

# Outcomes and care priorities for older people living with frailty and advanced chronic kidney disease: a multi-professional scoping review

## **SUPPLEMENTARY DATA**

- **Appendix 1:** PRISMA-Scr checklist
- **Appendix 2:** Search Example
- **Appendix 3:** Table of Assessments and Definitions

## Appendix 1: PRISMA-Scr checklist

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
<b>TITLE</b>			
Title	1	Identify the report as a scoping review.	1
<b>ABSTRACT</b>			
Structured summary	2	Provide a structured summary that includes (as applicable): background, objectives, eligibility criteria, sources of evidence, charting methods, results, and conclusions that relate to the review questions and objectives.	1
<b>INTRODUCTION</b>			
Rationale	3	Describe the rationale for the review in the context of what is already known. Explain why the review questions/objectives lend themselves to a scoping review approach.	2
Objectives	4	Provide an explicit statement of the questions and objectives being addressed with reference to their key elements (e.g., population or participants, concepts, and context) or other relevant key elements used to conceptualize the review questions and/or objectives.	2
<b>METHODS</b>			
Protocol and registration	5	Indicate whether a review protocol exists; state if and where it can be accessed (e.g., a Web address); and if available, provide registration information, including the registration number.	BMJ Open Mar 2021, 11 (3) e040715; DOI: 10.1136/bmjopen-2020-040715Yes
Eligibility criteria	6	Specify characteristics of the sources of evidence used as eligibility criteria (e.g., years considered, language, and publication status), and provide a rationale.	3
Information sources*	7	Describe all information sources in the search (e.g., databases with dates of coverage and contact with authors to identify additional sources), as well as the date the most recent search was executed.	3-4 Figure 2 BMJ Open Mar 2021, 11 (3) e040715; DOI: 10.1136/bmjopen-2020-040715Yes
Search	8	Present the full electronic search strategy for at least 1 database, including any limits used, such that it could be repeated.	Appendix 2
Selection of sources of evidence†	9	State the process for selecting sources of evidence (i.e., screening and eligibility) included in the scoping review.	4-5
Data charting process‡	10	Describe the methods of charting data from the included sources of evidence (e.g., calibrated forms or forms that have been tested by the team before their use, and whether data charting was done independently or in duplicate) and any processes for obtaining and confirming data from investigators.	4
Data items	11	List and define all variables for which data were sought and any assumptions and simplifications made.	4

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
Critical appraisal of individual sources of evidence§	12	If done, provide a rationale for conducting a critical appraisal of included sources of evidence; describe the methods used and how this information was used in any data synthesis (if appropriate).	N/A
Synthesis of results	13	Describe the methods of handling and summarizing the data that were charted.	5
<b>RESULTS</b>			
Selection of sources of evidence	14	Give numbers of sources of evidence screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally using a flow diagram.	Figure 2
Characteristics of sources of evidence	15	For each source of evidence, present characteristics for which data were charted and provide the citations.	Suppl 1
Critical appraisal within sources of evidence	16	If done, present data on critical appraisal of included sources of evidence (see item 12).	N/A
Results of individual sources of evidence	17	For each included source of evidence, present the relevant data that were charted that relate to the review questions and objectives.	Suppl 1 and page 4-6
Synthesis of results	18	Summarize and/or present the charting results as they relate to the review questions and objectives.	Suppl 1
<b>DISCUSSION</b>			
Summary of evidence	19	Summarize the main results (including an overview of concepts, themes, and types of evidence available), link to the review questions and objectives, and consider the relevance to key groups.	6-14
Limitations	20	Discuss the limitations of the scoping review process.	14
Conclusions	21	Provide a general interpretation of the results with respect to the review questions and objectives, as well as potential implications and/or next steps.	15
<b>FUNDING</b>			
Funding	22	Describe sources of funding for the included sources of evidence, as well as sources of funding for the scoping review. Describe the role of the funders of the scoping review.	Kidney Care UK and British Renal Society

## Appendix 2: Search Example

Database: Ovid MEDLINE(R) ALL <1946 to July 30, 2021>

Search Strategy:

- 
- 1 exp Renal Insufficiency/ (182767)
  - 2 renal insufficien\*.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] (62824)
  - 3 exp Kidney Failure, Chronic/ (96200)
  - 4 Chronic Kidney\* Fail\*.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] (1519)
  - 5 chronic renal fail\*.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] (24162)
  - 6 end stage renal disease\*.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] (35481)
  - 7 ESRD.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] (17662)
  - 8 ESRF.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] (1150)
  - 9 end stage renal fail\*.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] (6278)

10 ckd.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] (34183)

11 chronic kidney\* disease\*.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] (61294)

12 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 (247226)

13 Dialysis.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] (175644)

14 exp Dialysis/ (23833)

15 exp Renal Dialysis/ (117520)

16 exp Kidney Transplantation/ (98868)

17 (kidney\* and (transplant\* or graft\*)).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] (140754)

18 renal replacement therap\*.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] (16947)

19 exp Renal Replacement Therapy/ (218293)

20 13 or 14 or 15 or 16 or 17 or 18 or 19 (319511)

21 exp "Aged, 80 and over"/ or exp Aged/ (3280915)

22 aged.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] (5637647)

23 elderly.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol

supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]  
(273596)

24 exp Frail Elderly/ (12800)

25 frail elderly.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]  
(14586)

26 frail\*.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]  
(31482)

27 exp Frailty/ (4633)

28 21 or 22 or 23 or 24 or 25 or 26 or 27 (5698994)

29 12 and 20 and 28 (55660)

30 limit 29 to (humans and "aged (80 and over)" and elderly) (8539)

31 21 or 22 or 23 (5692828)

32 24 or 25 or 26 or 27 (31482)

33 12 and 20 and 31 and 32 (352)

34 outcome\* assess\*.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] (94911)

35 treatment\* outcome\*.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] (1079411)

36 exp Treatment Outcome/ (1130087)

37 34 or 35 or 36 (1246038)

38 exp "Quality of Life"/ or exp Attitude to Health/ or exp Patient Satisfaction/ (632124)

39 (patient\* and (perspective\* or satisfaction or attitude\* or opinion\*)).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] (442426)

40 quality of life.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] (380852)

41 38 or 39 or 40 (1024804)

42 29 and 37 and 41 (816)

43 limit 42 to (english language and "aged (80 and over)") (174)

44 21 or 22 or 23 (5692828)

45 24 or 25 or 26 or 27 (31482)

46 12 and 20 and 44 and 45 (352)

47 limit 46 to (english language and "aged (80 and over)") (124)

48 33 and 37 and 41 (19)

### Appendix 3: Table of Assessments and Definitions

FRAILITY ASSESSMENTS		FUNCTIONAL AND PHYSICAL ACTIVITY ASSESSMENTS	
Name	Definition	Name	Definition
Fried Phenotype N=40 (44%)	Is a 5-point criteria of frailty; $\geq 3$ indicates frailty	Short Physical Battery (SPPB) N=8 (9%)	A group of measures that combines the results. of the gait speed, chair stand and balance tests
Clinical Frailty Score (CFS) N=21 (23%)	The Clinical Frailty Scale (CFS) is a judgement-based frailty tool that evaluates specific domains including comorbidity, function, and cognition to generate a frailty score ranging from 1 (very fit) to 9 (terminally ill)	Hand grip Strength (HGS) N=7(8%)	Grip strength is typically measured by squeezing a dynamometer, about three times in each hand
ADL's and IADL Activities of daily living and instrumental activities of daily living N=9 (10%)	ADL based on Katz index of daily physical functions > 6 score indicating dependence. IADL's based on Lawton and Brody measures of social and higher-level activities low score indicates dependency	Timed up and go (TUG) N=3 (4%)	The TUGT measures, in seconds, the time taken to stand up from a standard chair, walk a distance of 3 metres, turn, walk back to the chair and sit down
Edmonton N=7 (8%)	11 questions (including a TUG) $\geq 10$ -12 moderate frailty > <u>12</u> -17 severe frailty	Karnofsky N=3(4%)	The Karnofsky Performance Scale Index allows patients to be classified as to their functional impairment
PRISMA 7 N=7 (8%)	A 7-item questionnaire to identify frailty score >3 indicating frailty	Sit to stand (STS) N=2 (2%)	The five-repetition sit-to-stand test (5STS) is a test of lower limb function that measures the fastest time taken to stand five times from a chair with arms folded.
CKD FI-LAB (CKD Frailty index Lab) N=6 (7%)	The CKD FI-LAB is calculated by the total number of deficits divided by the total number of variables measured.	IPAQ-SF (International physical activity short form) N=2 (2%)	IPAQ-SF is a self-report questionnaire that assesses physical activity in the last 7 days
Barthel N=2 (2%)	An ordinal scale of ADL's including physical and function score< 90 indicates dependence	Gait speed N=2 (2%)	15 metre walking speed test
ISAR-H (identification of seniors at risk of hospitalisation) N=2 (2%)	ISAR-H is a 6 item screening tool Scores > 2 indicate need for CGA		



DMMS (Dialysis Morbidity Mortality Study definition) N=1 (1%)	The DMMS was used as a definition of frailty and is a modified version of the Fried phenotype		
VMS (Hospital Safety Management VeiligheidsManagementSysteem) N=1 (1%)	The VMS is a dutch specific frailty score of hospitalised patients > 2 indicates frailty		
SPICES score N=1 (1%)	SPICES is an acronym for a brief protocol for multidimensional assessment to identify risk factors related to caring for older adults: skin integrity, problem with eating, incontinence, confusion, evidence of falls, and sleep disturbance.		
Frail-Vig N=1 (1%)	The Frail-VIG index ("VIG" is the Spanish/Catalan abbreviation for Comprehensive Geriatric Assessment), which contains 22 simple questions that assess 25 different deficits		
DASI (Duke activity status index) N=1 (1%)	A 12-item questionnaire based on physical and functional activities		
SELF REPORTED FRAILTY ASSESSMENTS		OTHER GERIATRIC DOMAIN ASSESSMENTS	
Frail Scale N=10 (11%)	The FRAIL Scale is a questionnaire comprising five yes/no questions, which enables the rapid identification of individuals with frailty to target with focused interventions	Cognition N=18 (19%)	Measures used: Mini mental 30-point questionnaire, the Montreal cognitive assessment (MoCA) 30-point questionnaire, the mini cog a 3-minute assessment, 10-point cognitive screener. 6CIT (6 item cognitive impairment test)
Groningen N=5 (6%)	A 15-item frailty questionnaire. A score of $\geq 4$ indicates the possible presence of moderate-severe frailty	Nutrition N=8 (9%)	Measures used: Mini nutritional assessment (MNA)-is a screening tool to help identify older patients who are malnourished or at risk of malnutrition.

			The subjective global assessment (SGA) is an assessment of malnutrition. Mid arm circumference measures and the CONUT (controlling nutritional status score) based on laboratory values
G8 N=4 (5%)	A screening questionnaire to identify individuals who would benefit a CGA scores > 14 should have CGA	Depression N=2 (2%)	Measures used: Geriatric depression score (GDS)-30 item questionnaire
Tilburg N=3 (4%)	Questionnaire of physical, psychological and social frailty with score > 5 indicating frailty	Care giver burden N=2 (2%)	Neuropsychological Inventory (evaluate 12 behavioural areas commonly affected in patients with dementia, including depression), Interview of Deterioration in Daily Life Dementia, the Self-Perceived Pressure from Informal Care (a Dutch questionnaire assessing caregiver burden). Self-reported burden (EDIZ-plus)
Strawbridge N=3 (4%)	16 items that assess frailty across four domains (physical, nutritional, cognitive, and sensory). Score of $\geq 3$ in any domain indicates frailty	Social Isolation N=2 (2%)	Self-reported score
		Falls N=2 (2%)	Self-reported falls, Falls efficacy scale (16-point questionnaire)
		IPOS-RENAL N=1 (1%)	11 item questionnaire of symptoms including anxieties
		LOT-R N=1 (1%)	Life Orientation Test (LOT-R) is a 10-item scale that measures how optimistic or pessimistic people feel about the future

*Footnote: The categories listed under frailty assessments are where studies used those assessments to identify frailty in the population.*