

Northumbria Research Link

Citation: Thompson, Juliana, Cook, Glenda, Masterman, Claire, Parkinson, Mark and Bainbridge, Lesley (2022) Rapid evidence review to understand effective frailty care pathways and their components, in primary and community care. *International Journal of Health Governance*, 27 (1). pp. 54-75. ISSN 2059-4631

Published by: Emerald

URL: <https://doi.org/10.1108/ijhg-09-2021-0090> <<https://doi.org/10.1108/ijhg-09-2021-0090>>

This version was downloaded from Northumbria Research Link:
<http://nrl.northumbria.ac.uk/id/eprint/47578/>

Northumbria University has developed Northumbria Research Link (NRL) to enable users to access the University's research output. Copyright © and moral rights for items on NRL are retained by the individual author(s) and/or other copyright owners. Single copies of full items can be reproduced, displayed or performed, and given to third parties in any format or medium for personal research or study, educational, or not-for-profit purposes without prior permission or charge, provided the authors, title and full bibliographic details are given, as well as a hyperlink and/or URL to the original metadata page. The content must not be changed in any way. Full items must not be sold commercially in any format or medium without formal permission of the copyright holder. The full policy is available online: <http://nrl.northumbria.ac.uk/policies.html>

This document may differ from the final, published version of the research and has been made available online in accordance with publisher policies. To read and/or cite from the published version of the research, please visit the publisher's website (a subscription may be required.)



Rapid evidence review to understand effective frailty care pathways and their components, in primary and community care

Journal:	<i>International Journal of Health Governance</i>
Manuscript ID	ijhg-09-2021-0090
Manuscript Type:	Original Article
Keywords:	Primary care < Health Professions, Evidence-based practice < Health Service Quality Assurance, Outcomes < Health Service Quality Assurance, Emerging healthcare delivery structures < Health economics, General practice < Health Professions, Clinical effectiveness < Health Service Quality Assurance

1
2
3 **Title: Rapid evidence review to understand effective frailty care pathways and their**
4 **components, in primary and community care**
5
6

7
8 **Abstract**
9

10 **Purpose:** Different pathways of frailty care to prevent or delay progression of frailty and
11 enable people to live well with frailty are emerging in primary and community care in the UK.
12
13 This study's purpose is to understand effective frailty care pathways and their components to
14 inform future service development, and pathway evaluation, in primary and community care
15 services.
16
17
18
19
20

21
22 **Method:** A rapid evidence review was conducted: 11 research publications met the inclusion
23 criteria and were analysed using narrative thematic synthesis.
24
25

26
27 **Results:** There is strong evidence that resistance-based exercise, self-management
28 support, community geriatric services and hospital at home improve patient health and
29 function. In general, evaluation and comparison of frailty care pathways, components and
30 pathway operations is challenging due to weaknesses, inconsistencies and differences in
31 evaluation, but it is essential to include consideration of process, determinant and
32 implementation of pathways in evaluations.
33
34
35
36
37
38
39

40 **Conclusion**
41

42
43 To achieve meaningful evaluations, and facilitate comparisons of frailty pathways, a
44 standardised evaluation toolkit that incorporates evaluation of how pathways are operated is
45 required for evaluating the impact of frailty pathways of care.
46
47
48

49 **Keywords**
50

51
52 Frailty; primary care; community care, older people, care pathways, literature review, rapid
53 evidence assessment
54
55
56
57
58
59
60

Background

Population ageing is resulting in more people living with multimorbidity and frailty (Soong *et al.*, 2015; Lansbury *et al.*, 2017). Around 10 per cent of people aged over 65 years have frailty, rising to between a quarter and a half of those aged over 85 (British Geriatrics Society (BGS), 2014). Frailty is not an illness, but a syndrome that combines the effects of natural ageing with the outcomes of multiple long-term conditions, and a loss of fitness and reserves (Lyndon 2015). A person with frailty can experience disproportionate serious adverse consequences following even a relatively minor event such as a 'minor' fall, urinary tract infection or change in medication. For example, health and functional status can change from independent to dependent; mobility to immobility; stability of posture and gait to falls; lucidity to a delirium; continent to incontinent (Clegg *et al.*, 2013). Frailty can lead to significant consequences for individuals including disability or moves to institutional care (British Geriatrics Society (BGS), 2014).

Timely identification of frailty can help to reduce the likelihood of progression of frailty or poor outcomes and support the long-term management of people's health and wellbeing. As such, ageing well and supporting people with frailty has moved to the forefront of the health and social care policy agenda in the United Kingdom (UK) (National Health Service (NHS), 2014a; 2019a; National Institute for Health and Care Excellence (NICE), 2015). As part of this agenda the systematic population-based identification of frailty is promoted on the premise that this could improve access to care and enable the needs of individuals to be met through early, proactive targeted and appropriate interventions. An initiative in the UK in 2017/18 has been a change in the general practice (GP) (primary care) contract that introduced routine frailty identification of patients who are 65 and over (NHS, 2017). Alongside this, policy requires that people with frailty are supported through frailty care pathways (NHS, 2014b; 2019b; NICE, 2015; BGS, 2015). Care pathways are complex interventions for decision-making and organisation of care for a defined group of patients

1
2
3 over a defined period of time. Their aim is to enhance the quality of care across the
4 continuum by improving patient outcomes, promoting patient safety, optimising resource
5 use, and increasing patient satisfaction (De Bleser *et al.*, 2006). According to Schrijvers *et al.*
6 (2012), care pathways should have explicit goals, facilitate communication within the multi-
7 disciplinary team, support co-ordination of care processes, and monitor and evaluate
8 outcomes.
9

10
11
12 As part of an ongoing study to identify and compare the effectiveness of frailty care
13 pathways, the authors undertook a scoping exercise of Clinical Commissioning Groups'
14 (CCG) websites for the period 2014-2020 to identify frailty pathways in existence. The
15 identified items included CCG annual reports, governing body reports, inspection reports,
16 briefings, and local news bulletins. Of the 203 identified records, 79% were from the period
17 2017-2019. This suggests that there is an increasing focus on frailty care across the UK. To
18 support the new pathways, roles such as frailty nurses, older person nurse specialists, and
19 frailty co-ordinators; and services including community integrated teams, specialist frailty
20 clinics, and enhanced healthcare in care homes services, have emerged.
21
22

23
24
25 The scoping exercise indicated that different pathways of frailty care exist, but robust
26 evidence of effectiveness of outcomes was limited. The aim of this study was to review
27 research literature to identify effective components and outcomes of frailty care pathways in
28 primary and community care services to inform future UK service development, and pathway
29 evaluation.
30
31

32 **Method, search strategy and data sources**

33
34
35 To address the aim, a rigorous rapid evidence assessment using a narrative synthesis
36 approach was undertaken of research literature. A rapid assessment approach is
37 appropriate in situations where study timeframes are restricted. This review was undertaken
38 as part of a wider study to development understanding of methods for evaluating frailty
39 pathways of care. The wider study will be used to inform service evaluation in the near future.
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

1
2
3 and as such, has a limited timeframe. The rapid assessment approach is systematic and
4 rigorous, but takes legitimate steps to limit the review's breadth so that it is achievable within
5 a shorter timeframe. Steps include a literature search that is systematic but focuses explicitly
6 on the review question; restricting or excluding grey literature, and performing a 'simple'
7 quality appraisal of the items included (Grant and Booth, 2009).
8
9
10
11
12

13
14 The narrative synthesis approach is appropriate for reviews that include data from different
15 study designs including qualitative designs and previous literature reviews. Historically, the
16 perceived primary weakness of the approach was that there was a lack of clarity and
17 guidance about how to conduct the synthesis and appraise the items included (Mays, 2005).
18 However, Ryan (2013) and Popay *et al.* (2006) have provided guidance about conducting
19 narrative synthesis in a transparent and systematic way using a process of grouping studies
20 into clusters; assessing methodological quality, and exploring/identifying relationships
21 between studies to arrive at results and recommendations. In this review, the primary
22 clusters were aims or phenomena of interest. Methodological quality was assessed using the
23 Evidence for Policy and Practice Information Centre (EPPI) approach. According to Popay *et*
24 *al.* (2006), this is a simple but appropriate approach for narrative synthesis reviews that
25 include qualitative methodologies as well as quantitative. Studies' trustworthiness,
26 appropriateness of design, and relevance to the literature review aims are assessed on a
27 scale of 1=high, 2=medium, 3=low. Overall weight for each item is then calculated.
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43

44 Consistency of results outcomes was investigated via the following activities:

- 45 • a) mapping study results in order to identify common results across studies.
- 46
47 • b) methodological triangulation to explore whether studies with different designs had
48 consistent or inconsistent results components. Consistent/common results identified
49 by activities a) and b) informed results of the review.
- 50
51 • c) textual description to provide a richer, in depth description of results (Popay *et al.*,
52 2006).
53
54
55
56
57
58
59
60

1
2
3 The search strategy combined searching databases and grey literature. The following
4 databases were searched by a librarian (C.M.): AMED (Allied and Complementary
5 Medicine), CINAHL (Nursing and Allied Health), PROQUEST, EBM Reviews – Cochrane
6
7 Medicine), CINAHL (Nursing and Allied Health), PROQUEST, EBM Reviews – Cochrane
8
9 Controlled Trials Register, Cochrane Reviews and Medline. Google and TRIP (Turning
10
11 Research into Practice) were also searched. Articles published between 1 January 2010
12
13 and 31 March 2021 were searched, in English were searched using the following MeSH
14
15 terms and free words:
16

17
18 'older people', 'elderly people', 'geriatric(s)', 'retired', 'retirement', 'senior citizen(s)',
19
20 'pensioner(s)', 'residents' (all used to capture the concept of 'older people')
21

22
23 AND
24

25
26 'frailty', 'infirmary', 'vulnerable', 'vulnerability', 'multimorbidity', 'comorbidity', 'fragility'
27

28
29 AND
30

31
32 'primary care', 'general practice', 'GP', 'primary care network', 'GP federation',
33

34
35 OR
36

37
38 'Community care', 'extracare', 'care plus', 'frailty services', 'services', 'enablement'
39

40
41 OR
42

43
44 'community services',
45

46
47 OR
48

49
50 'outreach services', 'transfer of care'
51

52
53 OR
54

55
56 'practice nurse', 'frailty nurse', 'nurse practitioner'
57

58
59 OR
60

1
2
3 'community matron', 'older person's nurse', 'older people's nurse' 'gerontological nurse',
4
5 'elderly care nurse',
6

7
8 OR
9

10
11 'team', 'multidisciplinary'
12

13
14 OR
15

16 'pathway', 'pathway of care', 'integrated care', 'primary care model', 'model', 'shared care',
17
18

19
20 OR
21

22 'GiRFT', 'rightcare',
23

24
25 OR
26

27 'capabilities', 'capability', 'competency', 'skills'.
28
29
30

31 **Results**

32 ***Item selection***

33
34
35
36 The research team decided to include international studies as well as UK-based studies in
37
38 the literature search to capture a comprehensive range of effective pathways and pathway
39
40 components. The initial search led to the identification of 328 records. Duplicates and false
41
42 hits (e.g. secondary care services) were removed leaving 54 items for screening. Titles and
43
44 abstracts were screened. Items were then excluded if they (a) did not investigate the aim of
45
46 the evidence assessment; (b) did not include a research method that assessed aspects of
47
48 frailty care (c) focused on single interventions rather than pathways of frailty care and their
49
50 components; (d) were already reviewed in literature reviews included in this review; (e) not
51
52 written in English. This process resulted in 15 articles being eligible for full-text assessment.
53
54 After this assessment, 11 items were selected for the rapid evidence assessment (see figure
55
56
57 1).
58

59 **Figure 1: Item selection process**

60

1
2
3 **INSERT FIGURE 1 HERE**
4
5

6 ***Methodological quality***
7

8 Using the EEPI assessment of validity approach, the McDonald's (2020) meta-analysis was
9 assessed as being of high quality; the literature reviews (Berntsen *et al.*, 2019), Hendry *et*
10 *al.*, 2017; Health Improvement Scotland (HIS), 2018) were assessed as medium quality, and
11 all other studies included were of low quality (see table 1). The activity to investigate
12 consistency of results indicated that while there was some consistency across the studies
13 that aimed to identify effective components of frailty pathways, there was low consistency of
14 all other study results (see table 2). This suggests that caution should be taken if using these
15 results to inform frailty care pathway planning.
16
17
18
19
20
21
22
23
24
25

26 **Table 1: Data extraction from the included studies**
27

28
29 **INSERT TABLE 1 HERE**
30
31

32 **Table 2: Results of the included studies**
33

34
35 **INSERT TABLE 2 HERE**
36

37 The studies were categorised into three phenomena of interest/aims clusters: identify
38 effective components of frailty pathways; evaluate whole pathway outcomes; evaluate
39 pathway operation.
40
41
42

43
44 ***Identify effective components of frailty pathways***
45

46 The literature reviews by Hendry *et al.* (2017) and HIS (2018), and the meta-analysis by
47 McDonald *et al.* (2020) aimed to identify effective components of community-based or
48 primary care-based frailty pathways.
49
50
51

52 In some cases, at least two studies identified the same components and found strong
53 evidence for their effectiveness. Both HIS (2018) and McDonald *et al.* (2020) found strong
54 evidence that resistance-based exercise reduces frailty. Hendry *et al.*'s (2017) and HIS's
55
56
57
58
59
60

1
2
3 (2018) reviews found strong evidence that hospital at home (HAH) approaches reduce other
4 healthcare service use, increase patient satisfaction, and reduce treatment costs compared
5 with admission to acute hospital when excluding caregiver costs.
6
7
8

9
10 In other cases, one study identified a particular component and found strong evidence of its
11 effectiveness. Hendry *et al.* (2017) found strong evidence that indicated self-management
12 support improves patient health, functional and wellbeing outcomes. HIS (2018) discussed
13 community geriatric services. These services comprise of a geriatrician-led team which
14 liaises with primary care, and involves Comprehensive Geriatric Assessment (CGA)
15 informing a tailored, person-centred plan of treatment. HIS (2018) found strong evidence that
16 indicated community geriatric services improves patient health and function.
17
18
19
20
21
22
23

24
25 For some components that were identified by more than one study results were inconsistent,
26 with one study finding strong evidence for the effectiveness of a component, and others
27 finding weak, conflicting or inconsistent evidence. Hendry *et al.* (2017) found strong
28 evidence that the use of frailty screening and assessment identifies people that are most
29 likely to benefit from frailty care pathways. HIS's (2018) found that case-finding via frailty
30 screening may identify people likely to benefit from frailty care pathways, but concluded that
31 the value of such interventions is uncertain because of inconsistencies in how frailty is
32 identified, in screening for level of frailty, or whether frailty screening is ongoing. Hendry's
33 review found strong evidence that prevention and enablement interventions improved patient
34 health outcomes and reduced healthcare service use, although there was no difference in
35 service costs between use and non-use of the interventions. HIS (2018) found that
36 minimising risk at home using enablement strategies to support older people returning home
37 from hospital may enable them to remain at home, reduce care needs and improve
38 functional status when compared with usual home care. However, the review indicated that
39 the evidence for this outcome is of low to moderate quality.
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56

57 For some components that were identified by more than one study, all studies found
58 evidence of effectiveness was weak, conflicting or inconsistent. Some studies in Hendry *et*
59
60

1
2
3 *a*'s (2017) review, and HIS's (2018) review showed CGA and person-centred case
4 management that includes a key assessor to co-ordinate care and multi-disciplinary team
5 (MDT) input, reduced healthcare service utilisation and costs of care, and improved health,
6 functional and quality of life outcomes. Other studies in the reviews, however, showed no
7 clear benefits of this CGA case management approach. Hendry *et al.* (2017) concluded that
8 inconsistencies in outcomes may have arisen due to inconsistencies in evaluation methods.
9 Also, McDonald *et al.* (2020) found that pathways that include CGA and MDT input may be
10 beneficial in terms of patient outcomes, but proposed that when attempting to assess the
11 value of individual components within a pathway, it is not possible to ascertain the effect of
12 some components as many 'individual' components/interventions actually consist of 'sub-
13 components' which may have a combinatorial effect.
14
15

16
17
18
19
20
21
22
23
24
25
26
27 HIS (2018) and McDonald *et al.* (2020) identified further components in their reviews. Both
28 found low quality evidence to suggest that improved nutrition may improve frailty. HIS (2018)
29 found low quality evidence that indicated medication reviews, intermediate care beds,
30 immunisation and lifestyle support may improve patient outcomes and reduce service use.
31
32
33
34
35

36 ***Evaluate whole pathway outcomes***

37
38
39 Four studies evaluated outcomes of entire community-based or primary care-based frailty
40 pathways. Overall EPPI weighting of these studies was low. All studies evaluated short-term
41 outcomes. Maiden's (2017) Australian study evaluated outcomes of iREAP - a pre-crisis
42 early intervention rehabilitation programme that consisted of CGA and an enablement
43 programme. Recio-Saucedo (2018) reported on outcomes of an integrated care hub (ICH)
44 pathway adopted and funded by a Clinical Commissioning Group in the UK. The pathway
45 consisted of a single point of contact to co-ordinate care, MDT input to support 'team around
46 the person' and 'team around the care home', supported patient self-management, care
47 navigation and coaching, medication review, intermediate care beds, GP home visiting, and
48 a frailty toolkit to guide care delivery. Vestjens *et al.* (2019) evaluated the cost-effectiveness
49 of the 'Finding and Follow-up of Frail older persons' (FFF) initiative in the Netherlands, which
50
51
52
53
54
55
56
57
58
59
60

1
2
3 consisted of proactive frailty screening and MDT support for patients to self-manage their
4 conditions. Yu *et al.* (2020) evaluated an integrated pathway for pre-frail and frail older
5 people in Hong Kong. The pathway consisted of in-depth frailty assessment conducted by
6 health workers skilled in geriatric assessment, CGA and case management involving a key
7 contact to co-ordinate care, MDT input, physical exercise, self-management support,
8 nutrition support and medication review. Of note is that no studies evaluated more than one
9 pathway with the aim of identifying the most effective pathways.
10
11
12
13
14
15
16
17

18 The four studies used different evaluation methods and/or focused on different outcomes.
19 Maiden (2017) used a pre and post intervention study, Vestjens *et al.* (2019) and Yu *et al.*
20 (2020) used longitudinal quasi-experiments. Recio-Saucedo (2018) did not provide details of
21 the method used in their paper. Outcomes evaluated were changes in: patient function
22 (Maiden, 2017); patient confidence to self-manage conditions (Maiden, 2017); number of
23 falls (Maiden, 2017); frailty scores (Maiden, 2017; Yu *et al.*, 2020); patient quality of life
24 (QoL) (Maiden, 2017; Vestjens *et al.*, 2019); patient knowledge of their condition (Maiden,
25 2017); reduced avoidable hospital admissions (Maiden, 2017; Recio- Saucedo, 2018); holistic
26 person-centred care (Recio- Saucedo, 2018); length of hospital stay (Recio- Saucedo, 2018);
27 preferred place of care (Recio- Saucedo, 2018); cost-effectiveness (Vestjens *et al.*, 2019);
28 and health-service utilisation (Yu *et al.*, 2020). Evaluations showed pathways did improve
29 outcomes in all measured outcomes except cost-effectiveness of the FFF pathway (Vestjens
30 *et al.*, 2019), and health service use in the integrated pathways (Yu *et al.*, 2020). Both the
31 Maiden pathway and FFF pathway measured patient QoL. Maiden (2017) found a significant
32 improvement in QoL in the iREAP model, but Vestjens *et al.* (2019) found no QoL
33 improvement in FFF. However, Vestjens *et al.*, 2019 expected improvements would become
34 apparent in the long-term, but due to the short-term nature of their study, improvements had
35 not yet realised.
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55

56 **Evaluate pathway operation**

57
58
59
60

1
2
3 Four studies evaluated the operation of single whole community-based or primary care-
4 based pathways. They evaluated either pathway processes (whether pathways are carried
5 out as planned), pathway determinants (barriers to, and enablers of pathway
6 implementation), and/or pathway implementation (reach, adoption, adaptations to,
7 maintenance, and sustainability of pathways). Three of these studies had an overall low
8 EPPI weight (Bryce *et al.*, 2018; Lhussier *et al.*, 2019; Stoop *et al.*, 2019), and one had a
9 medium weight (Berntsen *et al.*, 2019).
10
11
12
13
14
15
16
17

18 Berntsen *et al.*'s (2019) literature review described how literature on whole system
19 transformations of frailty pathways reflects (1) operationalization of interventions, (2)
20 maturity, (3) evaluation methodology, and (4) effect on outcomes. Bryce *et al.*'s (2018) study
21 determined factors that enabled or prevented implementation of the PACT toolkit. PACT
22 consists of guidance for primary care services regarding screening, CGA, person-centred
23 care planning and medication review. Lhussier *et al.*'s (2019) study aimed to develop a
24 theory explaining the links between outcomes and a Community Wellness Team (CWT)
25 pathway consisting of referral to the CWT via screening, care co-ordination, management
26 plans, MDT input, referral to preventative services, advice on self-management, and risk
27 minimisation in the home. Stoop' *et al.*'s (2019) study explored the improvement plans of the
28 fourteen European Sustainable Tailored Integrated Care for Older People in Europe
29 (SUSTAIN) sites. Sites' services are dementia care, palliative care, home rehabilitation,
30 home nursing, and proactive primary care.
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45

46 The studies used different evaluation methods and focused on different aspects of pathway
47 operation. Berntsen *et al.*'s (2018)'s literature review focused on process. Bryce *et al.* (2018)
48 used a mixed-methods evaluation using normalisation process theory to explore
49 determinants and implementation barriers and enablers. Using a realist evaluation approach,
50 Lhussier *et al.* (2019) used a literature review and focus group to explore determinants of
51 CWT success. Stoop *et al.* (2019) explored determinants by using content analysis of:
52 baseline reports, projects plans, project flow charts; interviews with older people, carers and
53
54
55
56
57
58
59
60

professionals using the SUSTAIN services; researcher field notes; workshop meeting minutes, and templates for site and improvement plan descriptions.

The studies identified processes, determinants and implementation requirements to support successful pathway operation. These were: all stakeholders including patients need to be clear about the aims of the pathway (Bryce *et al.*, 2018); policies and procedures are required to support implementation of pathways (Stoop *et al.*, 2019); workforce development is required to ensure staff's competency and capacity to effectively implement pathways (Bryce *et al.*, 2018; Stoop *et al.*, 2019); development of rapport and trusting therapeutic relationships between professionals and patients are required to support pathway delivery (Lhussier *et al.*, 2019); pathways need to be championed by effective leaders and early adopters (Berntsen *et al.*, 2018; Bryce *et al.*, 2018); information sharing across professions, organisations and sectors is essential (Berntsen *et al.*, 2018; Stoop *et al.*, 2019), and adequate funding is required to resource pathways (Stoop *et al.*, 2019). However, Berntsen *et al.*'s (2018) literature review concludes that, with regard to championing pathways and information sharing, there is a lack of hard evidence underpinning these results due to weaknesses in process evaluation.

Discussion

Three previous reviews/meta-analyses aimed to identify effective single components of community or primary care frailty pathways (Hendry *et al.*, 2017; HIS (2018); McDonald *et al.*, 2020), rather than entire pathways. This may be beneficial, as the approach could identify effective or efficient components of pathways, and as such could inform the development of pathways. Together, the reviews show strong evidence that resistance-based exercise reduces frailty, and HAH approaches reduce other healthcare service use and treatment costs, and increases patient satisfaction. On the basis of results from single reviews, there is strong evidence that self-management support, community geriatric services, and prevention/enablement interventions improve patients' health and function. However, it is difficult to draw conclusions about the value of other interventions identified

1
2
3 due to inconsistent or conflicting evidence arising from the use of inconsistent evaluation
4 methodologies, and/or low quality studies included in the reviews and meta-analysis. In
5 addition, although the studies aimed to identify effective components of pathways, some
6 components were actually combinations of supportive approaches rather than individual
7 components, e.g. CGA is described in some studies as involving CGA, person-centred case
8 management, key co-ordinators of care, and MDT input; while community geriatric services
9 includes CGA and person-centred care planning. The combination of components makes it
10 difficult to ascertain the effectiveness of individual components. Also, pathways usually
11 consist of more than one component. These two factors therefore question the value of
12 evaluating individual pathway components, and perhaps suggests evaluating entire
13 pathways, rather than individual components might be of more worth.
14
15
16
17
18
19
20
21
22
23
24
25

26
27 Four studies did evaluate single whole pathways (Maiden, 2017; Recio-Saucedo, 2018;
28 Vestjens *et al.*, 2019; Yu *et al.*, 2020). They suggested that pathways led to positive
29 outcomes for patients and service use. However, the studies were of low quality, used
30 different evaluation methods, and focused on different outcomes and outcome measures.
31 There are problems of evaluating whole pathways. Firstly, because the pathways consist of
32 many components, it is not possible to identify whether and which aspects of the pathway
33 drive or hinder effectiveness and efficiency, and secondly, and perhaps more importantly,
34 why this might be the case.
35
36
37
38
39
40
41
42
43

44 Rather than focus on outcome measures, four studies evaluated the operation of single
45 pathways to identify and explore processes, determinants, and implementation factors that
46 influence or impact on pathways (Berntsen *et al.*, 2018; Bryce *et al.*, 2018; Lhussier *et al.*,
47 2019; Stoop *et al.*, 2019). Understanding how pathways are operated may identify whether,
48 which and why aspects are hindering/enhancing pathways, which, once addressed, could
49 support the pathway to contribute to improved outcomes for patients and service use.
50
51
52
53
54
55

56 However, the three primary research studies were of low quality and used different
57 evaluation methods and focused on different operational aspects, while Berntsen *et al.*
58
59
60

1
2
3 (2018)'s literature review concluded that weaknesses in evaluation approaches of the
4
5 studies included in their review undermined results.
6
7

8 The results of the current review highlight three main issues. While it is important to identify
9
10 effective and efficient community and primary care pathway components, they are difficult to
11
12 evaluate because they are often combined or inter-related with others. However, evaluating
13
14 whole pathways does not identify effective or efficient pathway elements or explain why they
15
16 are effective/efficient. It is therefore essential that evaluations should include consideration
17
18 of how pathways are operated in terms of process, determinants and implementation. Also,
19
20 at present, most evaluations are of low quality and use weak methodologies and methods
21
22 which undermine their results. Finally, the results of this study show that most of the
23
24 available research to date evaluates single frailty pathways of care. There remains little in
25
26 the way of research and evaluation that compare the impacts of community or primary care
27
28 frailty pathways of care. This is essential to ascertain which are the most effective pathways,
29
30 so that decisions can be informed about which are appropriate to be developed at scale
31
32 across large geographic areas or populations. At present, undertaking such research
33
34 remains problematic due to inconsistencies and weaknesses in evaluation approaches.
35
36 Drawing conclusions from research across different pathways and populations is
37
38 challenging, and challenges are exacerbated by a lack of consistency in evaluation methods.
39
40
41
42 To achieve meaningful evaluations, and facilitate comparisons of pathways, standard
43
44 evaluation methods that incorporate evaluation of how pathways are operated is required for
45
46 evaluating the impact of frailty pathways of care. At present, due to the results of this review,
47
48 the authors are undertaking a Delphi study using an international expert panel to determine
49
50 the outcomes, operations and evaluation methods required that will inform a robust,
51
52 standardised evaluation toolkit for frailty pathways of care.
53
54

55 The study identified a need for further research and evaluation including assessment of
56
57 exploration of the impacts of community-based and primary care-based frailty pathways of
58
59 care on older individuals' and their families'/carers' goals, and care experiences. It is
60

1
2
3 important that older people and carers contribute to the development of the evaluation
4 methods, as they are experts by experience with regard to what impacts of frailty care
5 pathways are important to them. Evidence of cost effectiveness of frailty services is limited.
6
7 More research and evaluation is required to evaluate system outcomes and costs. In
8
9
10
11
12 addition, studies are yet to evaluate the long term impact of frailty pathways.
13

14 **Conclusions and implications for practice**

15
16
17 The emergence of frailty initiatives have been largely policy driven in response to the
18 prevalence of frailty within the population. Now is the time to carefully consider what frailty
19 pathways are effective to ensure that the community and primary care right services are in
20
21
22 the right place at the right time to support those with frailty. This requires development of the
23
24
25 evidence base for primary and community care frailty services, which could be achieved
26
27
28 through developing standardised evaluation methods.
29

30
31 Nurses, service managers, GPs, service commissioners and academics can use the results
32
33 of this review in planning and evaluating community and primary care frailty pathways.
34

35
36 Consideration should be given to both the clinical build and decision phases, ensuring that
37
38 the service specification includes effective pathway components. Quality standards should
39
40
41 take into consideration process measures of effectiveness as well as short and long term
42
43
44 outcomes for older people and their carers. In the contexts of ageing populations, and more
45
46 recently, a global pandemic that is having an inordinate impact on frail older people's health,
47
48 it is imperative that frailty services are evidence based to optimise the potential for achieving
49
50 effective outcomes.
51

52 **Ethical approval**

53
54 Ethical approval was not required for this paper.
55

56 **REFERENCES**

57
58 *Research article included in the review.
59
60

1
2
3 Barends, E., Rousseau, D.M. and Briner, R.B. (2017). *CEBMA Guideline for rapid evidence*
4 *assessments in management and organizations (Version 1.0)*. Available at:

5
6
7 <https://cebma.org/wp-content/uploads/CEBMA-REA-Guideline.pdf> (accessed 16 February
8
9 2021)

10
11
12 *Berntsen, G., Strisland, F., Malm-Nicolaisen, K., Smaradottir, B., Fensli, R. and Røhne, M.
13
14 (2019). "The evidence base for an ideal care pathway for frail multimorbid elderly: Combined
15
16 scoping and systematic intervention review". *Journal of Medical Internet Research*, Vol.21
17
18 No.4,e12517.

19
20
21 British Geriatric Society. (2015). *Fit for frailty. Part one: Consensus best practice guidance*
22
23 *for the care of older people living in community and outpatient settings*. Available
24
25 from: https://www.bgs.org.uk/sites/default/files/content/resources/files/2018-05-23/fff_full.pdf
26
27 (accessed 1 June 2021)

28
29
30 British Geriatric Society. (2015). *Fit for frailty. Part two: Developing, commissioning and*
31
32 *managing services for people living with frailty in community settings*. Available from:
33
34 https://www.bgs.org.uk/sites/default/files/content/resources/files/2018-05-23/fff2_full.pdf
35
36 (accessed 1 June 2021)

37
38
39 *Bryce, C., Fleming, J., and Reeve, J. (2018). "Implementing change in primary care
40
41 practice: lessons from a mixed-methods evaluation of a frailty initiative". *BJGP Open*, Vol.2
42
43 No.1, bjgpopen18X101421.

44
45
46 Clegg, A., Young, J, Iliffe, S., Rikkert, M., and Rockwood. K. (2013). "Frailty in elderly
47
48 people". *Lancet*, Vol.381 No. 9868, 752-762.

49
50
51 De Bleser, L., Depreitere, R., De Waele, K., Vanhaecht, K., Vlayen, J., and Sermeus, W.
52
53 (2006). "Defining pathways". *Journal of nursing management*, Vol.14 No.7, 553–563.

54
55
56 * Freer, K. (2020). "Falling through the cracks: a case study of how a timely integrated
57
58 approach can reverse frailty". *British Journal of Community Nursing*, Vol.25 No.8, 382-387.
59
60

1
2
3 * Hendry *et al.* (2017). *Pathways of care for frailty: A systematic review*. Advantage Joint
4 Action, Salerno.

5
6
7
8 *Health Improvement Scotland (2018). *Living well in communities with frailty: Evidence for*
9 *what works*. NHS Scotland, Edinburgh.

10
11
12
13 Lansbury, L.N., Roberts, H.C., Clift, E., Herklots, A., Robinson, N. and Sayer, A.A. (2017).
14 "Use of the Electronic Frailty Index to identify vulnerable patients: a pilot study in primary
15 care". *British Journal of General Practice*, Vol.67 No.664, e751-e756.

16
17
18
19
20 *Lewis, C., Moore, Z., Doyle, F., Martin, A., Patton, D., and Nugent, L.E. (2017). "A
21 community virtual ward model to support older persons with complex health care and social
22 care needs". *Clinical Interventions in Aging*, Vol.12, 985-993

23
24
25
26
27 *Lhussier, M., Dalkin, S. and Hetherington, R. (2019). "Community care for severely frail
28 older people: Developing explanations of how, why and for whom it works". *International*
29 *Journal of Older People Nursing*, Vol.14 No. 1, 1-10.

30
31
32
33
34 Lyndon. H. (2015). "Reframing frailty as a long-term condition". *Nursing Older People*, Vol.27
35 No.8, 32-39.

36
37
38
39 * Macdonald, S., Travers, J., She, E., Bailey, J., Romero-Ortuno., Keyes, M., O'Shea, D.,
40 and Cooney, M. (2020). "Primary care interventions to address physical frailty among
41 community-dwelling adults aged 60 years or older: A meta-analysis". *PLOS ONE* Vol.15
42 No.2, e0228821.

43
44
45
46
47 * Maiden, G. (2017). *The Integrated Rehabilitation and Enablement Program (iREAP) project*
48 *report*. Available at: [https://www.aci.health.nsw.gov.au/ie/projects/the-integrated-](https://www.aci.health.nsw.gov.au/ie/projects/the-integrated-rehabilitation-and-enablement-program-ireap)
49 [rehabilitation-and-enablement-program-ireap](https://www.aci.health.nsw.gov.au/ie/projects/the-integrated-rehabilitation-and-enablement-program-ireap) (accessed 23 June 2021)

50
51
52
53
54
55 National Institute for Health and Care Excellence. (2015). *Older people with social care*
56 *needs and multiple long-term conditions*: [NG22]. NICE. Available at:
57 <https://www.nice.org.uk/guidance/ng22> (accessed 20 June 2021)
58
59
60

1
2
3 NHS. (2014a). *Five year forward view*. NHS. Available at: [https://www.england.nhs.uk/wp-](https://www.england.nhs.uk/wp-content/uploads/2014/10/5yfv-web.pdf)
4 content/uploads/2014/10/5yfv-web.pdf (accessed 20 June 2021)
5
6

7
8 NHS. (2014b). *Safe, compassionate care for frail older people using an integrated care*
9 *pathway*. NHS. Available at: [https://www.england.nhs.uk/wp-content/uploads/2014/02/safe-](https://www.england.nhs.uk/wp-content/uploads/2014/02/safe-comp-care.pdf)
10 [comp-care.pdf](https://www.england.nhs.uk/wp-content/uploads/2014/02/safe-comp-care.pdf) (accessed 20 June 2021)
11
12
13

14
15 NHS (2017). *Supporting routine frailty identification and frailty care through the GP Contract*
16 *2017/2018*. NHS. Available at:
17
18 [https://test.bathandnortheastsomersetccg.nhs.uk/assets/uploads/2017/05/updated-](https://test.bathandnortheastsomersetccg.nhs.uk/assets/uploads/2017/05/updated-supporting-guidance-frailty-identification-may-17-1.pdf)
19 [supporting-guidance-frailty-identification-may-17-1.pdf](https://test.bathandnortheastsomersetccg.nhs.uk/assets/uploads/2017/05/updated-supporting-guidance-frailty-identification-may-17-1.pdf) (accessed 20 June 2021)
20
21
22

23
24 NHS. (2019a). *The NHS long term plan*. Available at: [https://www.longtermplan.nhs.uk/wp-](https://www.longtermplan.nhs.uk/wp-content/uploads/2019/08/nhs-long-term-plan-version-1.2.pdf)
25 [content/uploads/2019/08/nhs-long-term-plan-version-1.2.pdf](https://www.longtermplan.nhs.uk/wp-content/uploads/2019/08/nhs-long-term-plan-version-1.2.pdf) (accessed 20 June 2021)
26
27

28
29 NHS. (2019b). *NHS RightCare pathway: frailty toolkit*. NHS. Available at:
30
31 <https://www.england.nhs.uk/rightcare/products/pathways/frailty/> (accessed 20 June 2021)
32
33

34 * Recio-Saucedo, A. (2018). *Health Education England Wessex workforce and education*
35 *initiative to support the delivery of better care to patients living with frailty*. Available at:
36
37 https://clahrc-wessex.nihr.ac.uk/img/publications/HEE_Frailty_pathways_DraftReportf.pdf
38 [f](https://clahrc-wessex.nihr.ac.uk/img/publications/HEE_Frailty_pathways_DraftReportf.pdf)
39 [f](https://clahrc-wessex.nihr.ac.uk/img/publications/HEE_Frailty_pathways_DraftReportf.pdf)
40 (accessed 30 January 2021)
41
42

43 Seers, K. (2015). "Qualitative systematic reviews: their importance for our understanding of
44 research relevant to pain". *British Journal Pain*, Vol.9 No.1,36–40.
45
46

47 Schrijvers, G., van Hoorn, A., and Huiskes, N. (2012). "The care pathway: concepts and
48 theories: An introduction". *International Journal of Integrated Care*, Vol.12(Spec Ed
49 Integrated Care Pathways), e192.
50
51
52

53
54 Soong, J., Poots, A.J., Scott, S., Donald, K., Woodcock, T., Lovett, D., and Bell, D. (2015).
55 "Quantifying the prevalence of frailty in English hospitals". *BMJ Open*, 5,e008456.
56
57
58
59
60

1
2
3 *Stoop, A., de Bruin, S.R., Wistow, G., Billings, J.R., Rupp, G., Leichsenring, K., Obermann,
4 K., Baan, C.A., and Nijpels, G. (2019). "Exploring improvement plans of fourteen European
5 integrated care sites for older people with complex needs". *Health Policy*, Vol.123
6
7
8
9 No.12,1135-1154.
10

11
12 Thomas, J., and Harden, A. (2008). "Methods for the thematic synthesis of qualitative
13 research in systematic reviews". *BMC Medical Research Methodology*, Vol.8 No.45, 1-10
14

15
16
17 *Vestjens, L., Cramm, J.M., Birnie, E., and Nieboer, A.P. (2019). "Cost-effectiveness of a
18 proactive, integrated primary care approach for community-dwelling frail older persons". *Cost*
19
20
21
22
23 *Effectiveness and Resource Allocation*, Vol.17 No.14, 1-15

24
25 *Yu, R., Tong, C., and Woo, J. (2020). "Effect of an integrated care model for pre-frail and
26 frail older people living in community". *Age and Ageing*, Vol.49, 1048–1055.
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

International Journal of Health Governance

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Identification

Screening

Eligibility

Included

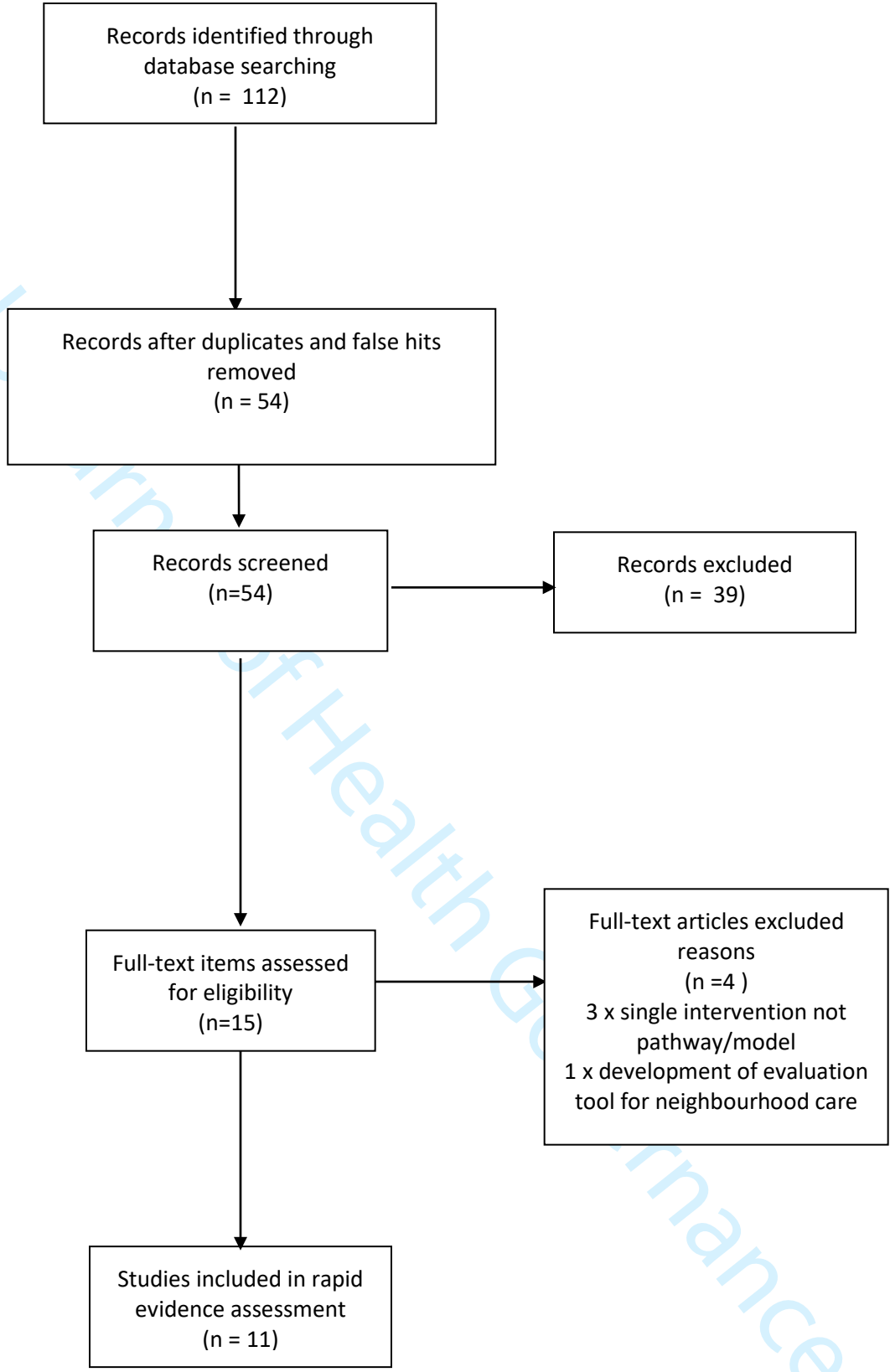


Table 1: Data extraction from the included studies

Author(s)	Aim	Method	Sample	Outcome	Evidence for Policy and Practice Information Centre (EPPI) scores
Aim: Identify effective components of frailty pathways					
Hendry et al. (2017)	Identify a pathway of care to prevent or delay progression of frailty and enable people to live well with frailty in the community, and consider effective and transferable components for frailty, and the economic impact	Systematic review	43 papers	Requirements for a successful pathway: Target Frailty; Promote ethos of enablement; Support Self Management; Provide continuity and co-ordination of care; Tailor multidimensional interventions; Develop workforce skills and competencies on frailty; Support adoption and assure implementation: Improve outcomes for people; Undertake further research focusing on organisation and delivery of whole pathways rather than clinical components of pathways.	Trustworthiness: medium Appropriateness: high Relevance: high Overall weight: medium
Health Improvement Scotland (2018)	Identify interventions in frailty that are	Systematic review of reviews (systematic	85 papers	Strong evidence for: exercise interventions and physical activity;	Trustworthiness: medium Appropriateness: high

	community based, focused on the prevention of harms or poor outcomes, and supported by relatively high-level evidence.	reviews, meta-analyses and literature reviews)		<p>primary care interventions with initial assessment, CGA, MDT, key contact, management plan; community geriatrician-led MDT; hospital at home.</p> <p>Weaker evidence for: medication review; immunisation; addressing lifestyle factors; nutritional interventions; reablement; bed-based intermediate care; anticipatory care-planning.</p> <p>A major problem is drawing conclusions from research across different interventions and populations is challenging, as different studies are using different evaluation methods.</p>	<p>Relevance: high Overall weight: medium</p>
McDonald et al. (2020)	Assess effectiveness of primary care	Meta-analysis	31 studies with a total of 4,794 participants.	Resistance-based exercise improves frailty.	Trustworthiness: high Appropriateness: high Relevance: high

	<p>interventions for physical frailty among community-dwelling older adults.</p> <p>Interventions: CGA, resistance-based exercise; nutrition support.</p>			<p>Improved nutrition may improve frailty. CGA and a subsequent tailored programme (MDT and individualised treatments) reduce frailty, but not possible to ascertain the effect of specific components as there may be a combinatorial effect.</p>	<p>Overall weight: high</p>
Aim: Evaluate whole pathway outcomes					
Maiden (2017)	<p>Evaluate iREAP – 8 week MDT rehabilitation programme for frail older people at high risk of falls and with neurodegenerative conditions. a personalised care plan. IREAP involves: a comprehensive geriatric assessment; referrals to speech therapy, podiatry, dietetics,</p>	<p>Evaluation study using pre and post intervention measurements of function, confidence to self-manage, frailty scores, QoL, hospital admissions, patients' knowledge of their condition.</p>	<p>Twelve month data for all 76 patients completing iREAP (35 with falls risk and 41 with neurodegenerative conditions).</p>	<p>Statistically significant improvements for function, confidence to self-manage, falls efficacy reduction. Improvements in frailty scores, QoL and knowledge of condition (though not significant). 10 unnecessary admissions to hospital were avoided.</p>	<p>Trustworthiness: low Appropriateness: medium Relevance: high Overall weight: low</p>

	occupational therapy, physiotherapy, psychology, hydrotherapy, continence nursing, social workers as required.				
Recio-Saucedo (2018)	Evaluate an integrated working between primary and community care pathway comprising of a single point of access hub, step up community hospital beds, 'team around the care home', GP visiting service for frail older people, frailty toolkit, MDT, education, medication review, care navigation.	Evaluation study of the impact of the intervention on hospital admissions and bed days. Method of evaluation is not provided.	Care services in Weymouth and Portland	The approach enhances holistic person-centred care, reduces unplanned hospital admissions and length of stay, and facilitates preferred place of care.	Trustworthiness: low Appropriateness: low Relevance: high Overall weight: low
Vestjens et al. (2019)	Evaluate the effectiveness on well-being and	Longitudinal evaluation using a	250 matched pairs of older people	No significant differences between	Trustworthiness: low Appropriateness: medium

	health-related QoL, and cost-effectiveness of the Finding and Follow up of Frail older persons (FFF) pathway. FFF consists of proactive identification of older people with frailty, MDT consultations, individualised case manager follow up.	matched quasi-experimental design comparing intervention and control groups and pre (T0) and post (T1) measurements of effectiveness, processes and cost-effectiveness	with frailty in each of the intervention and control groups. 11 GP practices in the intervention group and 4 GP practices in the control group.	the intervention group and control group with respect to well-being and health-related quality of life at 12 months follow-up. There were no significant differences between the groups in total costs over 12 months. However, based on earlier research the authors expect improvements in quality of care to positively influence patient outcomes in the long term.	Relevance: high Overall weight: low
Yu et al. (2019)	Evaluate the effect of an integrated care model for pre-frail and frail community-dwelling older people. The model involves comprehensive assessment, personalised care-	Longitudinal quasi- experiment using a control group. Changes in frailty and health service utilisation over 12 months were measured.	453 older people from a community care project: intervention n=183, control n=270.	Significant improvement in frailty scores. No change regarding use of health services.	Trustworthiness: low Appropriateness: medium Relevance: high Overall weight: low

	planning (including exercise, dietary support, meds review, key worker, MDT, education re: prevention).				
Aim: Evaluate pathway operation					
Berntsen et al. (2019)	Describe how literature on whole system transformations of frailty pathways reflects (1) operationalization of intervention, (2) maturity, (3) evaluation methodology, and (4) effect on outcomes.	Combined scoping and systematic intervention review	10 papers	Common sense belief that Digi-PIP ingredients are key to sustainable care i.e person-centredness, whole-person-care planning, case management, care coordination and MDT working; self-management, and risk identification, but lack of hard evidence due weaknesses in process evaluation of complex systems.	Trustworthiness: medium Appropriateness: medium Relevance: medium Overall weight: medium
Bryce, Fleming, and Reeve. (2018)	Determine factors that enable or prevent implementation of a whole system, complex intervention for managing frailty	Mixed-methods evaluation using normalisation process theory (NPT)	All 6 sites within 1 CCG area using the PACT initiative.	Embedding PACT into practice requires: clarity of the pathway to both patients and staff; it requires championing and to be sustainable; expertise in caring for older people as well as	Trustworthiness: low Appropriateness: medium Relevance: high Overall weight: low

	(PACT toolkit) in primary care.			evidence-informed toolkits is required to deliver frailty care	
Lhussier et al. (2019)	Develop theories explaining the links between the CWT interventions and expected outcomes. CWT consisted of referral via screening, care co-ordination, management plan, MDT preventative services, self-management, risk minimisation.	Realist evaluation using the Context + Mechanism (Resource and Reasoning) = Outcome (CMO) formula. Methods were: a literature review and a focus group.	Convenience sample of Community Wellbeing Team (CWT) members (n=7).	Contributing factors to the CWT's success were: trust development and relationship building; risk minimisation in the home; advice on self-management; referral to preventative services; coordination of services.	Trustworthiness: low Appropriateness: low Relevance: medium Overall weight: low
Stoop et al. (2019)	Explore improvement plans of the 14 European Sustainable Tailored Integrated Care for Older People in Europe (SUSTAIN) sites. Sites' services are dementia care,	Content analysis of: baseline reports, projects plans, project flow charts, interviews with older people, carers and professionals using the SUSTAIN services, researcher field notes, workshop	All 14 SUSTAIN sites across Europe	Facilitators/barriers to integrated working: coordination and collaboration across organisations and professionals, information sharing between organisations, funding for resources and support, availability of staff, and workforce competence regarding	Trustworthiness: low Appropriateness: medium Relevance: medium Overall weight: low

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46

	palliative care, home rehab, home nursing, proactive primary care.	meeting minutes, and templates for uniform site and improvement plan description, using the Expanded Chronic Care Pathway as a conceptual framework		engagement with older people and provision of person-centred care.	
--	--	---	--	--	--

International Journal of Health Governance

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46

Nutrition support		w	w				x				
Lifestyle support		w									
Risk identification and management		w						x		x	
Team in care homes					x						
GP visiting					x						
Frailty tool kit					x				x		
Care navigation					x						
Operational support											
All stakeholders are clear about the pathway									w		
Policies and procedures.											w
Access to tailored interventions											
Workforce development									w		w
Rapport/trusting therapeutic relationships										w	
Assure adoption/implementation											
Champion the pathway								w	w		

Information sharing								w			w
Funding for resources											w
Outcomes											
Improved function				w							
Confidence to self-manage				w							
Reduced falls				w							
Improved frailty scores				w			w				
Improved QoL				w							
Improved knowledge of condition				w							
Reduced unnecessary hospital admissions				w	w						
Improved holistic PPP					w						
Length of hospital stay					w						
Facilitates preferred place of care					w						
Health service use											
Cost effectiveness											
Comments	Evaluate whole pathways, rather than	Drawing conclusions from research	Not possible to ascertain the effect of specific			No differences between QoL	No change in health				

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46

	components. Inconsistency in study findings may arise from differences in evaluation methods.	across different interventions and populations is challenging.	components as there may be a combinatorial effect.			and costs for intervention/control. Expect improvements in quality of care in the long term.	service use				
Key: s=strong evidence; w=weak evidence; x=component is present											

