


# It's time for the field of geriatrics to invest in implementation science

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Hospitalisation is one of the most vulnerable times in an older adult's life, associated with increased risks of functional and cognitive decline and death.<sup>1,2</sup> These risks are magnified for those with pre-existing cognitive or functional impairment.<sup>3,4</sup> In response, the geriatrics research community has tested new care delivery models to improve hospital care for older adults and reduce these negative outcomes. Models such as Age-Friendly Health Systems,<sup>5</sup> Acute Care for the Elderly units<sup>6</sup> and the Hospital Elder Life Program (HELP)<sup>7</sup> represent comprehensive assessment and intervention programmes with a robust evidence base that can be deployed in the inpatient hospital setting. However, these and other evidence-based geriatrics interventions—particularly when deployed in the inpatient setting—have rarely scaled successfully outside specific research trials. As researchers in this field, we are familiar with the strong evidence base for these programmes, and wonder: why don't all hospitals have Acute Care for the Elderly units, Elder Life Programs and Age-Friendly practices? This, in turn, leads us to wonder what we can learn from the limited success geriatrics as a field has had in scaling up what are potentially very promising models when tested in trials.

In this context, the study by Street and colleagues,<sup>8</sup> in this issue of *BMJ Quality and Safety*, is particularly relevant because it evaluates the effectiveness of the large-scale implementation of an evidence-based intervention in the inpatient setting—the Comprehensive Geriatric Assessment (CGA). CGA is a multicomponent assessment of older adult patients including diagnoses, comorbidities, polypharmacy, physical and psychological function, their environment outside of the acute setting, and their social supports.<sup>9</sup> In a number of systematic reviews, CGA has been shown to improve patient satisfaction

and reduce admissions to long-term care, among other positive outcomes, and has been implemented primarily in inpatient settings but also in other settings such as primary care and the emergency department.<sup>10,11</sup>

The instigators of this effort to implement the CGA chose a Quality Improvement Collaborative (QIC) for their implementation strategy. A QIC typically involves multiple hospitals, clinics, care sites or healthcare systems that work collaboratively to improve a specific care process or outcome. This effort is usually carried out over a relatively short period of time (typically, 9–18 months) and involves implementation activities such as coaching, champions, sharing best practices, education and outcome measurement guidance.<sup>12</sup> Other examples of QIC include the Hospital Medicine Reengineering Network,<sup>13</sup> which focuses on improving hospital care, and Project Better Outcomes by Optimizing Safe Transitions,<sup>14</sup> which aims to improve care transitions.<sup>15</sup>

The QIC evaluated in Street and colleagues' study was called the Acute Frailty Network (AFN), an international QIC comprised of 106 sites that aimed to improve care for older adults in acute settings by increasing implementation of CGA for frail older adults within the first 72 hours of their hospitalisation.<sup>8</sup> To their credit, the AFN wasn't content with just moving the needle on process measures—it also aimed for significant improvements in patient outcomes, including reduced length of stay, inpatient mortality, discharges to nursing homes and hospital readmissions. A strength of the study by Street and colleagues was use of a natural experiment (the gradual roll-out of the AFN over time) to rigorously establish causal effects of QICs using a difference-in-differences approach. However, despite the efforts of the AFN over

multiple years across a multitude of sites, the authors found no significant differences in outcomes between patients cared for at AFN sites versus non-AFN sites, after controlling for patient and site characteristics and temporal factors.

What can we learn from this effort, particularly in the context of null findings on patient outcomes? In our view and that of the authors, the null findings are likely due to challenges in implementation and are not necessarily indicative of CGA's effectiveness. In this respect, the null findings on patient outcomes are incredibly important in helping geriatrics as a field gain knowledge and sophistication in tackling implementation challenges. Many more of these types of studies are needed in geriatrics, which as a field is characterised by impactful interventions that clearly work when tested in clinical trials but often fail to translate at scale.

### IMPLEMENTATION CHALLENGES UNIQUE TO GERIATRICS

Some implementation challenges are likely to be specific to geriatric care settings and interventions. First, older adults—grouped by their age, function and/or comorbidities, rather than by other phenotypes such as a particular illness—are inherently a more heterogeneous population than disease-based populations such as those with congestive heart failure or sickle cell disease. Ensuring every patient with heart failure with reduced ejection fraction leaves the hospital with a beta-blocker or ACE-inhibitor is good practice for younger patients with fewer comorbidities, based on large clinical trial and 'real-world' data. However, when it comes to older adults with multimorbidity, the American Geriatrics Society recommends instead to: (1) Identify community patients' health priorities and health trajectory; (2) Stop, start or continue care based on health priorities, potential benefit versus harm and burden, and health trajectory; and (3) Align decisions and care among patients, caregivers, and other clinicians with patients' health priorities and health trajectory.<sup>16</sup> This is obviously not as simple as prescribing a drug, and highlights that rarely are interventions 'simple' in a heterogeneous group of patients—instead, there is much to assess and balance.

Second, given this heterogeneity, interventions tested in a controlled, homogenous sample of patients or care settings may not translate to 'real-world' implementation in older adults because, on a practical level, the implementation processes that providers are tasked with conducting (eg, screenings, prescribing, etc) will not be the same every time. Routinisation helps solidify an action over time. If the target is 'door to balloon time' in a heart attack or stroke, then relentlessly focusing on processes to routinise this care and reduce this time makes sense. If the target is adhering to the aforementioned American Geriatrics Society's recommendations, a separate track is required. Thus,

the medical complexity and variation among older adult patients means implementation processes may not be as routine as in other populations, which would likely have an impact on implementation success.

Third, it is not just the heterogeneity and complexity of the population—it's that geriatric evidence-based interventions themselves are complex. Like Acute Care for the Elderly units or HELP, CGA is multicomponent, requiring assessment and intervention across a range of domains and coordinated efforts of interdisciplinary teams, often across care settings. Many implementation processes, such as initiating the new care model or collecting outcome data, may fall through the cracks due to uncertainty as to who is primarily responsible (eg, inpatient providers assuming home health is responsible for something, and home health assuming primary care is responsible for something).<sup>17</sup> Furthermore, such interventions are particularly difficult in the pressured inpatient environment when patients are at their most ill.

### CONTEXTUAL AND CULTURAL FACTORS OFTEN OVERLOOKED IN THE IMPLEMENTATION OF GERIATRIC INTERVENTIONS

In implementation science, we focus on both interventions (such as the CGA) and implementation strategies (such as a QIC). Both are extraordinarily important in explaining the outcomes achieved. In turn, we study both intervention outcomes (such as reduced hospital length of stay and mortality) and implementation outcomes (how many older adults that we intended to reach actually received the intervention? To what degree was the intervention delivered with fidelity?). We perceive a mismatch between implementation approaches that are more likely to be successful with simpler interventions, more homogenous populations, or lower-stakes care settings, and the implementation approaches most likely to be successful in geriatrics given the above. In some ways, successful implementation of geriatrics interventions at scale may seem like the 'Mount Everest' of implementation science—a daunting task requiring intensive preparation, teamwork and good fortune.

For example, identifying older adults eligible for CGA, performing a 'comprehensive' assessment in a robust, rigorous and coordinated way, intervening successfully on each component revealed by this screening as an interdisciplinary team, and doing so in the context of an acute hospital admission will be a heavy lift indeed. QICs, in contrast, are a relatively light touch implementation strategy. As in the paper by Street and colleagues, it is unfortunately common in the evaluation of the implementation of geriatric interventions to focus on intervention outcomes, to the neglect of implementation outcomes. We know that key levers of implementation success include culture and context (including people, processes and priorities) For example, continuing our analogy regarding

acute care of heart attacks, others have demonstrated that intervening just on a hospital's culture is arguably more successful than any single intervention, and improved mortality rates.<sup>18</sup> In other words, these factors often explain how and/or why implementation efforts succeed or fail and not measuring them—and then matching implementation strategies to them—limits the success and generalisability of implementation studies.

Despite the importance of contextual factors, large-scale implementation efforts, such as QICs, often fail to assess or attune to these factors. There is no doubt that variation in context exists among sites in a QIC, and without this contextual data, it is impossible to know how and why implementation efforts failed or succeeded and, as is the case with the AFN, why the effectiveness outcomes of the CGA found in its intervention trials were not seen in the network.

There are many reasons why context may not be assessed or attuned in large-scale implementation efforts. One reason is that it requires significant time and resources to measure these factors, as they are often assessed qualitatively and from multiple perspectives (eg, front-line providers, administration, management, etc), and funding mechanisms often do not provide these resources. Another reason is that contextual factors and outcomes may be of less interest to policymakers, hospital administrators and others tasked with making broad changes to healthcare processes. Pragmatic outcomes, such as those assessed in the AFN, are typically of more interest and, arguably, are more useful for policy purposes. However, as stated above, without knowing and adjusting for these factors, we will not understand why our implementation efforts fail.

## OPPORTUNITIES

Overall, these challenges, and the results of Street and colleagues' study,<sup>8</sup> suggest that we do not currently have effective models for translating evidence-based geriatric interventions into practice. This is especially problematic in geriatrics because we have dedicated considerable resources to executing numerous well-specified, rigorous intervention trials. Without effective models to disseminate the results of these trials, their promise will not be realised. This is an urgent priority as the older adult populations in many countries grow and change, including more multimorbidity and frailty.

One potential opportunity is to conduct more type III hybrid implementation-evaluation studies. In implementation science, we think of 'type I' studies as those that are seeking to understand the effect of an intervention on patient outcomes while collecting data about implementation. 'Type II' studies attend to both the intervention and implementation success. In contrast, type III studies assume the intervention works—the question is which implementation strategy will be most successful. In other words, these trials

compare different implementation strategies to one another for the same intervention, measuring implementation outcomes primarily. Given the extensive clinical effectiveness data we have on many geriatric interventions, the field is primed for more hybrid type III studies. By using this design, we can begin to scientifically study how to successfully implement geriatric interventions into routine practice.

However, in order to deliver these more sophisticated implementation strategies and study designs, the field of geriatrics needs to heavily invest in the field of implementation science. Implementation science is 'the scientific study of methods to promote the uptake of research findings into routine healthcare'.<sup>19</sup> Other fields, such as cancer, HIV and mental health, have made such investments in implementation science, including designated training institutes/programmes and funding mechanisms. For example, in the USA, the National Cancer Institute has the Training Institute for Dissemination and Implementation Research in Cancer, which offers open access courses on implementation science led by leaders in the field, and the Implementation Science Centers in Cancer Control programme, which supports the development, testing and refinement of innovative approaches to implementing evidence-based cancer control interventions. The US National Heart, Lung, and Blood Institute at the National Institutes of Health has a Center for Translation Research and Implementation Science, which houses numerous programmes supporting implementation science research and training related to heart, lung, blood and sleep disorders. In contrast, the funding portfolio for the US National Institute on Aging currently does not have specific implementation science notices of special interest nor dedicated infrastructure for training in implementation science.

Answering the critical issue of how to best implement geriatric interventions is of utmost importance and cannot wait. The ageing of the population worldwide means there is a growing need for geriatric interventions in all settings and as we continue to create and invest in effective interventions and models of care, such as CGA, we must complete the translational process or risk never seeing the real-world impacts we desire.

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