




# BMJ Open How can we improve Comprehensive Geriatric Assessment for older people living with frailty in primary care and community settings? A qualitative study

Aseel Mahmoud <sup>1</sup>, Victoria A Goodwin <sup>1</sup>, Naomi Morley,<sup>1</sup> Julie Whitney,<sup>2</sup> Sarah E Lamb,<sup>1</sup> Helen Lyndon,<sup>3,4</sup> Siobhan Creanor,<sup>1</sup> Julia Frost <sup>1</sup>, On behalf of the DREAM Study Team

**To cite:** Mahmoud A, Goodwin VA, Morley N, *et al*. How can we improve Comprehensive Geriatric Assessment for older people living with frailty in primary care and community settings? A qualitative study. *BMJ Open* 2024;**14**:e081304. doi:10.1136/bmjopen-2023-081304

► Prepublication history and additional supplemental material for this paper are available online. To view these files, please visit the journal online (<https://doi.org/10.1136/bmjopen-2023-081304>).

Received 24 October 2023  
Accepted 18 March 2024



© Author(s) (or their employer(s)) 2024. Re-use permitted under CC BY-NC. No commercial re-use. See rights and permissions. Published by BMJ.

<sup>1</sup>Faculty of Health and Life Sciences, University of Exeter, Exeter, UK

<sup>2</sup>Life Sciences and Medicine, King's College London, London, UK

<sup>3</sup>Adult Community Services Specialist Services Directorate, Cornwall Partnership NHS Foundation Trust, Bodmin, UK

<sup>4</sup>Southwest Clinical School, University of Plymouth, Plymouth, UK

## Correspondence to

Professor Victoria A Goodwin; [v.goodwin@exeter.ac.uk](mailto:v.goodwin@exeter.ac.uk)

## ABSTRACT

**Objective** With advancing age comes the increasing prevalence of frailty and increased risk of adverse outcomes (eg, hospitalisation). Evidence for comprehensive geriatric assessment (CGA), a multidimensional holistic model of care, is mixed in community settings. Uncertainties remain, such as the key components of CGA, who delivers it, and the use of technology. This study aimed to understand the perspectives, beliefs and experiences, of both older people and health professionals, to improve the current CGA and explore factors that may impact on CGA delivery in community settings.

**Design** A qualitative interview study was conducted with older people and healthcare professionals (HCPs) identified using a maximum variation strategy. Data were analysed using an abductive analysis approach. The non-adoption, abandonment, scale-up, spread and sustainability framework and the theoretical framework of acceptability guided the categorisation of the codes and identified categories were mapped to the two frameworks.

**Setting** England, UK.

**Results** 27 people were interviewed, constituting 14 older people and 13 HCPs. We identified limitations in the current CGA: a lack of information sharing between different HCPs who deliver CGA; poor communication between older people and their HCPs and a lack of follow-up as part of CGA. When we discussed the potential for CGA to use technology, HCPs and older people varied in their readiness to engage with it.

**Conclusions** Viable solutions to address gaps in the current delivery of CGA include the provision of training and support to use digital technology and a designated comprehensive care coordinator. The next stage of this research will use these findings, existing evidence and stakeholder engagement, to develop and refine a model of community-based CGA that can be assessed for feasibility and acceptability.

## INTRODUCTION

Between 2020 and 2050, the number of people worldwide aged over 80 will triple to reach 26 million.<sup>1</sup> With ageing, people are more susceptible to develop multiple, long-term conditions that reduce their independence

## STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ Use of qualitative interviews enabled rich data on exploration and synthesis of older people and healthcare professionals (HCPs).
- ⇒ Our theoretically informed qualitative research and stakeholder insights identified both challenges to the current delivery of comprehensive geriatric assessment (CGA) as well as opportunities for the improvement of CGA for older people with frailty.
- ⇒ Our study is deliberately exploratory; thus, the findings may not be transferable to other older people and HCPs. However, we recruited older people and HCPs with a wide variety of views and experiences.

and quality of life.<sup>1–4</sup> This is due to underlying factors, such as falls, frailty and delirium.<sup>1,3</sup>

Frailty is a clinical syndrome where multiple body systems deteriorate leading to increased vulnerability.<sup>3,5</sup> Frailty increases the risk of falls, disability, hospitalisation, mortality and contact with healthcare services.<sup>5,6</sup> Prevention and reversal of frailty can enable people to stay well and live independently for longer.<sup>3</sup> Frailty affects half of the UK population aged over 85 and costs the publicly funded National Health Service (NHS) £5.8 billion per year.<sup>6</sup> A key priority of the NHS in the UK is to support older people with frailty to manage their long-term conditions.<sup>3,7</sup>

Older people living with frailty need robust interventions tailored to the complexity of their care needs.<sup>3,8</sup> Comprehensive geriatric assessment (CGA) is a multidimensional diagnostic and therapeutic intervention that includes an assessment of physical, cognitive and psychosocial components with the development of a holistic management plan in partnership with the older person with frailty.<sup>8</sup> CGA delivered in acute, primary and community settings aims to prevent deterioration and complications associated with

frailty.<sup>3 9</sup> However, the effectiveness of CGA for older people with frailty in primary care and community settings is mixed.<sup>8 10 11</sup> Ho *et al* reported benefits in terms of the likelihood of living at home, reduced mortality, improved cognition and activities of daily living, but with uncertain benefits on quality of life,<sup>11</sup> whereas Briggs *et al* found no difference in mortality, activities of daily living, quality of life and care home admissions.<sup>8</sup> Descriptions of CGA components often lack detail, including the delineation of staff involved in delivery, and an understanding about factors that affect implementation are limited.<sup>12</sup>

Recent NHS initiatives to strengthen the efficiency of outpatient services using alternative approaches require consideration. For example, there is a growing interest in the use of wearable devices to monitor patients.<sup>7</sup> The NHS Long Term Plan and Digital Transformation Plan recommend the use of digital equipment in the assessment and monitoring of older people with frailty, with the option of using wearable devices to ensure services are inclusive and available to all.<sup>7 12</sup> However, digital technologies are not part of the existing evidence for CGA.

Regardless of the complexity and diversity of the needs of older people with frailty, some face inequities in access to interventions which may help to maintain or improve their independence.<sup>3</sup> For example, while telemedicine can be beneficial, cost-effective and acceptable to older people,<sup>13</sup> there are concerns about digital exclusion<sup>14</sup> and risks that important signs and symptoms could be missed.<sup>15</sup> Improving the effectiveness and efficiency of CGA<sup>11</sup> requires exploration of how individual components may work and how the overall intervention can be enhanced. The Digital and Remote Enhancement for the Assessment and Management of Older People with Frailty project aimed to develop a community-based model of CGA that incorporated technology. This qualitative study aimed to understand perspectives, beliefs and experiences of both actual and potential providers and users to improve the current CGA and explore the factors that may impact on CGA delivery in community settings, including the use of technology.

## METHODS

### Design

A qualitative interview study with older people and healthcare professionals (HCPs) was conducted. AM, a female postdoctoral research fellow and pharmacist, collected and analysed the data in collaboration with VG (a female academic physiotherapist) and JF (a female medical sociologist). All had experience of conducting qualitative research. The study has been reported according to the Consolidated Criteria for Reporting Qualitative Study guidelines.<sup>16</sup>

### Patient and public engagement

Patient public involvement and engagement (PPIE) and HCP advisory groups contributed to the development, design and conduct of this research through a series of

workshops. They contributed to developing and piloting topic guides for the interviews and provided analytical insight into preliminary findings through discussions.

## Sampling and recruitment

### Older people

Participants were recruited from the Community Ageing Research (CARE) 75+<sup>17</sup> or the Oxford Pain Activity and Lifestyle (OPAL)<sup>18</sup> cohorts. Both CARE75+ and OPAL are representative, prospective longitudinal studies designed as both epidemiological studies of older people living in the community in the UK and as recruitment platforms to help overcome some of the challenges of older people being under-represented in research.<sup>19</sup> We applied a maximum variation sampling strategy to identify Care75+ and OPAL participants who had consented to be contacted, to capture diversity in gender, ethnicity, living circumstances, socioeconomic factors, geography, frailty, sensory (eg, visual or hearing problems) and memory problems. Frailty for the CARE 75+ Cohort was assessed using the Edmonton Frailty Index<sup>20</sup> and the Electronic Frailty Index<sup>19</sup> and for the OPAL cohort was assessed using Tilburg Frailty Indicator.<sup>21</sup> Batches of invitations to participate were sent out to 15–20 people at a time by AM (for Care75+ participants) and the OPAL research team (for OPAL participants). In total, 132 invitations were sent out. We continued recruiting from May 2022 to December 2022 until our concurrent analysis yielded an in-depth understanding of where and how CGA might be improved.<sup>22</sup>

### Healthcare professionals

For HCPs, we also used a maximum variation sampling strategy,<sup>23</sup> to ensure representation of professional background, geographical location and gender. We invited health and social care professionals working in non-hospital settings in the UK working with older people living with frailty via social media (Twitter and Facebook) and via professional networks.

All older people and HCPs who expressed an interest in taking part were recruited.

## Data collection

We developed semistructured topic guides<sup>23 24</sup> for older people (online supplemental additional file 1) and HCPs (online supplemental additional file 2) based on a review of literature and online workshop discussions with our two advisory groups made up of older people, family members and HCPs. We did not use the term CGA in the interviews with older people as advised by the two advisory groups. Topic domains were aligned to the non-adoption, abandonment, scale-up, spread and sustainability (NASSS) framework to ensure collection of rich data and to explicitly focus our analysis on how best to improve CGA.<sup>25</sup> The NASSS framework has previously been used to explain the interacting factors that affect the implementation of complex interventions that use technology and generate mixed outcomes.<sup>25 26</sup> AM piloted the topic guide with

members of the PPIE advisory group and refined one question (concerning outcomes to be measured) for clarity. The topic guide enabled consistency in the data collection, with the interviews flexible enough to allow the participants to explain what was important to them.<sup>27</sup> The interviews were conducted face to face, via telephone or video call, depending on the participants' preference.<sup>23</sup> AM introduced herself and explained the aim of the study to the interviewee at the beginning of each interview. The audiorecorded interviews were transcribed by a GDPR compliant transcriber and checked for accuracy by AM. Fieldnotes captured the context of the interview. AM had no previous contact with any of the participants.

### Data analysis

We undertook abductive analysis,<sup>28</sup> and used NVivo V.13 (Release 1.7)<sup>29</sup> to manage the data. This involved an iterative approach to analysis, to facilitate understanding.<sup>27 30</sup> We coded the interviews in cycles, with deductive codes from the literature and inductive codes generated by AM, identifying similar ideas or concepts that could be categorised into a code.<sup>27 31</sup> This enabled balance between data relating to pre-existing concepts and data based on the perspectives of the participants.<sup>28 32</sup> We (AM, VG and JF) then developed a conceptual map of the different participants' perspectives.<sup>24</sup> The NASSS framework and the theoretical framework of acceptability<sup>25 33</sup> guided the categorisation of the codes. The categories were then mapped to the two frameworks, which enabled further elaboration of the complexity within the domains of an intended CGA intervention that uses technology. For example, the broad analytical category 'organisation' was constituted by various coding categories, including person-centred and accessible records, digital enabling for staff, information sharing between HCPs and continuity of care. We used a conceptual map to create a hypothetical case (vignette) of an older person who participated in a CGA that used technology.<sup>34</sup> We used the vignette in the final

three interviews with HCPs, to extend our understanding of the potential afforded by technology. Preliminary findings were presented to the advisory groups for discussion and consideration of their interpretations.

## RESULTS

### Older people

14 older people consented to participate and were interviewed. Respondents were aged between 75 and 90 years old, were evenly split between males and females, and included participants with hearing and/or visual impairment, mobility impairments, and with one or more long-term condition. One participant asked to be interviewed in the presence of their carer (a spouse). The interviews lasted between 16 and 92 min (table 1).

### Healthcare professionals

The 13 HCPs came from different professional backgrounds and from different geographical areas of England. All of the participants were working, or had worked, with older people with frailty, for a duration of 2–30 years (table 2). The interview duration ranged between 33 and 160 min.

We identified patterns about the conditions to enhance CGA across the two data sets, then classified these patterns into the eight domains of the NASSS framework and to the framework of acceptability.<sup>25 33</sup> Here, we present the four domains that were most important for both the patient and professional participants: frailty (the condition), intended adopters (both professional and lay), organisational factors (such as workforce challenges) and acceptability (of technology and assessment).

### Frailty

Among HCPs, there was an appreciation of the complexity of frailty. Regardless of whether they have a need for acute care or not, all older people with frailty have complex

**Table 1** Demographic characteristics of older people with frailty

Participant pseudonym	Gender	Age group	Current residence in England	Living circumstances	Mode of interview
Robert	Male	81–85	North East	Live alone	Telephone interview
James	Male	81–85	South West	Live alone	In-person interview
Richard	Male	81–85	South West	Live with spouse	Online audio call
William	Male	86–90	North East	Live with spouse	Online video call
Barbara	Female	81–85	North East	Live with spouse	Telephone interview
Gary	Male	75–80	North East	Live with spouse	Telephone interview
Karen	Female	75–80	South East	Live alone	Online video call
Steven	Male	75–80	South East	Live with spouse	Telephone interview
Shirley	Female	75–80	Midlands	Live alone	Telephone interview
Frances	Female	86–90	South East	Live alone	Telephone interview
Carol	Female	81–85	North West	Live alone	Telephone interview
Donna	Female	81–85	South East	Live alone	Telephone interview
Frank	Male	75–80	Midlands	Live with spouse	Telephone interview
Lois	Female	86–90	South West	Live with spouse	Telephone interview



**Table 2** Demographic characteristics for HCPs who participated in the study

Participant number	Profession	Years of providing care to older people	Location in England	Gender	Mode of interview
HP1	Frailty assistant practitioner	20	South West	Female	Online
HP2	Nurse	15	South West	Male	Online
HP3	GP	Retired	North East	Female	Online
HP4	Physiotherapist	19	South West	Female	Online
HP5	GP	16	South West	Female	Online
HP6	Physiotherapist	30	South West	Female	Online
HP7	Nurse	15	South West	Female	Online
HP8	Nurse	2	South East	Female	Online
HP9	Occupational therapist	10	South East	Female	Online
HP10	Consultant geriatrician	23	North West	Male	Online
HP11	Consultant geriatrician	19	Midlands	Female	Online
HP12	Physiotherapist	4	Midlands	Female	Online
HP13	Pharmacist	3	North West	Female	Online

GP, general practitioner; HCPs, healthcare professionals.

needs due to having multiple long-term conditions, impairments and/or socioeconomic factors:

Most of them are aged 80 almost all of them are frail and so they have multiple chronic conditions, they have got polypharmacy they tend to need some help with one or more activities of daily living. (HP13, Pharmacist)

HCPs from different professions tend to provide a comprehensive assessment that involves physical, psychological and social needs for older people with acute and non-acute care needs. However, there is a need to provide older frail people with assessment prior to a crisis developing:

All the domains yeah, the psychological, physical all those you know functional, environmental you know do you live in a house, a flat, bungalow, do you sleep upstairs, any falls you know any equipment in the toilet, that kind of thing and social you know do you get out. (HP12, Physiotherapist)

So, if you're trying to keep somebody well for longer, then any of those proactive interventions rather than waiting until they get to crisis point. (HP9, Occupational therapist)

We interviewed older people with frailty who were socioeconomically disadvantaged and/or experienced sensory or physical impairment that can exacerbate the complexity of their care needs. For example, Carol had financial challenges, restricted mobility, visual impairment, multiple long-term conditions and a high risk of falling. Carol had limited choices in access to care because of her restricted ability to travel to appointments, lack of a support network and no access to technology:

I've been a single person all my life and I get the basic state pension. So, I've never ever been able to

afford the technology that people use every day to day in these days and that's the reason I don't have it. (Carol, 81–85 years old)

On the other hand, Karen lived alone but has regular communication with family and friends. During her health and care journey, Karen was able to enact her own health decisions and avoided long NHS waiting time for tests and referrals:

I only saw the consultant yesterday, so the next steps haven't been put in place yet. Unfortunately, I have had to pay privately for it and the NHS seems to be in such a mess and the doctor did want to send me off for tests but she couldn't justify so, more or less saying well you know it is as it is we can't do anything more for you because we haven't got proof that this test or that test is something we can do, something we can justify. [...] I'll have to pay for that privately otherwise I will just be waiting too long. You know I am getting on I don't want the last two or three years probably of my life to be sitting around at home feeling sorry for myself. (Karen, 75–80 years old)

### Intended adopters

Some HCPs indicated that an HCP occupational background may inform the scope of assessment during the CGA, and the quality of the CGA that they offer. A nurse who led a frailty team showed appreciation of the range of HCP backgrounds in their team, which enabled them to involve the most suitable HCP (eg, in terms of their skill set), to meet the unique needs of the older person:

obviously if it was things like their ability to perform their physical activity to daily living that maybe something that I would involve one of, I've got a colleague who is Band 4 assistant practitioner whose got a therapy background she's very good at looking at the nuts

and bolts of how people physically manage [...] I will also do joint visits with OTs and physios if we're feeling that we need to, that there's a, that the referral makes it sound like this is very much that mixed picture of it's not just a medical requirement or a strict nursing requirement that there's an overlap with where my therapy colleagues would come in. (HP2, Nurse)

This contrasted consultant geriatrician (HP11) who also led a frailty team. HP11 indicated that regardless of the different backgrounds of HCPs in their team, there should be no differences in the CGA that they provide to older people with frailty. However, HP11 highlighted that some professions may have limited ability to understand the complexity of older people's care needs. This was congruent with the views from older people who thought that their care needs could be managed better by an HCP with knowledge and experience of older people with frailty:

They all do the same because they've all had their advanced [...], course the advanced assessment health-care assessment course. They've all done the same course ok., (HP11, Consultant Geriatrician)

You could have one doctor who is in the practice who specialised in old people you know just for the aged to sort of he specialised in the aged. [...] where old people could feel they could go [...] rather than a general practitioner maybe somebody that was for the old and the frail. (Barbara, 81–85 years old)

A general practitioner (GP) (HP3) thought that the ability to deliver CGA depends on the investigative and communication skills, and previous experience of staff, and it is not restricted to a particular background:

So, I tend to work on a concept that I don't like thinking about professions doing things I like to think about competencies. (HP3, GP)

Some HCPs suggested that HCPs may require training to improve interpersonal skills, in terms of communication and attention to detail, to ensure enhancement of CGA. For example, HP12 (a physiotherapist) shared their personal experience of developing their investigational skills when providing remote CGA over time. HP7 (a nurse) shared their experience of supporting new HCPs in their team to learn how to pick-up non-verbal cues during home visits, to support identifying care needs and provide CGA.

## Organisation

Interviewing HCPs from different geographical areas of England allowed us to explore organisational limitations, which would require innovation to increase readiness for new forms of technology-informed care delivery.

Some HCPs made references to fear and resistance to trying new ways of care delivery. For example, a nurse (HP2) referred to themselves as 'a dinosaur' when it

comes to trying new technologies. Similarly, a frailty assistant practitioner (HP1) also indicated that practitioners may need support from colleagues while a consultant geriatrician (HP11) shared the challenges they had when using technology and the time needed for training to use new technology:

There's also the training aspect of it. Training takes a long time you go in and sit down and have training whatever new technology comes you have to find time to go for training and you actually don't get to understand its use until you start using it and the problems that you get when you start using it. (HP11, Consultant Geriatrician)

Almost all HCPs discussed the negative impact of using different clinical databases in various settings on their ability to share and/or access patients' records. HCPs discussed the importance of having a well-established information sharing process between HCPs in different settings in enhancement of CGA. HCPs shared their experiences of meeting the challenges in information sharing. For example, sharing data in regular multidisciplinary team (MDT) meetings provides access to the GP medical records for HCPs who work in the community, which enables them to effectively support the older people with whom they work. Some organisations have a sharing document that all HCPs involved in CGA can use to input and share data, which staff found beneficial in terms of the availability of information and efficiency in obtaining key information when needed:

I've not seen they've had a CGA, their clinical frailty scale is this, blah, blah, blah never seen it never ever. Never ever, ever seen it. So, information is not coming it is not flowing. (HP12, Physiotherapist)

I just from previous experience I knew these sorts of things I needed to have so I made sure that I discussed it with the CCG and got them to put this in place because I didn't want to be spending exactly like the nurse, two hours, trying to get information when in five min I can have that information. (HP10, Consultant Geriatrician)

So, for me to be able to know what medicines somebody is on, I have to have access to that or I've got ask somebody who has access to check for me ok. (HP11, Consultant Geriatrician)

Lack of staff capacity was perceived as a limitation for delivering CGA by all HCPs, which may inhibit delivery of timely support which an older people may require. Some older people recognised the limited staff availability and the increasing demands on the GP practices that inhibit continuity in care. For them, lack of continuity decreases their engagement with their care:

More of us, more availability [...] I mean we are running its sort of like a virtual ward model but it's going to be, we have less staff on at a weekend. So, our

capacity to take new referrals on a Friday and over the weekend is a lot less. (HP9, Occupational therapist)

When you see the doctor, you know you barely it's a locum that I see I don't see my own doctor. (Shirley, 75–80 years old)

Other older people with frailty understood the current workforce challenges in the NHS and suggested that improved communication between HCPs and sharing information may mitigate the current lack of continuity:

GPs talk to each other and that you know if you go in and you see somebody who is not your designated GP you know that fine well that the notes are there [...]. So, you feel perfectly happy that you know whoever you are seeing, knows what they are talking about. (Lois, 86–90 years old)

However, we identified that when an older person can identify a key contact person to support them, this can mitigate a lack of continuity in their care, because they key person can co-ordinate their care and ensure the continuous flow of communication:

So, I sort of stayed involved in this case as a coordinating factor because you know it happens when too many people are involved things the outcome might not be good or the people can get lost in translation and so I managed to speak to the mental health team and everything and draw all the people that the GP had referred to, to a point where I said now, you need to take this forward. (HP12, Physiotherapist)

### Acceptability

We identified elements that might influence acceptability by older people with frailty, that should be taken into consideration when enhancing CGA.

Although HCPs perceived that older people were satisfied with CGA and the care provided to them, some older people indicated that they could not freely communicate with HCPs and express their needs, because of perceived short appointments with their GP. Furthermore, older people lacked trust in their HCPs, or the clinical decisions made about their treatment plan:

I would say the consistent feedback is normally that they're greatly relieved that we've given the time 'cos we don't time specify our visits (HP2, Nurse)

No, it's so quick and it's so, I mean in person, well I wouldn't say personal you know when you speak to a doctor like I did with my old doctor if he, it was just a different attitude towards you, it's like a conveyor belt, you come in, you go out, you come in and you go out so, you know you just feel it's not the same what it was before. (Shirley, 75–80 years old)

Moreover, HCPs acknowledged the variation in older people readiness to engage with new ways of care delivery:

There is a high risk of inequalities because anytime you are going introduce something different new,

there are going to be people who can use it very easily and there are going to be those who can't for whatever reasons. (HP13, Pharmacist)

This aligned with the findings from interviews with the older people themselves. For example, Karen showed readiness to engage with new ways of receiving technology-informed care because she had previous experience of using technology in her healthcare, and in communication with family members. In contrast, Shirley rejected engagement with new forms of remote appointments:

They did ask me once yes, but I said, well, I don't know how to do it, let's put it that way a video appointment I mean I don't [...] I have a mobile phone so, you know I just don't know how to do it. So, the other solution was that they speak to me over the phone. (Shirley, 75–80 years old)

Lack of physical access to technology (eg, a device or internet connection) can inhibit an older person's opportunity to learn how to use technology, which may subsequently limit their readiness to engage with new forms of technology-informed care. Therefore, those with frailty may require additional support to engage with CGA that uses technology. For example, older people with sensory impairment may require specialist adaptation to their device, or support from a carer to engage; whereas older people who are already digitally literate may only need educational input on how to use a new technology.

HCPs recognised the variation in the needs and preferences of older people with frailty and discussed how they tailor CGA to the person's needs:

I would say we're able to be very person-centred we're not looking at things from a clinician's perspective only we will explore things from the patient's perspective in terms of what they think is their problems. (HP4, Physiotherapist)

Some HCPs thought that the presence of a carer, a family member or support network may increase a frail older person's acceptance of CGA that uses technology. However, HCPs acknowledged the higher demands on the carer which may reduce the support they can provide, to help the older adult engage with technology. A GP (HP3) shared examples of caregivers who inadvertently disempower the older person, in terms of decision-making about their healthcare choices. Older people may, therefore, require support from a wider network, and not only their carer:

Some of them have families who help them but they still like you know eye contact, physical contact and the written word, you know paper, hard copy of anything. So, I am afraid that's something that they'll eventually all pop off but and thankfully the younger ones are you know quite capable of using all these devices. (Barbara, 81–85 years old)



HCPs may not be able to provide the required follow-up after an assessment, important for tracking the referrals to other services if needed and the management plan provided to the patient. Similarly, older people explained the challenges that they were facing in following-up the HCPs; for example, to find out the result of a test, or to book an appointment:

I would like to think we're good at going out and identifying the problem we're good at negotiating a management plan with someone it's then how do you monitor the effect of that management plan. (HP2, Nurse)

I had to phone my practice after I'd been to see the 111 doctor and she said get in touch with your practice and I got this sort of non-committal reply oh, well you'd better start your antibiotics and I was quite disappointed that they didn't get in touch with me because they'd given me that advice without having seen a report and I thought well I would have expected something to come back but like I said, I was really not well enough to do anything about it. (Donna, 81–85 years old)

## DISCUSSION

This study explored the factors that may impact on CGA delivery in community settings, including the use of technology. This research adds to the current growing evidence on the challenges of delivering effective CGA in community settings and identified factors to enhance CGA in community settings from the perspectives of older people and HCPs.

In this study, we identified key challenges to the enhancement of CGA in the community, including: information sharing between different HCPs who are delivering the CGA; communication between older people and their HCPs; and follow-up appointments after conducting the CGA. From the current challenges that were explained by participants, and suggestions which they made to address them, workshop discussions with advisory group members and existing literature, we identified factors to enhance CGA in the community.

Both HCPs and older people considered that the delivery of CGA should not be limited to those from specific professions but should be based on HCPs competency and knowledge of the complexity of need for older people with frailty. This finding aligns with the Ageing Well Network of Enhanced Care for older People competency framework<sup>35</sup>; an aim of which is to enhance staff competency in working anywhere in the care system.<sup>35</sup> The Health Education England and NHS England commissioned the Frailty Core Capabilities Framework in 2018 to identify skills and behaviours required to deliver high-quality care to older people with frailty.<sup>36</sup> However, there is limited use of the framework in commissioning education or training, reflected in the results of evaluation surveys that were conducted in 2018 and 2019.<sup>37</sup>

We suggest that upskilling staff and providing them with appropriate training to improve their communication and investigation skills may be a viable solution to mitigate the negative impact of workforce shortages on the effectiveness of CGA.

From conducting interviews augmented by workshop discussions with advisory group members, we identified the need for assigning a member of staff or MDT team to a co-ordinating role, which we designated as 'comprehensive care coordinator'. This person could coordinate the delivery of CGA by facilitating information sharing between different HCPs, communicating with older people with frailty on a regular basis and ensuring that the management plan including referrals is acted on. Designating a care coordinator may improve continuity of care with one point of contact and provide reassurance through a therapeutic, long-term relationship. This may provide reassurance to the older person and ensure effective follow-up of any management plan. Care coordinator roles in the community, including case managers, may reduce emergencies. However, evidence shows variation in the role in different studies in terms of duration and frequency of home visits and HCPs who coordinated the care.<sup>11 38 39</sup> Further research needs to identify who could best coordinate care in older people and what the best approach may be.

Moreover, HCPs agreed that using technology in the delivery of CGA may enable HCPs to provide support for older people without compromising their follow-up. The NHS plan highlighted the need for enhancing the use of technology in healthcare, to change how care is being provided to patients; and to create joined up computer systems that give staff sufficient access to data, to provide improved care for patients.<sup>7</sup> However, there is a need for digital upskilling of staff to support their effective use of technology in healthcare.<sup>40</sup>

Different IT systems and a lack of information governance arrangements across different settings currently inhibit information sharing and create tension between HCPs in different settings. HCPs told us that the lack of connection between different systems must be addressed, if they are to deliver an effective CGA. Similarly, older people mentioned how lack of access to information magnified unequal access to effective CGA, and support and care for older people with frailty. In February 2023, NHS Digital became responsible for digital technology, data and health and care delivery. This has the potential to address some of the challenges in information sharing.<sup>41</sup> Existing research has identified the need for convenient platforms and improved digital records for integrated care services for older people (including CGA) that maintain privacy and security when sharing patient data between MDTs.<sup>40 42</sup> Such integrated platforms may enhance communication and coordination of care.<sup>40 42</sup> However, resolving existing operational complexities is likely to require additional funding and the creation of interoperable IT systems.<sup>7 40 41 43</sup>

We found that socioeconomic factors, including living circumstances, income and social network, impacted

older peoples' treatment choices; in terms of whether they visited a clinical specialist and waiting times for NHS appointments. This implies that when developing the CGA that uses technology we need to consider how to mitigate socioeconomic factors that inhibit access and capacity to obtain the benefits of using digital equipment in the assessment and follow-up. Existing research suggests that digital interventions are less effective in populations with socioeconomic disadvantage compared with those with higher socioeconomic status.<sup>44</sup> Although the COVID-19 pandemic accelerated the shift to online resources and services, and changed patient perceptions and willingness to use technology, it increased digital inequalities.<sup>45 46</sup> Among those aged 75 and over in the UK, 42% do not use the internet, reporting a lack of digital skills as the main reason.<sup>47</sup> However, the older population is changing, and the next generation of older people are more familiar with using technology, with 77% of those aged over 55 using a smart phone<sup>48</sup> and 55% of those aged 50–64 using the internet most days.<sup>47</sup> However, increasing physical access to connected devices and the internet alone may not be enough to reduce inequalities in access to CGA that uses technology.<sup>44 45 49</sup> Therefore, training and support would be needed to ensure older people could be digitally enabled; however, this may not be appropriate for everyone, and support would need to be individualised.<sup>47</sup>

Using technology for monitoring and supporting older people with frailty is an NHS priority, and over time, there may be more opportunities for older people with frailty to access and use technology.<sup>7</sup> Research now needs to assess if these changes positively affect older people with frailty, support engagement with CGA that uses technology, and whether they diminish inequalities in access to technology-informed care.

Qualitative interviews enabled exploration and synthesis of older people and HCPs perspectives. Although we recruited a range of older people and HCPs with a wide variety of views and experiences, our findings may not be transferable to all older people and HCPs who have different experiences or perspectives (eg, we were unable to recruit any social workers despite employing several strategies).<sup>24 27</sup> However, our theoretically informed qualitative research and stakeholder insights identified both challenges to the current delivery of CGA as well as opportunities for the improvement of CGA for older people with frailty.

## Conclusions

We identified four factors to enable implementation of CGA in community: enhancing staff competency in working with older people with frailty, creating interoperable IT systems, assigning a care coordinator for older people with frailty and mitigation of the impact of inequalities in access to digital care. Introducing technology and a designated comprehensive care coordinator may be vital to addressing gaps in the current provision of CGA. These solutions may also positively affect the acceptability

of CGA in older people with frailty. The next stage of this research will further develop, refine and test a model of improved CGA in community setting.

**Twitter** Victoria A Goodwin @VickiG\_physio

**Acknowledgements** We would like to thank our public and professional advisory groups who have provided insight and contributed at every stage of the research.

**Collaborators** DREAM Study Team: Andrew Clegg, Tom Crocker, Silvia Del Din, Fiona Hamilton, Claire Hulme, Tim Sanders.

**Contributors** VG and JW conceived the ideas for the research with the help of JF and SL. AM collected the data. AM, JF and VG analysed the data. AM led the writing with the help of JF and VG. NM, HL, SL, SC critically revised the manuscript. VG is responsible for the overall content as guarantor. All authors have approved the final version of the article.

**Funding** This project was funded by the National Institute for Health and Care Research (NIHR) under its Programme Development Grants (PDG) Programme (Grant Reference Number NIHR203293).

**Disclaimer** The views expressed are those of the author(s) and not necessarily those of the NIHR or the Department of Health and Social Care.

**Competing interests** None declared.

**Patient and public involvement** Patients and/or the public were involved in the design, or conduct, or reporting, or dissemination plans of this research. Refer to the Methods section for further details.

**Patient consent for publication** Not applicable.

**Ethics approval** This study involves human participants and ethical approval was issued by the University of Exeter, College of Medicine and Health Research Ethics Committee (Ref 509407). Participants gave informed consent to participate in the study before taking part.

**Provenance and peer review** Not commissioned; externally peer reviewed.

**Data availability statement** Anonymised interview data are available upon reasonable request from the corresponding author.

**Supplemental material** This content has been supplied by the author(s). It has not been vetted by BMJ Publishing Group Limited (BMJ) and may not have been peer-reviewed. Any opinions or recommendations discussed are solely those of the author(s) and are not endorsed by BMJ. BMJ disclaims all liability and responsibility arising from any reliance placed on the content. Where the content includes any translated material, BMJ does not warrant the accuracy and reliability of the translations (including but not limited to local regulations, clinical guidelines, terminology, drug names and drug dosages), and is not responsible for any error and/or omissions arising from translation and adaptation or otherwise.

**Open access** This is an open access article distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited, appropriate credit is given, any changes made indicated, and the use is non-commercial. See: <http://creativecommons.org/licenses/by-nc/4.0/>.

## ORCID iDs

Aseel Mahmoud <http://orcid.org/0000-0001-6332-8239>

Victoria A Goodwin <http://orcid.org/0000-0003-3860-9607>

Julia Frost <http://orcid.org/0000-0002-3503-5911>

## REFERENCES

- 1 World Health Organisation. Ageing and health, Available: <https://www.who.int/news-room/fact-sheets/detail/ageing-and-health>
- 2 The King's Fund. Long-term conditions and multi-morbidity, Available: <https://www.kingsfund.org.uk/projects/time-think-differently/trends-disease-and-disability-long-term-conditions-multi-morbidity>
- 3 British Geriatric Society. Joining the dots: A blueprint for preventing and managing frailty in older people. 2023.
- 4 Crocker TF, Brown L, Clegg A, et al. Quality of life is substantially worse for community-dwelling older people living with frailty: systematic review and meta-analysis. *Qual Life Res* 2019;28:2041–56.



- 5 Clegg A, Young J, Iliffe S, *et al.* Frailty in elderly people. *The Lancet* 2013;381:752–62.
- 6 Han L, Clegg A, Doran T, *et al.* The impact of frailty on Healthcare resource use: a longitudinal analysis using the clinical practice research Datalink in England. *Age Ageing* 2019;48:665–71.
- 7 NHS. The NHS long term plan. 2019.
- 8 Briggs R, McDonough A, Ellis G, *et al.* Comprehensive geriatric assessment for Community-Dwelling, High-Risk, frail, older people. *Cochrane Database Syst Rev* 2022;5:CD012705.
- 9 British Geriatric Society. Comprehensive Geriatric Assessment Toolkit for Primary Care Practitioners, Available: <https://www.bgs.org.uk/cgatoolkit>
- 10 Sum G, Nicholas SO, Nai ZL, *et al.* Health outcomes and implementation barriers and Facilitators of comprehensive geriatric assessment in community settings: a systematic integrative review [PROSPERO registration no.: CRD42021229953]. *BMC Geriatr* 2022;22:379.
- 11 Ho L, Malden S, McGill K, *et al.* Complex interventions for improving independent living and quality of life amongst community-dwelling older adults: a systematic review and meta-analysis. *Age Ageing* 2023;52:afad132.
- 12 Chadborn NH, Goodman C, Zubair M, *et al.* Role of comprehensive geriatric assessment in Healthcare of older people in UK care homes: realist review. *BMJ Open* 2019;9:e026921.
- 13 Murphy RP, Dennehy KA, Costello MM, *et al.* Virtual geriatric clinics and the COVID-19 catalyst: a rapid review. *Age Ageing* 2020;49:afaa191:907–14..
- 14 Nimmons D, Armstrong M, Pigott J, *et al.* Exploring the experiences of people and family Carers from under-represented groups in self-managing Parkinson's disease and their use of Digital health to do this. *Digit HEALTH* 2022;8:20552076221102261.
- 15 Febrey S, Frost J, Hall AJ, *et al.* Advanced practitioners working with older people in primary care and community settings: a cross-sectional, web-based survey of roles and use of technology. *Int J Adv Pract* 2024.
- 16 Booth A, Hannes K, Harden A, *et al.* n.d. COREQ (Consolidated criteria for reporting qualitative studies). guidelines for reporting health research: A user's Manual2014. :214–26.
- 17 Heaven A, Brown L, Young J, *et al.* Community ageing research 75+ study (Care75+): an experimental ageing and frailty research cohort. *BMJ Open* 2019;9:e026744.
- 18 Sanchez Santos MT, Williamson E, Bruce J, *et al.* Cohort profile: Oxford pain, activity and lifestyle (OPAL) study, a prospective cohort study of older adults in England. *BMJ Open* 2020;10:e037516.
- 19 Clegg A, Relton C, Young J, *et al.* Improving recruitment of older people to clinical trials: use of the cohort multiple randomised controlled trial design. *Age Ageing* 2015;44:547–50.
- 20 Rolfson DB, Majumdar SR, Tsuyuki RT, *et al.* Validity and reliability of the Edmonton frail scale. *Age and Ageing* 2006;35:526–9.
- 21 Gobbens RJJ, van Assen MALM, Luijckx KG, *et al.* The Tilburg frailty indicator: Psychometric properties. *J Am Med Dir Assoc* 2010;11:344–55.
- 22 Malterud K, Siersma VD, Guassora AD. Sample size in qualitative interview studies: guided by information power. *Qual Health Res* 2016;26:1753–60.
- 23 Hinton L, Ryan S. Qualitative research in health Care. 2020: 43–55.
- 24 Creswell JW, Poth CN. *Qualitative Inquiry and Research Design: Choosing Among Five Approaches*. Thousand Oaks, CA: SAGE Publications Ltd, 2016.
- 25 Greenhalgh T, Maylor H, Shaw S, *et al.* The NASSS-CAT tools for understanding, guiding, monitoring, and researching technology implementation projects in health and social care: protocol for an evaluation study in real-world settings. *JMIR Res Protoc* 2020;9:e16861.
- 26 Abimbola S, Patel B, Peiris D, *et al.* The NASSS framework for ex post Theorisation of technology-supported change in Healthcare: worked example of the TORPEDO programme. *BMC Med* 2019;17:233.
- 27 Mays N, Pope C. Quality in qualitative research. *Qualitative Research in Health Care* 2020:211–33.
- 28 Timmermans S, Tavory I. Theory construction in qualitative research: from grounded theory to Abductive analysis. *Social Theory* 2012;30:167–86.
- 29 QSR International Pty Ltd. NVivo. 2022.
- 30 Creswell JW. *Qualitative, quantitative and mixed methods approaches*. Sage, 2014.
- 31 Shepperd S, Craddock-Bamford A, Butler C, *et al.* Hospital at home admission avoidance with comprehensive geriatric assessment to maintain living at home for people aged 65 years and over: a RCT. *Health Soc Care Deliv Res* 2022;10:1–124.
- 32 Fereday J, Muir-Cochrane E. Demonstrating rigor using thematic analysis: A hybrid approach of Inductive and deductive coding and theme development. *International Journal of Qualitative Methods* 2006;5:80–92.
- 33 Sekhon M, Cartwright M, Francis JJ. Acceptability of Healthcare interventions: an overview of reviews and development of a theoretical framework. *BMC Health Serv Res* 2017;17:88.
- 34 Jenkins N, Bloor M, Fischer J, *et al.* Putting it in context: the use of vignettes in qualitative interviewing. *Qualit Res* 2010;10:175–98.
- 35 Fraser A, Shaw L. Enhanced Care of Older People (EnCOP) Competency Framework: Frailty icare, Available: <https://frailtyicare.org.uk/wp-content/uploads/2022/12/EnCOP-Getting-Started-Core-Slide-Deck.pdf>
- 36 Health Education England and NHS England. Frailty; A framework of core capabilities: skills for health. 2018. Available: <https://www.skillsforhealth.org.uk/wp-content/uploads/2021/01/Frailty-framework.pdf>
- 37 Skills For Health. Frailty core capabilities framework evaluation: Institute of ageing and health. 2019. Available: <https://www.skillsforhealth.org.uk/images/services/cstf/Sfh%20Frailty%20Framework%20Evaluation%20Report.pdf>
- 38 Poupard N, Tang CY, Shields N. Community-based case management does not reduce hospital admissions for older people: a systematic review and meta-analysis. *Aust Health Rev* 2020;44:83–92.
- 39 Improvement Academy and Connected Health Cities. *Effectiveness Matters Recognising and managing frailty in primary care*. University of York, 2017. Available: <https://www.york.ac.uk/media/crd/effectiveness-matters-may-2017-frailty.pdf>
- 40 Masoli JAH, Todd O, Burton JK, *et al.* New horizons in the role of Digital data in the Healthcare of older people. *Age Ageing* 2023;52:afad134.
- 41 NHS England. Digital transformation. 2023.
- 42 Yutong T, Yan Z, Qingyun C, *et al.* Information and communication technology based integrated care for older adults: A Scoping review. *Int J Integr Care* 2023;23:2.
- 43 NHS England. Integrated care boards (Icbs) in England. 2022.
- 44 Western MJ, Armstrong MEG, Islam I, *et al.* The effectiveness of Digital interventions for increasing physical activity in individuals of low socioeconomic status: a systematic review and meta-analysis. *Int J Behav Nutr Phys Act* 2021;18:148.
- 45 Beaunoyer E, Dupéré S, Guitton MJ. COVID-19 and Digital inequalities: reciprocal impacts and mitigation strategies. *Comput Human Behav* 2020;111:106424.
- 46 Husain L, Greenhalgh T, Hughes G, *et al.* Desperately seeking Intersectionality in Digital health disparity research: narrative review to inform a richer Theorization of multiple disadvantage. *J Med Internet Res* 2022;24:e42358.
- 47 Age UK. Digital inclusion and older people – how have things changed in a COVID-19 world? 2021. Available: <https://www.ageuk.org.uk/globalassets/age-uk/documents/reports-and-publications/reports-and-briefings/active-communities/digital-inclusion-in-the-pandemic-final-march-2021.pdf>
- 48 Lee P. *Mobile Consumer Survey 2018: The UK Cut*. Deloitte, 2018.
- 49 Buckingham S, Anil K, Demain S, *et al.* Telerehabilitation for people with physical disabilities and movement impairment: development and evaluation of an online Toolkit for practitioners and patients. *Disabil Rehabil* 2023;45:1885–92.