeholders is central to this aim and to optimising impact. Stakeholder engagement, underpinned by a co-production philosophy, in which service users and providers work together to improve healthcare services and outcomes (Batalden *et al.*, 2016), has the potential to aid conceptual clarity, co-design and implementation of person-centred integrated care programmes for older people with frailty, and to prioritise appropriate outcomes among different stakeholders. Although there is a lack of consensus on what co-production means and how best to do this in practice (Filipe *et al.*, 2017), key principles identified from the literature can help to constitute genuine co-production. These include viewing service users and carers as the active agents of change, fostering equal partnership working between users and providers of services and ensuring organisational buy-in and support from wider networks (Heaton *et al.*, 2016). Attention also needs to be paid to examine how best to privilege different forms of knowledge and expertise in collaborative spaces between lay and professional stakeholders.

Using implementation science frameworks

Implementation science frameworks enable the assessment of provider, recipient and wider context factors facilitating and hindering the implementation of integrated care programmes for older people with frailty. One well cited framework in implementation science is the Consolidated Framework for Implementation Research (CFIR) (Damschroder *et al.*, 2009), which was developed through a systematic review of the literature. CFIR assesses the five domains of contextual factors enabling or hindering the implementation of complex interventions into practice: intervention characteristics, outer setting, inner setting, characteristics of individuals, and essential aspects of the implementation process itself (see Table I). Using a framework such as CFIR will enable a better understanding of key determinants of implementation success or failure, facilitating the adapting of integrated care approaches to the local context.

Implementation science frameworks can also guide the selection of appropriate implementation strategies, namely “methods or techniques used to enhance the adoption, implementation, and sustainability of a clinical programme or practice” (Proctor *et al.*, 2013). For example, the Exploration, Preparation, Implementation and Sustainment (EPIS) framework (Aarons *et al.*, 2011) proposes identifying key inner (i.e. organisational,

provider, patient) and outer (i.e. system level) contextual factors likely to have the greatest influence at different phases of the implementation process. The exploration phase involves justifying the rationale for an intervention to be adopted or improved. The preparation stage focuses on identifying contextual factors likely to affect early adoption. The implementation phase examines contextual factors hindering and facilitating short-term implementation, whereas the final sustainment phase examines factors influencing longer-term implementation. Using the EPIS framework provides a comprehensive account of key contextual factors affecting the successful adoption and implementation of integrated care programmes for older people with frailty, at different points in the implementation process, enabling the selection, targeting and tailoring of implementation strategies to address these.

A major strength of using implementation science frameworks is that they can help clinicians and researchers with planning and evaluation of integrated care programmes for older people with frailty. As such programmes are complex interventions introduced into complex contexts which traverse multiple service organisations, involve multiple stakeholders and inter-connecting systems, implementation science frameworks are valuable because they provide a sensitising lens what to examine and evaluate. Furthermore, implementation science frameworks can also capture the complexity of context by examining the dynamic and negotiated nature and impact implementing integrated care programmes for this population has on existing systems, networks and relationships (Hawe *et al.*, 2009; May *et al.*, 2016). A combination of implementation science frameworks can also be used together. For example, using CFIR can provide a clearer description of core components of the integrated care intervention and guide what contextual factors hindering and enabling implementation operating on multiple levels need to be assessed. Using EPIS enables integrated care programme evaluators to think about what stage of implementation a study is, which helps with planning and evaluation, and to consider which inner and outer contextual factors need to be addressed (barriers) or harnessed (enablers) at different phases of the implementation process. This is important to consider because to optimise the delivery and implementation of integrated care programmes targeting frail, older populations, who commonly have complex health and social care needs, they need to be implemented and evaluated in a staged manner. One limitation of implementation science frameworks, however, is that concepts or constructs used in different frameworks overlap, but use different terminologies, which can potentially reduce transparency and consistency of what to evaluate.

Domain	Examples of contextual factors in each domain
Intervention characteristics	Stakeholder perceptions of the strength and quality of evidence; adaptability, complexity and costs of the intervention
Outer setting	Patient needs and resources; extent and scope of wider organisational networks; external policies; funding; peer pressure from other organisations to innovate
Inner setting	Type of networks; readiness for implementation (e.g. in terms of leadership engagement and available resources); implementation climate (e.g. organisational incentives and learning climate); culture
Characteristics of individuals involved	Stakeholders' knowledge and beliefs about the intervention; individual staff's level of commitment to the organisation
Implementation process	Planning, engaging (e.g. of champions), executing the implementation plan, and reflecting and evaluating (using qualitative and quantitative feedback)

Source: Damschroder *et al.* (2009)

Table I.
Five domains of contextual factors assessed by the consolidated framework for implementation research

Assessment of implementation strategies and outcomes

To help clinicians and researchers design more effective integrated care programmes for older people with frailty, implementation science has an evidence base for implementation strategies and provides advice on how to choose strategies for specific programmes, including how to tailor these to the local setting (Powell *et al.*, 2015, 2017). Powell *et al.* (2015) have identified 73 potential implementation strategies, based on a systematic review of the literature and expert opinion, from which appropriate strategies can be selected. They also propose different methods (e.g. intervention and concept mapping) to enable matching of implementation strategies to these factors to improve the successful implementation of complex interventions in particular settings (Powell *et al.*, 2017). To evaluate the effectiveness of implementation strategies, Proctor *et al.* (2011) proposed eight possible implementation outcomes: acceptability, adoption, appropriateness, feasibility, fidelity, costs, penetration (i.e. diffusion of intervention into practice) and sustainability.

Mixed methods approaches using qualitative and quantitative methods are commonly used to evaluate the impact of tailored implementation strategies to improve the implementation of complex interventions, and different combinations of methods can be used to evaluate different implementation outcomes. For example, interviews and focus groups can be used to examine perceptions among different stakeholders of the acceptability, feasibility, adoption and appropriateness of integrated care programmes for older people with frailty. Ethnography, which often combines interviews with a range of stakeholders and observations of behaviours and care practices, can be used to provide a better understanding of how the intervention is delivered and implemented in a specific context (i.e. address fidelity). These can be combined with quantitative methods to examine routinely collected data on the costs of delivering an intervention, the implementation strategy used, and the reach and sustainability of the intervention. The impact of different models of integrated care programmes for older people with frailty can also be evaluated qualitatively, for example, through interviews with stakeholders receiving and providing the intervention and key decision makers such as commissioners of services, and quantitatively through the analysis of routinely collected data and validated surveys.

Conclusion and implications for policy, practice and future research

This paper has discussed how implementation science can help clinicians and researchers to better design and evaluate more effective integrated care programmes for older people with frailty, focusing on three potential contributions: stakeholder engagement, using implementation science frameworks, and assessment of implementation strategies and outcomes. Their value can be summarised in Table II. To illustrate how implementation science can help to improve the design and evaluation of more effective integrated care programmes for this population group, we also provide a specific example in Table II, using case management as a strategy for integrated care to give a flavour of what a successful implementation science informed implementation would look like. Case management focuses on the planning, provision and co-ordination of health and social care to meet the needs of the individual. Such interventions are typically led by a nurse, social worker or allied healthcare professional, supported by a multi-disciplinary team (Oeseburg *et al.*, 2009; Reilly *et al.*, 2015). We have chosen case management as an example over other models of integrated care because such programmes are particularly complex, involving multiple components, provider organisations and stakeholders, which are implemented into complex health and social care contexts, and influenced by significant and changing political and economic drives.

Approach	Contribution	Case management as an example
Stakeholder engagement	Improves acceptability to recipient and provider Improves reach and sustainability Facilitates service implementation at the coalface	Use stakeholder analysis to identify key stakeholders – service users, carers and professionals – to work collaboratively in a core stakeholder group to co-design a logic model to identify components of the case management intervention, underlying theory of change and implementation plan; and driver diagram to make barriers and drivers of the programme explicit and specific, and to discuss these in the group Prioritise in core stakeholder group outcomes of relevance to all for the evaluation of the case management intervention
Using implementation science frameworks	Assessment of contextual factors enabling and hindering the implementation process Guides selection of appropriate implementation strategies at different points in the implementation process Helps to understand why implementation works or not and allows trouble-shooting Enables tailoring of implementation strategies to local setting to optimise implementation	Use CFIR framework (Damschroder <i>et al.</i> , 2009) to specify multi-domain contextual factors operating at individual, organisational and structural levels likely to hinder or drive the implementation of the case management intervention Use EPIS framework (Aarons <i>et al.</i> , 2011) to specify key outer (system) and inner (patient, provider and organisation) contextual factors influencing implementation of the case management intervention across different points in the implementation process (e.g. early implementation and adoption, later implementation and sustainability phases). This will inform the selection of evidence-based tailored implementation strategies Plan actual implementation and subsequent evaluation across the contextual elements of CFIR and the phases of EPIS
Assessment of implementation strategies and outcomes	Evaluation of implementation strategies tailored to local setting Selection of relevant implementation outcomes Mixed methods evaluation	Identify with core stakeholder group specific outcomes that will be evaluated to judge success and include standard implementation outcomes (Proctor <i>et al.</i> , 2011) such as acceptability, feasibility, adoption, appropriateness and fidelity of delivering the case management programme Select and tailor implementation strategies that boost the drivers and address the barriers of implementation of the case management intervention from the available implementation science evidence base Capture routinely collected health and social care data on the costs, reach and sustainability of the case management programme and effectiveness of the chosen implementation strategy Follow best practices and available templates in reporting implementation success of the case management intervention

Table II.
Three contributions of
implementation
science to improve the
design and evaluation
of integrated care
programmes for older
people with frailty

We propose a number of implications for policy, practice and future research from our discussion. First, implementation science provides a systematic way to think about why integrated care programmes for older people with frailty are not implemented as clinicians and researchers would wish, how to assess this and develop strategies to overcome this. Recently published guidelines and templates are currently available to enable the systematic reporting of the implementation success of complex interventions in practice (Proctor *et al.*, 2013). Second, an emerging evidence base for implementation strategies and advice on how to select and tailor such strategies for particular programmes exists in the field of implementation science, which clinicians and researchers can draw on (Powell *et al.*, 2015, 2017). Third, by assessing implementation outcomes clinicians and researchers will have a better understanding of how their programme is working. Implementation science can clarify whether we have effective interventions, but their scaled implementation fails, or whether we are lacking coherent evidence on the clinical effectiveness of interventions for different populations (McAlearney *et al.*, 2016). Finally, implementation science largely remains undiscussed in policy focusing on integrated care for older people with frailty, and examining the bridge between policy, evidence and implementation is therefore an important area to address in the future.

Acknowledgements

Nick Sevdalis is funded by, and Jane Sandall and Euan Sadler are supported by the National Institute for Health Research (NIHR) Collaboration for Leadership in Applied Health Research and Care South London (CLAHRC South London) at King's College Hospital NHS Foundation Trust. The views expressed in this paper are those of the authors and not necessarily those of the NHS, the NIHR or the Department of Health and Social Care. Euan Sadler is funded by King's Improvement Science, which is a part of the NIHR CLAHRC South London and comprises a specialist team of improvement scientists and senior researchers based at King's College London. King's Improvement Science is funded by King's Health Partners, Guy's and St Thomas' Charity, the Maudsley Charity and the Health Foundation. Nick Sevdalis is the Director of London Safety and Training Solution Ltd, which provides quality and safety training and advisory services on a consultancy basis to healthcare organisations globally.

References

- Aarons, G.A., Hurlburt, M. and McCue Horwitz, S. (2011), "Advancing a conceptual model of evidence-based practice implementation in public service sectors", *Administration and Policy in Mental Health*, Vol. 38 No. 1, pp. 4-23.
- Baker, M., Oliver, D., Burns, E., Paynton, D., Bullard, E. and Cooke, C. (2016), "Integrated care for older people with frailty: innovative approaches in practice", Royal College of General Practitioners and the British Geriatrics Society, London, available at: www.bgs.org.uk/resources/integrated-care-for-older-people-with-frailty-0 (accessed 4 April 2018).
- Batalden, M., Batalden, P., Margolis, P., Seid, M., Armstrong, G., Opipari-Arrigan, L. and Hartung, H. (2016), "Coproduction of healthcare", *BMJ Quality & Safety*, Vol. 25 No. 7, pp. 509-517.
- Campbell, A. (1997), "Unstable disability and the fluctuations of frailty", *Age and Ageing*, Vol. 26 No. 4, pp. 315-318.
- Clegg, A. (2011), "The frailty syndrome", *Clinical Medicine*, Vol. 11 No. 1, pp. 72-75.
- Damschroder, L.J., Aron, D.C., Keith, R.E., Kirsh, S.R., Alexander, J.A. and Lowery, J.C. (2009), "Fostering implementation of health services research findings into practice: a consolidated framework for advancing implementation science", *Implementation Science*, Vol. 4 No. 50, available at: <https://doi.org/10.1186/1748-5908-4-50>

- Filipe, A., Renedo, A. and Marston, C. (2017), "The co-production of what? Knowledge, values, and social relations in health care", *PLoS Biology*, Vol. 15 No. 5, available at: <https://doi.org/10.1371/journal.pbio.2001403>.
- Hawe, P., Shiell, A. and Riley, T. (2009), "Theorising interventions as events in systems", *American Journal of Community Psychology*, Vol. 43 Nos 3/4, pp. 267-276.
- Heaton, J., Day, J. and Britten, N. (2016), "Collaborative research and the co-production of knowledge for practice: an illustrative case study", *Implementation Science*, Vol. 11 No. 20, available at: <https://doi.org/10.1186/s13012-016-0383-9>.
- Hoogendijk, E.O. (2016), "How effective is integrated care for community dwelling frail older people? The case of the Netherlands", *Age and Ageing*, Vol. 45 No. 5, pp. 585-588.
- McAlearney, A.S., Walker, D.M., Livaudais-Toman, J., Parides, M. and Bickell, N.A. (2016), "Challenges of implementation and implementation research: learning from an intervention study designed to improve tumor registry reporting", *SAGE Open Medicine*, Vol. 4, pp. 1-8, doi: 10.1177/2050312116666215.
- McLaughlin, J.A. and Jordan, G.B. (1999), "Logic models: a tool for telling your program's performance story", *Evaluation and Program Planning*, Vol. 22 No. 1, pp. 65-72.
- Manthorpe, J. and Iliffe, S. (2015), "The many meanings of frailty: is there a shared understanding?", *Nursing and Residential Care*, Vol. 17 No. 10, pp. 575-576.
- May, C.R., Johnson, M. and Finch, T. (2016), "Implementation, context and complexity", *Implementation Science*, Vol. 11 No. 141, available at: <https://doi.org/10.1186/s13012-016-0506-3>.
- NHS England (2014), "Safe, compassionate care for frail older people using an integrated care pathway: practical guidance for commissioners, providers and nursing, medical and allied health professional leaders", The NHS Constitution, available at: www.england.nhs.uk/wp-content/uploads/2014/02/safe-comp-care.pdf (accessed 20 February 2018).
- NHS Improvement (2017), "Creating driver diagrams for improvement projects", available at: <https://improvement.nhs.uk/resources/creating-driver-diagrams-for-improvement-projects/> (accessed 3 February 2018).
- Norris, J., White, D.E., Nowell, L., Mrklas, K. and Stelfox, H. (2017), "How do stakeholders from multiple hierarchical levels of a large provincial health system define engagement? A qualitative study", *Implementation Science*, Vol. 12, No. 98, available at: <https://doi.org/10.1186/s13012-017-0625-5>.
- Oeseburg, B., Wynia, K., Middel, B. and Reijneveld, S.A. (2009), "Effects of case management for frail older people or those with chronic illness – a systematic review", *Nursing Research*, Vol. 58 No. 3, pp. 201-210.
- Oliver, D., Foot, C. and Humphries, R. (2014), *Making our Health and Care Systems fit for an Ageing Population*, The King's Fund, London, available at: www.kingsfund.org.uk/sites/default/files/field/field_publication_file/making-health-care-systems-fit-ageing-population-oliver-foot-humphries-mar14.pdf (accessed 4 March 2018).
- Powell, B.J., Beidas, R.S., Lewis, C.C., Aarons, G.A., McMillen, J.C., Proctor, E.K. and Mandell, D.S. (2017), "Methods to improve the selection and tailoring of implementation strategies", *The Journal of Behavioral Health Services & Research*, Vol. 44 No. 2, pp. 177-194.
- Powell, B.J., Waltz, T.J., Chinman, M.J., Damschroder, L.J., Smith, J.L., Mathieu, M.M., Proctor, E.K. and Kirchner, J.E. (2015), "A refined compilation of implementation strategies: results from the expert recommendations for implementing change (ERIC) project", *Implementation Science*, Vol. 10, No. 21, available at: <https://doi.org/10.1186/s13012-015-0209-1>.
- Proctor, E.K., Powell, B.J. and McMillen, J.C. (2013), "Implementation strategies: recommendations for specifying and reporting", *Implementation Science*, Vol. 8 No. 139, available at: <https://doi.org/10.1186/1748-5908-8-139>.
- Proctor, E.K., Silmere, H., Raghavan, R., Hovmand, P., Aarons, G.A., Bunger, A., Griffey, R. and Hensley, M. (2011), "Outcomes for implementation research: conceptual distinctions, measurement challenges, and research agenda", *Administration and Policy in Mental Health and Mental Health Services Research*, Vol. 38 No. 2, pp. 65-76.

- Reilly, S., Miranda-Castillo, C., Malouf, R., Hoe, J., Toot, S., Challis, D. and Orrell, M. (2015), "Case management approaches to home support for people with dementia", *Cochrane Database of Systematic Reviews*, No. 1, doi: 10.1002/14651858.CD008345.pub2.
- Shaw, S., Rosen, R. and Rumbold, B. (2011), "What is integrated care? Research report", The Nuffield Trust, London, available at: www.nuffieldtrust.org.uk/files/2017-01/what-is-integrated-care-report-web-final.pdf (accessed 23 January 2018).
- Varvasovsky, Z. and Brugha, R. (2000), "How to do (or not to do) ... a stakeholder analysis", *Health Policy and Planning*, Vol. 15 No. 3, pp. 338-345.

Corresponding author

Euan Sadler can be contacted at: ewan.sadler@kcl.ac.uk