BMJ Open

Identifying Best Practice in Interventions to Optimise Advanced Kidney Care Services - Scoping Review Protocol

Journal:	*BMJ Open*
Manuscript ID	bmjopen-2024-096935
Article Type:	Protocol
Date Submitted by the Author:	21-Nov-2024
Complete List of Authors:	Kimmitt, Robert; University of Exeter, Biomedical Sciences; Royal Devon University Healthcare NHS Foundation Trust, Exeter Kidney Unit Leonard, Hugh; King's College Hospital, Renal Unit Shivakumar, Oshini; Imperial College London Institute of Global Health Innovation, Storms, Karen; Northern Care Alliance NHS Foundation Trust, Library & Knowledge Service Stansfield, Rebecca; Northern Care Alliance NHS Foundation Trust, Hurst, Helen; University of Salford, School of Health and Society; Northern Care Alliance NHS Foundation Trust, Renal, Salford Royal Hospital Donne, Rosie; The University of Manchester, School of Cardiovascular Sciences; Northern Care Alliance NHS Foundation Trust
Keywords:	Chronic renal failure < NEPHROLOGY, End stage renal failure < NEPHROLOGY, Dialysis < NEPHROLOGY, Health Education, Renal transplantation < NEPHROLOGY

Title

Identifying Best Practice in Interventions to Optimise Advanced Kidney Care Services - Scoping Review Protocol

Authors

Robert Kimmitt[1,2], Hugh Leonard[3], Oshini Shivakumar[4], Karen Storms[5], Rebecca Stansfield[5], Helen Hurst[6,7], Rosie Donne*[7,8]

*corresponding author

Affiliations

1, Clinical and Biomedical Sciences, University of Exeter

2, Exeter Kidney Unit, Royal Devon University Healthcare NHS Foundation Trust

3, Renal Unit, Kings College Hospital, London

4, Institute of Global Health Innovation, Imperial College London

5, Northern Care Alliance NHS Foundation Trust

6, School of Health and Society, University of Salford

7, Northern Care Alliance NHS Foundation Trust

8, School of Cardiovascular Sciences, University of Manchester

Dr Robert Kimmitt r.kimmitt@nhs.net **ORCiD 0000-0003-3723-2107**

Dr Hugh Leonard hugh.leonard1@nhs.net **ORCiD 0000-0003-4038-4988**

Dr Oshini Shivakumar oshini.shivakumar@nhs.net **ORCiD 0009-0000-0108-3889**

Ms Karen Storms karen.storms@nca.nhs.uk

Ms Rebecca Stansfield rebecca.stansfield@nca.nhs.uk

Prof Helen Hurst helen.hurst@nca.nhs.uk **ORCiD 0000-0002-7268-171x**

Dr Rosie Donne rosie.donne@nca.nhs.uk **ORCiD 0000-0002-5412-0716**

Abstract

Introduction

Multidisciplinary Advanced Kidney Care (AKC) services provide care to patients with advanced chronic kidney disease (typically eGFR ≤20), as symptoms and complications become more common, and in preparation for kidney failure treatments. Despite their prominence in UK renal services, there is no consensus around best practice for AKC services in terms of care delivery models or interventions to optimise patient care, and there is widespread geographical variation in practice.

The UK Kidney Association (UKKA) Kidney Quality Improvement Partnership (KQIP) has launched a 3-year "Transform AKC" quality improvement project to address unmet needs in AKC services and work towards improvement. This scoping review is part of the Transform AKC project and aims to identify existing evidence for current and best practice in AKC

Methods and analysis

We will undertake a scoping review following the Arksey and O'Malley (2005) 5-staged approach, seeking identify evidence that demonstrates best practice for care of adults with advanced CKD. Databases will be searched systematically, and a final list of included studies will be analysed and synthesised.

Ethics and dissemination

We will use robust methodology to identify the existing literature describing best practices in care of adults with advanced CKD. These findings will directly inform the "Transform AKC" national quality improvement project, in which this scoping review is embedded. Findings will also be disseminated through national conferences and will be published in a relevant journal.

Strengths and limitations of this study

- This scoping review is the first to focus on best practices in care model delivery or interventions to optimise care within advanced kidney care (AKC) services

- This scoping review is embedded within the UK Kidney Association Kidney Quality Improvement Partnership's "Transform AKC" project and will directly inform interventions to improve quality of care within the programme.

- Studies will be identified and chosen through a comprehensive and systematic search, but literature quality will not be assessed in-depth

- The research group has wealth of experience in the area, and is multidisciplinary in nature, in resemblance to AKC services

- The majority of mainstream literature on the subject is likely to be identifiable, but the search strategy is limited to two databases

Background and Introduction

Access to multi-disciplinary Advanced Kidney Care (AKC) services for patients with progressive CKD4-5 is recommended by the UK Renal National Service Specification and AKC are progressively replacing previous "low clearance" or "pre-dialysis" clinics.[1] A core component of AKC is multi-disciplinary team (MDT) input (including specialist nurses, nephrologists, dietitians, social workers, psychologists, vascular access surgeons or co-ordinators, anaemia management professionals, occupational therapists, physiotherapists, geriatricians and transplant work-up specialists).

AKC services are designed for patients with advanced chronic kidney disease (CKD) who may be approaching end-stage kidney disease (ESKD). The threshold for entry to AKC is in keeping with NICE and KDIGO guidelines[2,3] but there is variation in practice. Approaches include a threshold eGFR (typically eGFR 15-20), rate of eGFR decline, or risk prediction models such as the kidney failure risk equation (KFRE).[4] The ideal threshold KFRE for entry to AKC has not yet been determined and may depend on local factors.

AKC services are well-established in many parts of the UK but there is variation between kidney units in the delivery of care, including the breadth and training of the AKC renal MDT and whether the service meets the needs of the local population. Comprehensive guidance on best practice has not yet been established. There is limited guidance on details of patient assessment (including cognition, health literacy, functional ability, frailty and psychosocial issues); symptom detection and management; discussion of patients' priorities; education for patients and carers; and impact of treatment choices on quality and length of life. There is a lack of data to measure the entry and progress of patients through advanced kidney care including the key milestones of receiving education on treatment choices, listing for transplant and choosing a future dialysis modality. There is variation in practice in care of patients with failing transplants, some of whom remain under transplant clinics, and some of whom transfer to AKC services. There is also a need to measure the experience of patients receiving advanced kidney care to guide future improvement.

The UK Kidney Association (UKKA) Kidney Quality Improvement Partnership (KQIP) has commenced a 3-year programme "Transform AKC" in partnership with Kidney Care UK. This project aims to work closely with renal multidisciplinary professionals, patients and carers to address unmet needs in Advanced Kidney Care. The focus in year one will be on understanding the current situation from the perspectives of key stakeholders before moving into subsequent years where kidney units will use quality improvement methodology to test changes in practice and measure the impact. Staff training to embed changes in practice will be delivered during the third year. This scoping review is part of the Transform AKC project and aims to identify existing evidence for current and best practice in AKC. This will allow the development of interventions to improve AKC services nationally.

Aim

The aim of this review is to establish any evidence that demonstrates best practice models of care and interventions to optimise care for adult patients with advanced CKD.

Methods

This scoping review will follow Arksey and O'Malley's (2005) 5-staged approach, described in detail below.[5] The PRISMA-ScR guidelines and checklist will be used to ensure a systematic approach; the checklist will be included on publication of the completed review as

an appendix.[6] Emphasis on clarity of concept, population of interest and outcomes will be used to ensure the search strategy is focused.[7,8]

Stage 1: Identifying the research question

The aim, as stated above, is to identify evidence that describes or demonstrates 'best practice' for multidisciplinary care in the AKC clinic. We have identified the following broad research questions:

1. What evidence is there relating to current practice and multidisciplinary models of care for adults with advanced CKD?

2. What is the role of patient assessment tools (including cognitive, health literacy, functional, frailty and psycho-social) in supporting decision-making for adults with advanced CKD?

3. What educational approaches are best evidenced to improve treatment understanding and promote shared decision-making for adults with advanced CKD?

4. Which interventions can improve patient outcomes including quality of life, symptom burden and quality of shared decision-making?

The research questions may be iteratively narrowed as the review progresses, in keeping with typical scoping review methodology.

Inclusion Criteria

Population: Adults >18 years and not receiving dialysis, with advanced CKD stage 4-5 and/or eGFR <20 and/or Kidney Failure Risk Equation >20% at 2 years (or equivalent), (including those with failing kidney transplant).

Studies: All study designs (including systematic reviews, interventional studies and qualitative research) will be considered, although the focus is on best practice and interventions so purely descriptive, observational studies from which recommendation for practice do not follow will not be included.

Interventions: Any relevant interventions for the multi-disciplinary team will be included, but drug interventions (other than in the context of guidelines for symptom management) will not be considered.

Context: Outpatient kidney services, advanced kidney care clinic, inpatient kidney services focused on relevant patient group, integrated services between primary and secondary/tertiary care. Studies relevant to the UK healthcare system.

Outcomes: Quality of shared decision-making, rates of home therapy utilisation, pre-emptive transplant listing, access to kidney transplantation, definitive incident dialysis access, access to conservative kidney management, involvement of MDT members, quality of life, patient experience, symptom burden, survival, advanced care planning, hospitalisation rate, patient and carer satisfaction with treatment option.

Exclusion Criteria

Studies focusing on general CKD population where subgroup analysis (to CKD4/5 and/or advanced CKD) is not possible.

Studies not published in English language and studies published prior to 2013 (due to cost and time restraints), these key limitations will be acknowledged when the study is reported.

Studies focusing on paediatric populations.

Studies from healthcare contexts such that interventions will not be relevant or transferable to the UK healthcare setting.

Stage 2: Identifying relevant studies

Literature searches: A comprehensive and iterative approach to identify evidence meeting the above criteria will be performed. The search will be conducted by the two health information specialists (KS and RS) within the team. A pragmatic approach will be used with regular meetings amongst the team to meet deadlines and utilise available resources.

Resources searched: Table 1 lists all the databases to be searched; a limited list will be used because of time restraints, and because it is anticipated the key literature will be identified in these mainstream databases. Searches will be conducted in three phases. Firstly, scoping to gauge the volume and develop/refine the protocol. Secondly more comprehensive searches will be conducted uses search terms outlined in table 2. The final stage will be confirming, this is to identify other sources of information such as grey literature which may be identified through searching reference lists of identified papers. The extent of this will be decided within the team at the sifting stage, including identifying any relevant policies and guidelines that need to be reviewed.

Search terms (thesaurus and free text): will be identified by initially testing in one database and discussing amongst the team. The search will be wide enough to encompass the full range of potential perspectives of AKC services and models of care. A test set of relevant papers will be identified prior to the formal literature search, and the literature search will be tested to ensure it picks up the complete test set of papers (to ensure the search is sufficiently broad).

Process of searching: the searches will be undertaken by two health information specialists (KS and RS) and uploaded to Covidence (a web-based software platform for systematic reviews) to enable sharing across the team. This will provide a robust process of tracking and transparency.

Stage 3: Study selection

Once the material located in the search stage has been uploaded to Covidence the reviewing team members (RK, HL, OS, HH and RD) will filter papers using the inclusion and exclusion criteria. Because of the broad search strategy and anticipated large number of studies, the initial sift will use the study title only, to remove studies clearly not relevant (such as animal studies and those clearly unrelated to kidney disease); all reviewing team members will be involved in this process to ensure consistency. The next sift will be based on title and abstract and will also involve all reviewing team members; each article will be screened by 2 reviewers. The third stage will be full text review, which will be conducted by the team to create the final list of included studies. Consideration will be made collectively on the inclusion of abstracts if full text not available. A rapid review assessment tool will be developed using the inclusion criteria as guidance. The team will be involved at all stages to increase validity and provide a clear audit trail of decisions made, these will be recorded in meetings and within Covidence software. Any disagreement regarding potential included studies will be discussed openly within the team, with the senior members (HH and RD) having casting votes.

Stage 4: Charting the data

The data will be extracted in table form into Excel spreadsheets providing an overview and map of the evidence. Headings will include the following (not exhaustive):

1. Author details and date

2. Country and setting
3. Study aims
4. Participants and age ranges
5. Stage of kidney disease
6. Intervention
7. Outcomes
8. Study Design
9. Key findings

Quality assessments are not typically required in scoping reviews however, once the included studies have been agreed the team will make decisions based on study design if quality assessment is indicated.

Stage 5: Collating, summarising and reporting the results

Data will be summarised and analysed descriptively. Study characteristics will be presented in table format. The approach to reporting the evidence will be a narrative format using the aims of the review as guidance. The scoping review process is iterative, and the collation, summarising and reporting of the results will depend on the nature of the included studies and the results identified.

The key purpose of the scoping review is to guide the Transform AKC KQIP project by identifying gold standards and Advanced Kidney Care best practice that can be adopted and tested through Quality Improvement methodology. The findings of the scoping review will therefore be fed back directly, in details, to the Transform AKC committee and stakeholders, as well as being written up for publication and general dissemination.

Data and Protection

Individual-level data on research participants will not be collected or held by the review team, nor will other sensitive or confidential data, so there is no specific data protection policy.

Patient and Public Involvement

The Transform AKC project involves patients at all stages including focus groups to determine best practice and current gaps in service provision. This has highlighted a lack of standardised models to provide high quality advanced kidney care and the need for a scoping review to summarise published evidence. Patient involvement has therefore been embedded within the scoping review from its conception. Opportunities to discuss the results of the scoping review with patients, carers and healthcare professionals are planned within the Transform AKC project.

Monitoring and Governance

The study will be subject to the audit and monitoring regimen of the UK Kidney Association. A governance framework will not be required for this scoping review.

Ethics and Dissemination

This review does not include participants or unpublished secondary data and therefore does not require ethical approval. As discussed above, the review results will be shared directly with the Transform AKC project team and we then anticipate publishing the results in an academic journal and presenting findings at national conferences such as UK Kidney Week.

Discussion

In summary, this review will utilise a multidisciplinary team of clinicians with expertise in caring for patients in the Advanced Kidney Care setting to identify best practices that can guide Quality Improvement interventions in the UK Kidney Association's Transform AKC workstream. This scoping review may also identify gaps in the literature that will be priorities for future research. Only by clarifying the evidence base underpinning current AKC practices can we rationally look at what may work in driving improvement in AKC services across the country.

Acknowledgments and Authors' Contribution

All authors contributed to study design. KS and RS performed the database literature searching. RK, HL, OS, HH and RD performed the study filtering and selection. RK and HH wrote most of the manuscript but all authors contributed to and approved the final draft. The authors would like to acknowledge the support of the wider AKC KQIP team.

Funding Statement

This work is supported by the UK Kidney Association's Transform AKC KQIP project.

Competing interests statement

None of the authors have any competing interests to declare.

References:

1. Lipkin G, McKane W. Getting it right first time: Renal medicine. GIRFT Programme National Specialty Report [Internet]. 2021. Available from: https://gettingitrightfirsttime.co.uk/wp-content/uploads/2021/09/Renal-Medicine-Sept21k.pdf

2. Levin A, Ahmed SB, Carrero JJ, Foster B, Francis A, Hall RK, et al. Executive summary of the KDIGO 2024 Clinical Practice Guideline for the Evaluation and Management of Chronic Kidney Disease: known knowns and known unknowns. Kidney International. 2024 Apr 1;105(4):684–701.

3. National Institute for Health and Care Excellence. NICE guideline NG107 - Renal replacement therapy and conservative management [Internet]. London, UK; 2018. Available from: https://www.nice.org.uk/guidance/ng107/

4. Tangri N, Stevens LA, Griffith J, Tighiouart H, Djurdjev O, Naimark D, et al. A predictive model for progression of chronic kidney disease to kidney failure. JAMA. 2011 Apr 20;305(15):1553–9.

5. Arksey H, O'Malley L. Scoping studies: towards a methodological framework. International Journal of Social Research Methodology. 2005 Feb 1;8(1):19–32.

6. Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, et al. PRISMA Extension for Scoping Reviews (PRISMA-ScR): Checklist and Explanation. Ann Intern Med. 2018 Oct 2;169(7):467–73.

7. Moher D, Stewart L, Shekelle P. All in the Family: systematic reviews, rapid reviews, scoping reviews, realist reviews, and more. Systematic Reviews. 2015 Dec 22;4(1):183.

8. Thomas A, Lubarsky S, Durning SJ, Young ME. Knowledge Syntheses in Medical Education: Demystifying Scoping Reviews. Academic Medicine [Internet]. 2017;92(2). Available from:

https://journals.lww.com/academicmedicine/fulltext/2017/02000/knowledge_syntheses_in_medical_education_.16.aspx

Table 1

Databases
Ovid Medline; Embase;

Table 2

Ovid MEDLINE(R) ALL <1946 to August 07, 2024>
exp *Renal Insufficiency, Chronic/ **OR** (chronic kidney disease **OR** CKD).ab,ti. **OR** *Kidney Failure, Chronic/ **OR** (chronic renal failure **OR** chronic kidney failure **OR** chronic renal disease).ab,ti. **OR** end stage kidney.ab,ti. **OR** end stage renal.ab,ti. **OR** established kidney disease.ab,ti. **OR** chronic renal insufficiency.ab,ti. **OR** late-stage kidney disease.ab,ti. **OR** (predialysis **OR** pre-dialysis).ab,ti.
AND
((interdisciplinary **OR** inter-disciplinary **OR** multidisciplinary **OR** pre-dialysis **OR** multi-disciplinary **OR** coordinat* **OR** co-ordinat* **OR** MDT **OR** interprofessional **OR** multiprofessional **OR** augment* **OR** functional **OR** integrated) adj2 (care **OR** patient **OR** program **OR** communicat* **OR** team **OR** initiative **OR** assessment **OR** monitor* **OR** support*)).ab,ti. **OR** (quality adj life).ab,ti. **OR** exp "Quality of Life"/**OR** improv* outcome*.ab,ti. **OR** (decision aid* **OR** informed decision).ab,ti. **OR** Patient Reported Outcome Measures/ **OR** Decision Making, Shared/
NOT
*Kidney Transplantation/ **OR** kidney transplantation.kw. **OR** "haemodialysis".kw. **OR** "hemodialysis".kw. **OR***Renal Dialysis/ **OR** *"Anemia"/ **OR** anaemia.kw. **OR** anemia.kw. **OR** *"Blood Pressure"/ **OR** "blood pressure".kw. **OR** *"Chronic Kidney Disease-Mineral and Bone Disorder"/ **OR** "mineral bone disorder".kw. **OR** exp *Diabetes Mellitus/ **OR** "Diabetes".kw.

BMJ Open

Identifying Best Practice in Interventions to Optimise Advanced Kidney Care Services - Scoping Review Protocol

Journal:	*BMJ Open*
Manuscript ID	bmjopen-2024-096935.R1
Article Type:	Protocol
Date Submitted by the Author:	05-Feb-2025
Complete List of Authors:	Kimmitt, Robert; University of Exeter, Biomedical Sciences; Royal Devon University Healthcare NHS Foundation Trust, Exeter Kidney Unit Leonard, Hugh; King's College Hospital, Renal Unit Shivakumar, Oshini; Imperial College London Institute of Global Health Innovation, Storms, Karen; Northern Care Alliance NHS Foundation Trust, Library & Knowledge Service Stansfield, Rebecca; Northern Care Alliance NHS Foundation Trust, Hurst, Helen; University of Salford, School of Health and Society; Northern Care Alliance NHS Foundation Trust, Renal, Salford Royal Hospital Donne, Rosie; The University of Manchester, School of Cardiovascular Sciences; Northern Care Alliance NHS Foundation Trust
Primary Subject Heading:	Renal medicine
Secondary Subject Heading:	Nursing, Evidence based practice
Keywords:	Chronic renal failure < NEPHROLOGY, End stage renal failure < NEPHROLOGY, Dialysis < NEPHROLOGY, Health Education, Renal transplantation < NEPHROLOGY

Title

Identifying Best Practice in Interventions to Optimise Advanced Kidney Care Services - Scoping Review Protocol

Authors

Robert Kimmitt[1,2], Hugh Leonard[3], Oshini Shivakumar[4], Karen Storms[5], Rebecca Stansfield[5], Helen Hurst[6,7], Rosemary Donne*[7,8]

*corresponding author

Affiliations

1, Clinical and Biomedical Sciences, University of Exeter

2, Exeter Kidney Unit, Royal Devon University Healthcare NHS Foundation Trust

3, Renal Unit, Kings College Hospital, London

4, Institute of Global Health Innovation, Imperial College London

5, Northern Care Alliance NHS Foundation Trust

6, School of Health and Society, University of Salford

7, Northern Care Alliance NHS Foundation Trust

8, School of Cardiovascular Sciences, University of Manchester

Dr Robert Kimmitt r.kimmitt@nhs.net **ORCiD 0000-0003-3723-2107**

Dr Hugh Leonard hugh.leonard1@nhs.net **ORCiD 0000-0003-4038-4988**

Dr Oshini Shivakumar oshini.shivakumar@nhs.net **ORCiD 0009-0000-0108-3889**

Ms Karen Storms karen.storms@nca.nhs.uk

Ms Rebecca Stansfield rebecca.stansfield@nca.nhs.uk

Prof Helen Hurst helen.hurst@nca.nhs.uk **ORCiD 0000-0002-7268-171x**

Dr Rosemary Donne rosemary.donne@manchester.ac.uk **ORCiD 0000-0002-5412-0716**

Keywords: chronic renal insufficiency, chronic kidney failure, education, renal replacement therapy, advanced kidney care

Word count: 1,996 words

Abstract

Introduction

Multidisciplinary Advanced Kidney Care (AKC) services provide care to patients with advanced chronic kidney disease (typically eGFR ≤20), as symptoms and complications become more common, and in preparation for kidney failure treatments. Despite their prominence in UK renal services, there is no consensus around best practice for AKC services in terms of care delivery models or interventions to optimise patient care, and there is widespread geographical variation in practice.

The UK Kidney Association (UKKA) Kidney Quality Improvement Partnership (KQIP) has launched a 3-year "Transform AKC" quality improvement project to address unmet needs in AKC services and work towards improvement. This scoping review is part of the Transform AKC project and aims to identify existing evidence for current and best practice in AKC.

The aim of this review is to establish any evidence that demonstrates best practice models of care and interventions to optimise care for adult patients with advanced CKD.

Methods and analysis

We will undertake a scoping review seeking to identify and evaluate evidence that demonstrated best practice for care of adults with advanced CKD. Databases (Medline and Embase) will be searched systematically (search dates from 1 Aug 2014 to 1 Dec 2024), and a final list of included studies will be analysed and synthesised.

Ethics and dissemination

We will use robust methodology to identify the existing literature describing best practices in care of adults with advanced CKD. These findings will directly inform the "Transform AKC" national quality improvement project, in which this scoping review is embedded. Findings will also be disseminated through national conferences and will be published in a relevant journal.

Article summary:

Strengths and limitations of this study

- This scoping review is embedded within the UK Kidney Association Kidney Quality Improvement Partnership's "Transform AKC" project and will directly inform interventions to improve quality of care within the programme.

- Application of a rigorous, well-known methodology using PRISMA-ScR guidelines will ensure a comprehensive and systematic search, but literature quality will not be assessed in-depth

- The research group has wealth of experience in the area, and is multidisciplinary in nature, in resemblance to AKC services

- Feedback from a service user group has helped to shape the research question, ensuring this scoping review addresses areas that are important for care providers and patients

- The majority of mainstream literature on the subject is likely to be identifiable, but the search strategy is limited to two databases and English language articles which are relevant to the UK National Health Service context

Background and Introduction

Access to multi-disciplinary Advanced Kidney Care (AKC) services for patients with progressive CKD4-5 is recommended by the UK Renal National Service Specification. AKC services are progressively replacing previous "low clearance" or "pre-dialysis" clinics.[1] A core component of AKC is multi-disciplinary team (MDT) input (including specialist nurses, nephrologists, dietitians, social workers, psychologists, vascular access surgeons or co-ordinators, pharmacists, occupational therapists, physiotherapists, geriatricians and transplant work-up specialists).

AKC services are designed for patients with advanced chronic kidney disease (CKD) who may be approaching end-stage kidney disease (ESKD). The threshold for entry to AKC is in keeping with NICE and KDIGO guidelines[2,3] but there is variation in practice. Approaches include a threshold eGFR (typically eGFR 15-20), rate of eGFR decline, or risk prediction models such as the kidney failure risk equation (KFRE).[4] The ideal threshold KFRE for entry to AKC has not yet been determined and may depend on local factors.

AKC services are well-established in many parts of the UK but there is variation between kidney units in the delivery of care, including the breadth and training of the AKC renal MDT and whether the service meets the needs of the local population. Comprehensive guidance on best practice has not yet been established. There is limited guidance on details of patient assessment (including cognition, health literacy, functional ability, frailty and psychosocial issues); symptom detection and management; discussion of patients' priorities; education for patients and carers; and impact of treatment choices on quality and length of life. There is a lack of data to measure the entry and progress of patients through advanced kidney care including the key milestones of receiving education on treatment choices, listing for transplant and choosing a future dialysis modality. There is variation in practice in care of patients with failing transplants, some of whom remain under transplant clinics, and some of whom transfer to AKC services. There is also a need to measure the experience of patients receiving advanced kidney care to guide future improvement. A previous scoping review into multidisciplinary CKD clinic practices identified significant heterogeneity in team composition, entry criteria, follow-up and processes as well as inadequate reporting of clinic structure and function,[5] but this review was not focused on advanced CKD or AKC.

The UK Kidney Association (UKKA) Kidney Quality Improvement Partnership (KQIP) has commenced a 3-year programme "Transform AKC" in partnership with Kidney Care UK. This project aims to work closely with renal multidisciplinary professionals, patients and carers to address unmet needs in Advanced Kidney Care. The focus in year one will be on understanding the current situation from the perspectives of key stakeholders before moving into subsequent years where kidney units will use quality improvement methodology to test changes in practice and measure the impact. Staff training to embed changes in practice will be delivered during the third year. This scoping review is part of the Transform AKC project and aims to identify existing evidence for current and best practice in AKC. This will allow the development of interventions to improve AKC services nationally.

Aim

The aim of this review is to identify evidence that demonstrates best practice models of care and interventions to optimise care for adult patients with advanced CKD.

Methods

This scoping review will follow Arksey and O'Malley's (2005) 5-staged approach, described in detail below.[6] The PRISMA-ScR guidelines and checklist will be used to ensure a systematic approach; the checklist will be included on publication of the completed review as an appendix.[7] Emphasis on clarity of concept, population of interest and outcomes will be used to ensure the search strategy is focused.[8,9] The study is planned to run from 1 June 2024 to 1 June 2025.

Stage 1: Identifying the research question

The aim, as stated above, is to identify evidence that describes or demonstrates 'best practice' for multidisciplinary care in the AKC clinic. We have identified the following broad research questions:

1. What evidence is there relating to the effectiveness and patient experience within current practice and multidisciplinary models of care for adults with advanced CKD?

2. What is the role of patient assessment tools (including cognitive, health literacy, functional, frailty and psycho-social) in supporting decision-making for adults with advanced CKD?

3. What educational approaches are best evidenced to improve treatment understanding and promote shared decision-making for adults with advanced CKD?

4. Which interventions can improve patient outcomes including quality of life, symptom burden and quality of shared decision-making?

The research questions may be iteratively narrowed as the review progresses, in keeping with typical scoping review methodology.

Inclusion Criteria

Population: Adults >18 years and not receiving dialysis, with advanced CKD stage 4-5 and/or eGFR <20 and/or Kidney Failure Risk Equation >20% at 2 years (or equivalent), (including those with failing kidney transplant).

Studies: All study designs (including systematic reviews, interventional studies and qualitative research) will be considered. The focus is on best practice and interventions so purely descriptive, observational studies from which recommendation for practice do not follow will not be included.

Interventions: Interventions which could be implemented by members of a multi-disciplinary team will be included, but specific pharmaceutical interventions for individual symptoms (other than in the context of guidelines for symptom management) will not be considered.

Context: Outpatient kidney services, advanced kidney care clinic, inpatient kidney services focused on relevant patient group, integrated services between primary and secondary/tertiary care. Studies relevant to the UK healthcare system.

Outcomes: Quality of shared decision-making, rates of home therapy utilisation, pre-emptive transplant listing, access to kidney transplantation, definitive incident dialysis access, access to conservative kidney management, involvement of MDT members, quality of life, patient experience, symptom burden, survival, advanced care planning, hospitalisation rate, patient and carer satisfaction with treatment option.

Exclusion Criteria

Studies focusing on general CKD population where subgroup analysis (to CKD4/5 and/or advanced CKD) is not possible.

Studies not published in English language and studies published prior to 2013 (due to cost and time restraints), these key limitations will be acknowledged when the study is reported.

Studies focusing on paediatric populations.

Studies from healthcare contexts such that interventions will not be relevant or transferable to the UK healthcare setting.

Stage 2: Identifying relevant studies

Literature searches: A comprehensive and iterative approach to identify evidence meeting the above criteria will be performed. The search will be conducted by the two health information specialists (KS and RS) within the team. A pragmatic approach will be used with regular meetings amongst the team to meet deadlines and utilise available resources. The search dates will be from 1 August 2014 to 1 Dec 2024.

Resources searched: Table 1 lists the two databases to be searched, which contain published peer-review literature; a limited list will be used because of time restraints, and because it is anticipated the key literature will be identified in these mainstream databases. Grey literature will not be specifically searched for, but may later be identified in the final stage (see below). Searches will be conducted in three phases. Firstly, scoping to gauge the volume and develop/refine the protocol. Secondly, more comprehensive searches will be conducted using search terms outlined in table 2. The final stage will be confirming, this is to identify other sources of information such as grey literature which may be identified through searching reference lists of identified papers. The extent of this will be decided within the team at the sifting stage, including identifying any relevant policies and guidelines that need to be reviewed.

Search terms (thesaurus and free text): will be identified by initially testing in one database and discussing amongst the team. The search will be wide enough to encompass the full range of potential perspectives of AKC services and models of care. A test set of relevant papers will be identified prior to the formal literature search, and the literature search will

be tested to ensure it picks up the complete test set of papers (to ensure the search is sufficiently broad).

Process of searching: the searches will be undertaken by two health information specialists (KS and RS) and uploaded to Covidence (a web-based software platform for systematic reviews) to enable sharing across the team. This will provide a robust process of tracking and transparency.

Stage 3: Study selection

Once the material located in the search stage has been uploaded to Covidence the reviewing team members (RK, HL, OS, HH and RD) will filter papers using the inclusion and exclusion criteria. Because of the broad search strategy and anticipated large number of studies, the initial sift will use the study title only, to remove studies clearly not relevant (such as animal studies and those clearly unrelated to kidney disease); all reviewing team members will be involved in this process to ensure consistency. The next sift will be based on title and abstract and will also involve all reviewing team members; each article will be screened by 2 reviewers. The third stage will be full text review, which will be conducted by the whole team to create the final list of included studies. Consideration will be made collectively on the inclusion of abstracts if full text not available. A rapid review assessment tool will be developed using the inclusion criteria as guidance. The team will be involved at all stages to increase validity and provide a clear audit trail of decisions made, these will be recorded in meetings and within Covidence software. Any disagreement regarding potential included studies will be discussed openly within the team, with the senior members (HH and RD) having casting votes.

Stage 4: Charting the data

The data will be extracted in table form into Excel spreadsheets providing an overview and map of the evidence. Headings will include the following (not exhaustive):

1. Author details and date
2. Country and setting
3. Study aims
4. Participants and age ranges
5. Stage of kidney disease
6. Intervention
7. Outcomes
8. Study Design
9. Key findings

Quality assessments are not typically required in scoping reviews however, once the included studies have been agreed the team will make decisions based on study design if quality assessment is indicated.

Stage 5: Collating, summarising and reporting the results

Data will be summarised and analysed descriptively. Study characteristics will be presented in table format. The approach to reporting the evidence will be a narrative format using the aims of the review as guidance. The scoping review process is iterative, and the collation,

summarising and reporting of the results will depend on the nature of the included studies and the results identified.

The key purpose of the scoping review is to guide the Transform AKC KQIP project by identifying gold standards and Advanced Kidney Care best practice that can be adopted and tested through Quality Improvement methodology. The findings of the scoping review will therefore be fed back directly, in detail, to the Transform AKC project board and stakeholders, as well as being written up for publication and general dissemination.

Data and Protection

Individual-level data on research participants will not be collected or held by the review team, nor will other sensitive or confidential data, so there is no specific data protection policy.

Patient and Public Involvement

The Transform AKC project involves patients at all stages including focus groups to determine best practice and current gaps in service provision. This has highlighted a lack of standardised models to provide high quality advanced kidney care and the need for a scoping review to summarise published evidence. Patient involvement has therefore been embedded within the scoping review from its conception. Opportunities to discuss the results of the scoping review with patients, carers and healthcare professionals are planned within the Transform AKC project.

Monitoring and Governance

The study will be subject to the audit and monitoring regimen of the UK Kidney Association. A governance framework will not be required for this scoping review.

Ethics and Dissemination

This review does not include participants or unpublished secondary data and therefore does not require ethical approval. As discussed above, the review results will be shared directly with the Transform AKC project team and we then anticipate publishing the results in an academic journal and presenting findings at national conferences such as UK Kidney Week.

Discussion

In summary, this review will utilise a multidisciplinary team of clinicians with expertise in caring for patients in the Advanced Kidney Care setting to identify best practices that can guide Quality Improvement interventions in the UK Kidney Association's Transform AKC workstream. This scoping review may also identify gaps in the literature that will be priorities for future research. Only by clarifying the evidence base underpinning current AKC practices can we rationally look at what may work in driving improvement in AKC services across the country.

Author statement

Author contributions

All authors contributed to study design. KS and RS performed the database literature searching. RK, HL, OS, HH and RD performed the study filtering and selection. RK and HH wrote most of the manuscript but all authors contributed to and approved the final draft. RD is the guarantor.

Acknowledgements

The authors would like to acknowledge the support of the wider AKC KQIP team.

Data statement

There is no primary dataset associated with this protocol.

Funding Statement

This work is supported by the UK Kidney Association and Kidney Care UK's partnership Transform AKC KQIP project.

Competing interests statement

None of the authors have any competing interests to declare.

References:

1. Lipkin G, McKane W. Getting it right first time: Renal medicine. GIRFT Programme National Specialty Report [Internet]. 2021. Available from: https://gettingitrightfirsttime.co.uk/wp-content/uploads/2021/09/Renal-Medicine-Sept21k.pdf

2. Levin A, Ahmed SB, Carrero JJ, Foster B, Francis A, Hall RK, et al. Executive summary of the KDIGO 2024 Clinical Practice Guideline for the Evaluation and Management of Chronic Kidney Disease: known knowns and known unknowns. Kidney International. 2024 Apr 1;105(4):684–701.

3. National Institute for Health and Care Excellence. NICE guideline NG107 - Renal replacement therapy and conservative management [Internet]. London, UK; 2018. Available from: https://www.nice.org.uk/guidance/ng107/

4. Tangri N, Stevens LA, Griffith J, Tighiouart H, Djurdjev O, Naimark D, et al. A predictive model for progression of chronic kidney disease to kidney failure. JAMA. 2011 Apr 20;305(15):1553–9.

5. Collister D, Pyne L, Cunningham J, Donald M, Molnar A, Beaulieu M, et al. Multidisciplinary Chronic Kidney Disease Clinic Practices: A Scoping Review. Can J Kidney Health Dis. 2019 Jan 1;6:2054358119882667.

6. Arksey H, O'Malley L. Scoping studies: towards a methodological framework. International Journal of Social Research Methodology. 2005 Feb 1;8(1):19–32.

7. Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, et al. PRISMA Extension for Scoping Reviews (PRISMA-ScR): Checklist and Explanation. Ann Intern Med. 2018 Oct 2;169(7):467–73.

8. Moher D, Stewart L, Shekelle P. All in the Family: systematic reviews, rapid reviews, scoping reviews, realist reviews, and more. Systematic Reviews. 2015 Dec 22;4(1):183.

9. Thomas A, Lubarsky S, Durning SJ, Young ME. Knowledge Syntheses in Medical Education: Demystifying Scoping Reviews. Academic Medicine [Internet]. 2017;92(2). Available from: https://journals.lww.com/academicmedicine/fulltext/2017/02000/knowledge_syntheses_in_medical_education_.16.aspx

Table 1: list of databases to be searched

Databases
Ovid Medline; Embase

Table 2: description of search strategy

Ovid MEDLINE(R) ALL <1946 to August 07, 2024>
exp *Renal Insufficiency, Chronic/ **OR** (chronic kidney disease **OR** CKD).ab,ti. **OR** *Kidney Failure, Chronic/ **OR** (chronic renal failure **OR** chronic kidney failure **OR** chronic renal disease).ab,ti. **OR** end stage kidney.ab,ti. **OR** end stage renal.ab,ti. **OR** established kidney disease.ab,ti. **OR** chronic renal insufficiency.ab,ti. **OR** late-stage kidney disease.ab,ti. **OR** (predialysis **OR** pre-dialysis).ab,ti.
AND
((interdisciplinary **OR** inter-disciplinary **OR** multidisciplinary **OR** pre-dialysis **OR** multi-disciplinary **OR** coordinat* **OR** co-ordinat* **OR** MDT **OR** interprofessional **OR** multiprofessional **OR** augment* **OR** functional **OR** integrated) adj2 (care **OR** patient **OR** program **OR** communicat* **OR** team **OR** initiative **OR** assessment **OR** monitor* **OR** support*)).ab,ti. **OR** (quality adj life).ab,ti. **OR** exp "Quality of Life"/**OR** improv* outcome*.ab,ti. **OR** (decision aid* **OR** informed decision).ab,ti. **OR** Patient Reported Outcome Measures/ **OR** Decision Making, Shared/
NOT
*Kidney Transplantation/ **OR** kidney transplantation.kw. **OR** "haemodialysis".kw. **OR** "hemodialysis".kw. **OR***Renal Dialysis/ **OR** *"Anemia"/ **OR** anaemia.kw. **OR** anemia.kw. **OR** *"Blood Pressure"/ **OR** "blood pressure".kw. **OR** *"Chronic Kidney Disease-Mineral and Bone Disorder"/ **OR** "mineral bone disorder".kw. **OR** exp *Diabetes Mellitus/ **OR** "Diabetes".kw.

Terms were searched either as a medical subject heading (indicated by /), title and abstract (indicated by .ab,ti.) or keyword (indicated by .kw.).