

Chronic Kidney Disease

Search strategies

NICE guideline xxxx

Search strategies

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Contents

1	Scoping search strategies	5
1.1	Scoping searches	5
1.2	Main searches	6
1.3	Identification of evidence for review questions	7
2	Review question search strategies	8
3	Study Design Filters	18
4	Health economics search strategies	38
4.1	Economic evaluations and quality of life data	38

Scoping search strategies

Scoping searches

Scoping searches were undertaken on the following websites and databases (listed in alphabetical order) in June 2018 to provide information for scope development and project planning. Browsing or simple search strategies were employed.

Guidelines/website	Systematic review/economic evaluations
British Renal Society	Campbell Collaboration
British Transplantation Society	Cochrane Database of Systematic Reviews (CDSR)
Canadian Medical Association Infobase	Database of Abstracts of Reviews of Effects (DARE) – last updated April 2015
Care Quality Commission	Health Technology Assessment (HTA) Database – last updated October 2016
Core Outcome Measures in Effectiveness Trials (COMET)	NHS Economic Evaluation Database (NHS EED) – last updated April 2015
Coventry LINK, Renal	NIHR Health Technology Assessment Programme
Department of Health & Social Care	NIHR Health Services and Delivery Research (HS&DR) Programme
The FoNS Centre for Nursing Innovation - University Hospitals Coventry and Warwickshire NHS Trust	PROSPERO
General Medical Council	TRIP Database
Guidelines & Audit Implementation Network (GAIN)	
Guidelines International Network (GIN)	
Healthcare Quality Improvement Partnership	
Healthtalk Online	
Healthwatch Brighton and Hove	
Healthwatch Nottinghamshire, Insight infoKID	
International Guideline Library	
Joint Royal Colleges of Physicians Training Board	
Kidney Care UK	
Kidney Dialysis Information Centre	
Kidney Patient Guide	
Kidney Research UK	
Kidney Wales Foundation	
Kids Kidney Research	
King's Fund	
Medicines and Products Regulatory Agency (MHRA)	
Ministry of Health Singapore	
National Audit Office	
National Clinical Audit and Patient Outcomes Programme	
National Health and Medical Research Council - Australia	
National Institute for Health and Care Excellence (NICE) - published & in development guidelines	
National Institute for Health and Care Excellence (NICE) - Topic Selection	

Guidelines/website	Systematic review/economic evaluations
<p>National Kidney Federation National Prescribing Centre National Quality Board National Voices NHS Choices NHS Digital NHS England NHS National Renal Data Set - Renal Care NHS Quality Improvement Scotland NICE Clinical Knowledge Summaries (CKS) NICE Evidence Search NHS Think Kidneys Northern Ireland Kidney Patient Association Office for National Statistics Patient Experience Library Patient UK PatientVoices Picker Institute Europe Public Health England Office for National Statistics Rare Renal Renal Association Renal Patient View Renal Radar.org Royal College of Nursing Royal College of Paediatrics and Child Health Royal College of Physicians Royal Pharmaceutical Society Scottish Government Scottish Intercollegiate Guidelines Network (SIGN) Scottish Kidney Federation Scottish Renal Association-Scottish Renal Registry UK Kidney Research Consortium UK National Statistics UK Renal Registry - British Kidney Patient Association Welsh Government World Health Organisation (WHO) YouthHealthTalk</p>	

Main searches

Bibliographic databases searched for the guideline

- Cochrane Database of Systematic Reviews – CDSR (Wiley)
- Cochrane Central Register of Controlled Trials – CENTRAL (Wiley)
- Database of Abstracts of Reviews of Effects – DARE (CDSR)
- EMBASE (Ovid)

- MEDLINE (Ovid)
- MEDLINE Epub Ahead of Print (Ovid)
- MEDLINE In-Process (Ovid)

Identification of evidence for review questions

A NICE information specialist conducted the literature searches for the evidence review. The searches were originally run between June 2019 and April 2020 for 14 review questions (RQ). The searches were updated in September 2020.

The principal search strategy was developed in MEDLINE (Ovid interface) and adapted, as appropriate, for use in the other sources listed in the protocol, taking into account their size, search functionality and subject coverage.

The MEDLINE strategies below were quality assured (QA) by trained NICE information specialist. All translated search strategies were peer reviewed to ensure their accuracy. Both procedures were adapted from the [2016 PRESS Checklist](#). The translated search strategies are available in the evidence reviews for the guideline.

The search results were managed in EPPI-Reviewer v5. Duplicates were removed in EPPI-R5 using a two-step process. First, automated deduplication is performed using a high-value algorithm. Second, manual deduplication is used to assess 'low-probability' matches. All decisions made for the review can be accessed via the deduplication history.

English language limits were applied in adherence to standard NICE practice and the review protocol.

The limit to remove animal studies in the searches was the standard NICE practice, which has been adapted from: Dickersin, K., Scherer, R., & Lefebvre, C. (1994). [Systematic Reviews: Identifying relevant studies for systematic reviews](#). *BMJ*, 309(6964), 1286.

Details of the study design filters used can be found in section 3.

Review question search strategies

RQ1.1:

- What is the accuracy of cystatin C-based equations to estimate GFR as a measurement of kidney function in adults, children and young people?

Table 1: search strategy

Medline Strategy, searched 27th September 2019
Database: Ovid MEDLINE(R) <1946 to September 25, 2019>
Search Strategy:

1	exp Kidney Diseases/ (497391)
2	exp Kidney Function Tests/ (76828)
3	exp Kidney/ (343115)
4	(renal* or kidney* or ckd*).tw. (761085)
5	or/1-4 (1017739)
6	Cystatin C/ (3831)
7	cystatin*.tw. (6866)
8	6 or 7 (7238)
9	Glomerular Filtration Rate/ (42224)
10	(glomerul* or GFR* or eGFR* or e-GFR*).tw. (153913)
11	9 or 10 (167119)
12	5 and 8 and 11 (2668)
13	(MEDLINE or pubmed).tw. (146077)
14	systematic review.tw. (105059)
15	systematic review.pt. (112263)
16	meta-analysis.pt. (104847)
17	intervention\$.ti. (115118)
18	or/13-17 (345036)
19	randomized controlled trial.pt. (489804)
20	randomi?ed.mp. (757539)
21	placebo.mp. (187874)
22	or/19-21 (807948)

Medline Strategy, searched 27th September 2019
Database: Ovid MEDLINE(R) <1946 to September 25, 2019>
Search Strategy:

23 exp "Sensitivity and Specificity"/ (561765)
24 (sensitivity or specificity).tw. (868249)
25 ((pre-test or pretest or post-test) adj probability).tw. (2161)
26 (predictive value* or PPV or NPV).tw. (95689)
27 likelihood*.tw. (113908)
28 exp likelihood functions/ (21380)
29 (ROC curve* or AUC).tw. (70620)
30 (diagnos* adj2 (performance* or accurac* or utilit* or value* or valid* or efficien* or effectiveness)).tw. (92754)
31 (reference or gold standard).tw. (379541)
32 (sensitiv: or diagnos:).mp. or di.fs. (5523763)
33 validation studies/ (96716)
34 validation studies as topic/ (2065)
35 or/23-34 (6166632)
36 Cross sectional.tw. (260423)
37 Cross-sectional studies/ (304354)
38 36 or 37 (374957)
39 18 or 22 or 35 or 38 (7152846)
40 12 and 39 (1912)
41 limit 40 to english language (1784)
42 animals/ not humans/ (4586194)
43 41 not 42 (1753)

RCT and systematic reviews filters were used for the search strategy (see Section 3)

RQ1.2

- In adults, children, and young people from black, Asian and other minority ethnic groups with CKD, what is the diagnostic accuracy of eGFR calculations?

Table 2: search strategy

Medline Strategy, searched 23rd April 2020

Database: Ovid MEDLINE(R) <1946 to April 22, 2020>

Search Strategy:

- 1 exp Renal Insufficiency, Chronic/ (113392)
- 2 ((chronic* or progressi*) adj1 (renal* or kidney*)).tw. (73232)
- 3 ((kidney* or renal*) adj1 insufficien*).tw. (21299)
- 4 ckd*.tw. (23299)
- 5 ((kidney* or renal*) adj1 fail*).tw. (86568)
- 6 ((endstage* or end-stage* or "end stage*") adj1 (renal* or kidney*)).tw. (35469)
- 7 (esrd* or eskd*).tw. (14335)
- 8 "Chronic Kidney Disease-Mineral and Bone Disorder"/ (3458)
- 9 or/1-8 (214059)
- 10 (diaspor* or multicultural* or multi-cultural* or crosscultural* or cross-cultural* or transcultural* or trans-cultural* or ethn* or multiethn* or minorit* or race or races or racial* or multiracial* or biracial* or migrant* or immigrant* or refugee* or cultural* divers* or multilingual* or multi-lingual* or traveller* or Gyps* or Romany or Romani* or Rroma* or Roma or asylum seek* or seeking asylum or sociocultural or diversity or "diverse population*" or indigenous or ancestry group* or cultur* difference* or heritage* or foreign*).ti,ab. (596438)
- 11 (black* or Afrocaribbean* or caribbean* or african* or African American* or Asia* or South American* or Hispanic* or Central American* or latina* or latino* or Jew* or sikh* or hindu* or muslim* or islam* or indian* or bangladeshi* or pakistani* or Eastern Europe* or Balkan* or Polish or Romanian* or white* or nonwhite* or Caucasian* or noncaucasian* or Irish or Italian* or BME or BAME).ti,ab. (789110)
- 12 ((displaced or alien*) adj2 (people* or person*)).ti,ab. (815)
- 13 (born adj2 overseas).ti,ab. (308)
- 14 ((marginal* or transient or undocumented) adj1 (people or population* or communit* or neighbourhood* or neighborhood* or group* or area* or demograph*)).ti,ab. (3143)
- 15 ((arab* or somali* or yemini* or Vietnamese or Chinese or Punjabi* or Somali* or Gujarati* or Japanese or Bengali* or Afghanistani* or Turkish or Kurdish or Yemeni* or Albanian* or German* or American* or Jamaican* or Nigerian* or Kenyan* or Zimbabwean* or Philippin* or Filipino* or "Sri Lankan*" or French or Chinese or Cantonese or Australia* or Somalia* or Portugues* or Canadian* or Ghanaian* or Lithuanian* or "Hong Kong" or Spanish or Iranian* or "New Zealand" or Kiwi* or Iraqi* or Turkish or Cypriot* or Malaysian* or Dutch or Ugandan* or Bulgarian* or Afghan* or Brazilian* or Slovak* or Mauritan* or Singapore* or Nepales* or Hungarian* or Latvian* or Russian* or Tanzanian* or Thai* or Swedish or Greek or Zambia* or Czech or Egyptia* or Trinidad* or Tobago* or Maltese or Austrian* or Belgian* or Libyan* or Korean* or Danish or Swiss) adj3 (cultur* or men or women or male* or female* or people* or population* or communit* or neighbourhood* or neighborhood* or group* or area* or demograph*)).ti,ab. (223136)
- 16 eh.fs. (160449)
- 17 exp "Emigrants and Immigrants"/ (12134)
- 18 exp Ethnic Groups/ (151161)
- 19 Minority Groups/ (13637)
- 20 exp Continental Population Groups/ (217270)
- 21 Refugees/ (10008)
- 22 "Transients and Migrants"/ (11431)
- 23 cross-cultural comparison/ or cultural characteristics/ or cultural diversity/ or ethnology/ (52633)
- 24 exp Human Migration/ (26169)
- 25 or/10-24 (1569266)
- 26 9 and 25 (15967)
- 27 Glomerular Filtration Rate/ (43611)
- 28 (glomerul* or GFR* or eGFR* or e-GFR*).tw. (158675)
- 29 27 or 28 (172071)
- 30 26 and 29 (4280)
- 31 limit 30 to english language (4107)
- 32 animals/ not humans/ (4659319)
- 33 31 not 32 (4032)
- 34 limit 33 to abstracts (3992)
- 35 limit 34 to (editorial or letter or news) (17)

Medline Strategy, searched 23rd April 2020
Database: Ovid MEDLINE(R) <1946 to April 22, 2020>
Search Strategy:

36 34 not 35 (3975)

RQ1.3

- What are the core components of effective shared decision-making approaches and activities?

Table 3a: search strategy - CKD population

Medline Strategy, searched 11th February 2020
Database: Ovid MEDLINE(R) <1946 to February 10, 2020>
Search Strategy:

1 exp Renal Insufficiency, Chronic/ (112261)
2 ((chronic* or progressi*) adj1 (renal* or kidney*).tw. (72306)
3 ((kidney* or renal*) adj1 insufficien*).tw. (21236)
4 ckd*.tw. (22777)
5 ((kidney* or renal*) adj1 fail*).tw. (86254)
6 ((endstage* or end-stage* or "end stage") adj1 (renal* or kidney*).tw. (35088)
7 (esrd* or eskd*).tw. (14151)
8 "Chronic Kidney Disease-Mineral and Bone Disorder"/ (3444)
9 or/1-8 (212222)
10 exp Infant/ or Infant Health/ or Infant Welfare/ (1122688)
11 (prematu* or pre-matur* or preterm* or pre-term* or infan* or newborn* or new-born* or perinat* or peri-nat* or neonat* or neo-nat* or baby* or babies or toddler*).ti,ab,in,jn. (836467)
12 exp Child/ or exp Child Behavior/ or Child Health/ or Child Welfare/ (1884908)
13 Minors/ (2556)
14 (child* or minor or minors or boy* or girl* or kid or kids or young*).ti,ab,in,jn. (2303530)
15 exp pediatrics/ (56987)
16 (pediatric* or paediatric* or peadiatric*).ti,ab,in,jn. (809129)
17 Adolescent/ or Adolescent Behavior/ or Adolescent Health/ (1991213)
18 Puberty/ (13168)
19 (adolescen* or pubescen* or prepubescen* or pre-pubescen* or pubert* or prepubert* or pre-pubert* or teen* or preteen* or pre-teen* or juvenil* or youth* or under*age*).ti,ab,in,jn. (412077)
20 Schools/ (36886)

Medline Strategy, searched 11th February 2020

Database: Ovid MEDLINE(R) <1946 to February 10, 2020>

Search Strategy:

- 21 Child Day Care Centers/ or exp Nurseries/ or Schools, Nursery/ (8704)
- 22 (pre-school* or preschool* or kindergar* or daycare or day-care or nurser* or school* or pupil* or student*).ti,ab,jn. (457980)
- 23 ("under 18*" or "under eighteen*" or "under 25*" or "under twenty five*").ti,ab. (3847)
- 24 or/10-23 (5093050)
- 25 9 and 24 (46123)
- 26 "Indicators and Reagents"/ (51841)
- 27 exp Reagent Kits, Diagnostic/ (19909)
- 28 reagent*.tw. (83341)
- 29 (dipstick* or dip-stick*).tw. (3104)
- 30 (urin* adj3 (test* or strip* or stick*)).tw. (12045)
- 31 Urinalysis/ (7904)
- 32 urinalys*.tw. (7179)
- 33 (diagnos* adj3 (test* or kit*)).tw. (72009)
- 34 or/26-33 (237233)
- 35 25 and 34 (758)
- 36 animals/ not humans/ (4639408)
- 37 35 not 36 (732)
- 38 limit 37 to english language (635)

Table 3b: search strategy - All populations

Medline Strategy, searched 19th February 2020

Database: Ovid MEDLINE(R) <1946 to February 18, 2020>

Search Strategy:

- 1 exp Infant/ or Infant Health/ or Infant Welfare/ (1122000)
- 2 (premat* or pre-matur* or preterm* or pre-term* or infan* or newborn* or new-born* or perinat* or peri-nat* or neonat* or neo-nat* or baby* or babies or toddler*).ti,ab,in,jn. (836017)
- 3 exp Child/ or exp Child Behavior/ or Child Health/ or Child Welfare/ (1884280)
- 4 Minors/ (2555)
- 5 (child* or minor or minors or boy* or girl* or kid or kids or young*).ti,ab,in,jn. (2302514)

Medline Strategy, searched 19th February 2020

Database: Ovid MEDLINE(R) <1946 to February 18, 2020>

Search Strategy:

- 6 exp pediatrics/ (56966)
- 7 (pediatric* or paediatric* or peadiatric*).ti,ab,in,jn. (808391)
- 8 Adolescent/ or Adolescent Behavior/ or Adolescent Health/ (1990829)
- 9 Puberty/ (13151)
- 10 (adolescen* or pubescen* or prepubescen* or pre-pubescen* or pubert* or prepubert* or pre-pubert* or teen* or preteen* or pre-teen* or juvenil* or youth* or under*age*).ti,ab,in,jn. (411930)
- 11 Schools/ (36904)
- 12 Child Day Care Centers/ or exp Nurseries/ or Schools, Nursery/ (7121)
- 13 (pre-school* or preschool* or kindergar* or daycare or day-care or nurser* or school* or pupil* or student*).ti,ab,jn. (458160)
- 14 ("under 18*" or "under eighteen*" or "under 25*" or "under twenty five*").ti,ab. (3848)
- 15 or/1-14 (5090977)
- 16 (dipstick* or dip-stick*).tw. (3100)
- 17 (urin* adj3 (test* or strip* or stick*)).tw. (12033)
- 18 Urinalysis/ (7897)
- 19 urinalys*.tw. (7174)
- 20 or/16-19 (26215)
- 21 "Indicators and Reagents"/ (51785)
- 22 exp Reagent Kits, Diagnostic/ (19904)
- 23 reagent*.tw. (83302)
- 24 (diagnos* adj3 (test* or kit*)).tw. (71975)
- 25 or/21-24 (213725)
- 26 Urine/ (37030)
- 27 exp Proteinuria/ (38647)
- 28 Hematuria/ (11800)
- 29 (urin* or proteinur* or albuminur* or hemoglobinur* or haemoglobinur* or hematur* or haematur*).tw. (466530)
- 30 or/26-29 (493890)
- 31 25 and 30 (9448)

Medline Strategy, searched 19th February 2020
Database: Ovid MEDLINE(R) <1946 to February 18, 2020>
Search Strategy:

32 20 or 31 (33235)
33 15 and 32 (9440)
34 (sensitiv: or predictive value:).mp. or accurac:.tw. (1842609)
35 33 and 34 (2592)
36 animals/ not humans/ (4636390)
37 35 not 36 (2535)
38 limit 37 to english language (2347)

RQ1.4

- What is the accuracy of albumin:creatinine ratio versus protein:creatinine ratio measurements to quantify proteinuria in children and young people with CKD?

Table 4: search strategy

Medline Strategy, searched 10th March 2020
Database: Ovid MEDLINE(R) <1946 to March 09, 2020>
Search Strategy:

1 exp Renal Insufficiency, Chronic/ (112617)
2 ((chronic* or progressi*) adj1 (renal* or kidney*).tw. (72595)
3 ((kidney* or renal*) adj1 insufficien*).tw. (21252)
4 ckd*.tw. (22947)
5 ((kidney* or renal*) adj1 fail*).tw. (86345)
6 ((endstage* or end-stage* or "end stage*") adj1 (renal* or kidney*).tw. (35216)
7 (esrd* or eskd*).tw. (14205)
8 "Chronic Kidney Disease-Mineral and Bone Disorder"/ (3451)
9 or/1-8 (212803)
10 exp Infant/ or Infant Health/ or Infant Welfare/ (1124073)
11 (premat* or pre-matur* or preterm* or pre-term* or infan* or newborn* or new-born* or perinat* or peri-nat* or neonat* or neo-nat* or baby* or babies or toddler*).ti,ab,in,jn. (838111)
12 exp Child/ or exp Child Behavior/ or Child Health/ or Child Welfare/ (1888198)
13 Minors/ (2560)
14 (child* or minor or minors or boy* or girl* or kid or kids or young*).ti,ab,in,jn. (2310277)
15 exp pediatrics/ (57089)
16 (pediatric* or paediatric* or peadiatric*).ti,ab,in,jn. (811920)
17 Adolescent/ or Adolescent Behavior/ or Adolescent Health/ (1995288)
18 Puberty/ (13169)
19 (adolescen* or pubescen* or prepubescen* or pre-pubescen* or pubert* or prepubert* or pre-pubert* or teen* or preteen* or pre-teen* or juvenil* or youth* or under*age*).ti,ab,in,jn. (413410)
20 Schools/ (37046)
21 Child Day Care Centers/ or exp Nurseries/ or Schools, Nursery/ (7131)

Medline Strategy, searched 10th March 2020

Database: Ovid MEDLINE(R) <1946 to March 09, 2020>

Search Strategy:

22 (pre-school* or preschool* or kindergar* or daycare or day-care or nurser* or school* or pupil* or student*).ti,ab,jn. (459454)
23 ("under 18*" or "under eighteen*" or "under 25*" or "under twenty five*").ti,ab. (3867)
24 or/10-23 (5104091)
25 9 and 24 (46252)
26 exp Proteinuria/ (38709)
27 proteinur*.tw. (35335)
28 (albuminur* or microalbuminur*).tw. (15845)
29 or/26-28 (63796)
30 25 and 29 (4376)
31 (acr or uacr or pcr).tw. (448672)
32 Proteins/ (202949)
33 protein*.tw. (2696484)
34 Albumins/ (19336)
35 albumin*.tw. (140129)
36 or/32-35 (2834424)
37 Creatinine/ (55744)
38 creatin*.tw. (193124)
39 37 or 38 (214222)
40 ratio*.tw. (1207641)
41 (36 or 39) and 40 (171229)
42 31 or 41 (611679)
43 30 and 42 (755)
44 limit 43 to english language (719)
45 animals/ not humans/ (4642773)
46 44 not 45 (696)

RQ1.5:

- Which children and young people should be tested for CKD?

Table 5: search strategy

Medline Strategy, searched 19th March 2020

Database: Ovid MEDLINE(R) <1946 to March 17, 2020>

Search Strategy:

1 exp Renal Insufficiency, Chronic/ (112796)
2 ((chronic* or progressi*) adj1 (renal* or kidney*).tw. (72744)
3 ((kidney* or renal*) adj1 insufficien*).tw. (21269)
4 ckd*.tw. (23018)
5 ((kidney* or renal*) adj1 fail*).tw. (86402)
6 ((endstage* or end-stage* or "end stage*") adj1 (renal* or kidney*).tw. (35281)
7 (esrd* or eskd*).tw. (14241)

Medline Strategy, searched 19th March 2020
Database: Ovid MEDLINE(R) <1946 to March 17, 2020>
Search Strategy:

- 8 "Chronic Kidney Disease-Mineral and Bone Disorder"/ (3454)
- 9 or/1-8 (213095)
- 10 exp Infant/ or Infant Health/ or Infant Welfare/ (1125197)
- 11 (prematu* or pre-matur* or preterm* or pre-term* or infan* or newborn* or new-born* or perinat* or peri-nat* or neonat* or neo-nat* or baby* or babies or toddler*).ti,ab,in,jn. (839293)
- 12 exp Child/ or exp Child Behavior/ or Child Health/ or Child Welfare/ (1890406)
- 13 Minors/ (2560)
- 14 (child* or minor or minors or boy* or girl* or kid or kids or young*).ti,ab,in,jn. (2314950)
- 15 exp pediatrics/ (57169)
- 16 (pediatric* or paediatric* or peadiatric*).ti,ab,in,jn. (814169)
- 17 Adolescent/ or Adolescent Behavior/ or Adolescent Health/ (1997796)
- 18 Puberty/ (13179)
- 19 (adolescen* or pubescen* or prepubescen* or pre-pubescen* or pubert* or prepubert* or pre-pubert* or teen* or preteen* or pre-teen* or juvenil* or youth* or under*age*).ti,ab,in,jn. (414356)
- 20 Schools/ (37149)
- 21 Child Day Care Centers/ or exp Nurseries/ or Schools, Nursery/ (7135)
- 22 (pre-school* or preschool* or kindergar* or daycare or day-care or nurser* or school* or pupil* or student*).ti,ab,jn. (460285)
- 23 ("under 18*" or "under eighteen*" or "under 25*" or "under twenty five*").ti,ab. (3885)
- 24 or/10-23 (5111691)
- 25 9 and 24 (46312)
- 26 prognosis.sh. (497558)
- 27 diagnosed.tw. (469092)
- 28 cohort.mp. (538784)
- 29 predictor:.tw. (316975)
- 30 death.tw. (600184)
- 31 exp models, statistical/ (401274)
- 32 or/26-31 (2349192)
- 33 exp causality/ (821609)

Medline Strategy, searched 19th March 2020
Database: Ovid MEDLINE(R) <1946 to March 17, 2020>
Search Strategy:

34 disease progression/ (158832)
35 (risk or risks or caus* or progress*).tw. (4460183)
36 or/33-35 (4735220)
37 32 and 36 (1050582)
38 Glomerular Filtration Rate/ (43388)
39 (glomerul* or GFR* or eGFR* or e-GFR*).tw. (157895)
40 38 or 39 (171256)
41 25 and 37 and 40 (2608)
42 (acr or uacr).tw. (9120)
43 (albumin* and creatin* and ratio*).tw. (5780)
44 42 or 43 (13190)
45 40 and 44 (2508)
46 25 and 45 (269)
47 (MEDLINE or pubmed).tw. (156564)
48 systematic review.tw. (114632)
49 systematic review.pt. (123163)
50 meta-analysis.pt. (112191)
51 intervention\$.ti. (120189)
52 or/47-51 (365890)
53 25 and 36 and 52 (570)
54 41 or 46 or 53 (3267)
55 limit 54 to english language (3057)
56 animals/ not humans/ (4646694)
57 55 not 56 (3022)

Systematic review and prognosis filters used

RQ2.1:

- What is the best combination of measures of kidney function and markers of kidney damage to identify increased risk of progression in adults, children and young people with CKD?
- Are kidney failure prediction equations good predictors of progression, kidney failure or end-stage renal disease?

Table 6: search strategy

Medline Strategy, searched 24th January 2020
Database: Ovid MEDLINE(R) <1946 to January 06, 2020>
Search Strategy:

```
1  exp Renal Insufficiency, Chronic/ (112011)
2  ((chronic* or progressi*) adj1 (renal* or kidney*).tw. (72064)
3  ((kidney* or renal*) adj1 insufficien*).tw. (21205)
4  ckd*.tw. (22662)
5  ((kidney* or renal*) adj1 fail*).tw. (86132)
6  ((endstage* or end-stage* or "end stage*") adj1 (renal* or kidney*).tw. (35010)
7  (esrd* or eskd*).tw. (14106)
8  "Chronic Kidney Disease-Mineral and Bone Disorder"/ (3440)
9  or/1-8 (211762)
10 Glomerular Filtration Rate/ (43077)
11 (glomerul* or GFR* or eGFR* or e-GFR*).tw. (156870)
12 or/10-11 (170198)
13 9 and 12 (35418)
14 Cystatin C/ (3909)
15 cystatin*.tw. (7022)
16 Creatinine/ (55613)
17 (creatinine or acr or pcr).tw. (540316)
18 or/14-17 (566247)
19 (formula* or equation* or calculat* or reclassif* or re classif*).tw. (948302)
20 (modif* of diet in renal disease* or MDRD*).ti,ab. (3371)
21 (ckdepi or epi or epidemiology collaboration).tw. (16916)
22 (multimark* or multi-mark* or mark*).tw. (1315317)
```

Medline Strategy, searched 24th January 2020
Database: Ovid MEDLINE(R) <1946 to January 06, 2020>
Search Strategy:

- 23 or/19-22 (2215237)
- 24 schwartz*.tw. (2255)
- 25 13 and 24 (161)
- 26 (13 and 18 and 23) or 25 (4540)
- 27 limit 26 to ed=20131101-20200123 (1957)
- 28 exp Infant/ or Infant Health/ or Infant Welfare/ (1120991)
- 29 (prematu* or pre-matur* or preterm* or pre-term* or infan* or newborn* or new-born* or perinat* or peri-nat* or neonat* or neo-nat* or baby* or babies or toddler*).ti,ab,in,jn. (834681)
- 30 exp Child/ or exp Child Behavior/ or Child Health/ or Child Welfare/ (1881776)
- 31 Minors/ (2552)
- 32 (child* or minor or minors or boy* or girl* or kid or kids or young*).ti,ab,in,jn. (2297216)
- 33 exp pediatrics/ (56888)
- 34 (pediatric* or paediatric* or peadiatric*).ti,ab,in,jn. (806306)
- 35 Adolescent/ or Adolescent Behavior/ or Adolescent Health/ (1987328)
- 36 Puberty/ (13150)
- 37 (adolescen* or pubescen* or prepubescen* or pre-pubescen* or pubert* or prepubert* or pre-pubert* or teen* or preteen* or pre-teen* or juvenil* or youth* or under*age*).ti,ab,in,jn. (410763)
- 38 Schools/ (36770)
- 39 Child Day Care Centers/ or exp Nurseries/ or Schools, Nursery/ (8700)
- 40 (pre-school* or preschool* or kindergar* or daycare or day-care or nurser* or school* or pupil* or student*).ti,ab,jn. (456740)
- 41 ("under 18*" or "under eighteen*" or "under 25*" or "under twenty five*").ti,ab. (3824)
- 42 or/28-41 (5082128)
- 43 26 and 42 (1120)
- 44 27 or 43 (2585)
- 45 limit 44 to english language (2432)
- 46 animals/ not humans/ (4634055)
- 47 45 not 46 (2336)

Medline Strategy, searched 24th January 2020

Database: Ovid MEDLINE(R) <1946 to January 06, 2020>

Search Strategy:

To retrieve evidence on adults that had been published since the search strategies were last run for the former guideline, the search was limited from 2013. No date restrictions were applied to the section of the search strategies on children and young people because this population had not been included in the former guideline. RCT and systematic reviews filters were used.

RQ2.3:

- For adults, children and young people with suspected or diagnosed chronic kidney disease (CKD), what is the effect of interventions to lower proteinuria?

Table 7: search strategy

Medline Strategy, searched 7th January 2020

Database: Ovid MEDLINE(R) <1946 to January 06, 2020>

Search Strategy:

- 1 exp Renal Insufficiency, Chronic/ (111773)
- 2 ((chronic* or progressi*) adj1 (renal* or kidney*).tw. (71808)
- 3 ((kidney* or renal*) adj1 insufficien*).tw. (21175)
- 4 ckd*.tw. (22546)
- 5 ((kidney* or renal*) adj1 fail*).tw. (86008)
- 6 ((endstage* or end-stage* or "end stage") adj1 (renal* or kidney*).tw. (34922)
- 7 (esrd* or eskd*).tw. (14067)
- 8 "Chronic Kidney Disease-Mineral and Bone Disorder"/ (3435)
- 9 or/1-8 (211281)
- 10 exp Proteinuria/ (38575)
- 11 Proteins/ (202512)
- 12 exp dietary proteins/ (97336)
- 13 protein*.tw. (2680399)
- 14 Albumins/ (19261)
- 15 albumin*.tw. (139304)
- 16 or/10-15 (2867417)
- 17 9 and 16 (37305)
- 18 (MEDLINE or pubmed).tw. (152526)

Medline Strategy, searched 7th January 2020
Database: Ovid MEDLINE(R) <1946 to January 06, 2020>
Search Strategy:

- 19 systematic review.tw. (110770)
- 20 systematic review.pt. (118884)
- 21 meta-analysis.pt. (109366)
- 22 intervention\$.ti. (118249)
- 23 or/18-22 (357890)
- 24 randomized controlled trial.pt. (497838)
- 25 randomi?ed.mp. (773096)
- 26 placebo.mp. (190793)
- 27 or/24-26 (824015)
- 28 23 or 27 (1079124)
- 29 17 and 28 (3197)
- 30 limit 29 to english language (3032)
- 31 animals/ not humans/ (4627622)
- 32 30 not 31 (2873)

RCT and systematic reviews filters used (see Section 3)

RQ3.1

- For adults, children and young people with chronic kidney disease (CKD), what constitutes a clinically significant decline in estimated glomerular filtration rate (eGFR) in terms of risk of kidney disease progression?

Table 8: search strategy

Medline Strategy, searched 7th April 2020
Database: Ovid MEDLINE(R) <1946 to April 06, 2020>
Search Strategy:

- 1 exp Renal Insufficiency, Chronic/ (113097)
- 2 ((chronic* or progressi*) adj1 (renal* or kidney*).tw. (72983)
- 3 ((kidney* or renal*) adj1 insufficien*).tw. (21279)
- 4 ckd*.tw. (23155)
- 5 ((kidney* or renal*) adj1 fail*).tw. (86483)

Medline Strategy, searched 7th April 2020
Database: Ovid MEDLINE(R) <1946 to April 06, 2020>
Search Strategy:

- 6 ((endstage* or end-stage* or "end stage*") adj1 (renal* or kidney*)).tw. (35381)
- 7 (esrd* or eskd*).tw. (14297)
- 8 "Chronic Kidney Disease-Mineral and Bone Disorder"/ (3457)
- 9 or/1-8 (213577)
- 10 Glomerular Filtration Rate/ (43516)
- 11 (glomerul* or GFR* or eGFR* or e-GFR*).tw. (158294)
- 12 or/10-11 (171675)
- 13 (declin* or drop* or reduc* or decreas* or low* or fall* or loss* or less* or chang*).tw. (9268466)
- 14 exp disease progression/ (175791)
- 15 (progress* or exacerbat* or significan* or serious* or sever* or warning* or trigger* or threat* or danger* or damag* or harm* or risk* or deteriorat* or wors* or weak* or morbidit* or damag* or mortal* or fatal* or dead* or die or dying* or life*).tw. (9740745)
- 16 14 or 15 (9775788)
- 17 12 and 13 and 16 (71643)
- 18 9 and 17 (21221)
- 19 prognosis.sh. (499011)
- 20 diagnosed.tw. (470559)
- 21 cohort.mp. (541784)
- 22 predictor:.tw. (318338)
- 23 death.tw. (601925)
- 24 exp models, statistical/ (402395)
- 25 or/19-24 (2357345)
- 26 18 and 25 (8303)
- 27 Cross-sectional studies/ (323170)
- 28 Cross sectional.tw. (276990)
- 29 27 or 28 (396132)
- 30 18 and 29 (1782)
- 31 (MEDLINE or pubmed).tw. (157634)
- 32 systematic review.tw. (115648)

Medline Strategy, searched 7th April 2020
Database: Ovid MEDLINE(R) <1946 to April 06, 2020>
Search Strategy:

- 33 systematic review.pt. (124240)
- 34 meta-analysis.pt. (112951)
- 35 intervention\$.ti. (120744)
- 36 or/31-35 (368073)
- 37 18 and 36 (596)
- 38 26 or 30 or 37 (9437)
- 39 limit 38 to ed=20131101-20200407 (4977)
- 40 exp Infant/ or Infant Health/ or Infant Welfare/ (1126972)
- 41 (prematu* or pre-matur* or preterm* or pre-term* or infan* or newborn* or new-born* or perinat* or peri-nat* or neonat* or neo-nat* or baby* or babies or toddler*).ti,ab,in,jn. (841252)
- 42 exp Child/ or exp Child Behavior/ or Child Health/ or Child Welfare/ (1893920)
- 43 Minors/ (2562)
- 44 (child* or minor or minors or boy* or girl* or kid or kids or young*).ti,ab,in,jn. (2322124)
- 45 exp pediatrics/ (57315)
- 46 (pediatric* or paediatric* or peadiatric*).ti,ab,in,jn. (817310)
- 47 Adolescent/ or Adolescent Behavior/ or Adolescent Health/ (2001859)
- 48 Puberty/ (13192)
- 49 (adolescen* or pubescen* or prepubescen* or pre-pubescen* or pubert* or prepubert* or pre-pubert* or teen* or preteen* or pre-teen* or juvenil* or youth* or under*age*).ti,ab,in,jn. (415954)
- 50 Schools/ (37290)
- 51 Child Day Care Centers/ or exp Nurseries/ or Schools, Nursery/ (7149)
- 52 (pre-school* or preschool* or kindergar* or daycare or day-care or nurser* or school* or pupil* or student*).ti,ab,jn. (461783)
- 53 ("under 18*" or "under eighteen*" or "under 25*" or "under twenty five*").ti,ab. (3910)
- 54 or/40-53 (5123706)
- 55 38 and 54 (2424)
- 56 39 or 55 (6179)
- 57 limit 56 to english language (5906)
- 58 animals/ not humans/ (4653141)

Medline Strategy, searched 7th April 2020
Database: Ovid MEDLINE(R) <1946 to April 06, 2020>
Search Strategy:

59 57 not 58 (5837)

Systematic and prognosis filters used (see Section 3)

To retrieve evidence on adults that had been published since the search strategies were last run for the former guideline, the search was limited from 2013. No date restrictions were applied to the section of the search strategies on children and young people because this population had not been included in the former guideline.

RQ3.2

- For adults, children and young people with CKD what is the optimal monitoring frequency based on different rates of decline in eGFR?

Table 9: search strategy

Medline Strategy, searched 25th November 2019
Database: Ovid MEDLINE(R) <1946 to November 22, 2019>
Search Strategy:

- 1 exp Renal Insufficiency, Chronic/ (110914)
- 2 ((chronic* or progressi*) adj1 (renal* or kidney*).tw. (71116)
- 3 ((kidney* or renal*) adj1 insufficien*).tw. (21130)
- 4 ckd*.tw. (22151)
- 5 ((kidney* or renal*) adj1 fail*).tw. (85720)
- 6 ((endstage* or end-stage* or "end stage*") adj1 (renal* or kidney*).tw. (34655)
- 7 (esrd* or eskd*).tw. (13917)
- 8 "Chronic Kidney Disease-Mineral and Bone Disorder"/ (3426)
- 9 or/1-8 (209813)
- 10 Glomerular Filtration Rate/ (42656)
- 11 (glomerul* or GFR* or eGFR* or e-GFR*).tw. (155336)
- 12 10 or 11 (168608)
- 13 9 and 12 (34940)

Medline Strategy, searched 25th November 2019
Database: Ovid MEDLINE(R) <1946 to November 22, 2019>
Search Strategy:

- 14 monitor*.ti. (106000)
- 15 disease progression/ (155071)
- 16 (progress* or declin*).ti. (144325)
- 17 or/14-16 (364489)
- 18 13 and 17 (4919)
- 19 prognosis/ (486916)
- 20 time factors/ (1167642)
- 21 ((interval* or every or each or per) adj5 (month* or year* or annual* or annum* or week*)).tw. (350135)
- 22 (treatment adj3 (nonresponse* or failure* or response* or duration or outcome*)).tw,hw. (1097472)
- 23 (predict* adj2 (value* or treatment* or response* or outcome* or factor*)).tw,hw. (369833)
- 24 ((review* or recall* or regular* or periodic*) adj3 (interval* or visit* or revisit* or examin* or attend* or test* or retest*)).tw. (58822)
- 25 (follow* up* or followup*).tw. (883488)
- 26 (management adj (strateg* or protocol* or plan*)).tw. (33349)
- 27 natural histor*.tw. (42099)
- 28 (PPV or NPV).tw. (15156)
- 29 or/19-28 (3573542)
- 30 monitor*.ab,hw. (788975)
- 31 29 and 30 (172713)
- 32 13 and 31 (727)
- 33 18 or 32 (5472)
- 34 limit 33 to english language (5007)
- 35 animals/ not humans/ (4612069)
- 36 34 not 35 (4565)
- 37 limit 36 to ed=20131101-20191125 (2172)
- 38 exp Infant/ or Infant Health/ or Infant Welfare/ (1114678)
- 39 (prematu* or pre-matur* or preterm* or pre-term* or infan* or newborn* or new-born* or perinat* or peri-nat* or neonat* or neo-nat* or baby* or babies or toddler*).ti,ab,in,jn. (827931)

Medline Strategy, searched 25th November 2019
Database: Ovid MEDLINE(R) <1946 to November 22, 2019>
Search Strategy:

- 40 exp Child/ or exp Child Behavior/ or Child Health/ or Child Welfare/ (1869654)
- 41 Minors/ (2545)
- 42 (child* or minor or minors or boy* or girl* or kid or kids or young*).ti,ab,in,jn. (2272993)
- 43 exp pediatrics/ (56538)
- 44 (pediatric* or paediatric* or peadiatric*).ti,ab,in,jn. (795066)
- 45 Adolescent/ or Adolescent Behavior/ or Adolescent Health/ (1972824)
- 46 Puberty/ (13111)
- 47 (adolescen* or pubescen* or prepubescen* or pre-pubescen* or pubert* or prepubert* or pre-pubert* or teen* or preteen* or pre-teen* or juvenil* or youth* or under*age*).ti,ab,in,jn. (406080)
- 48 Schools/ (36306)
- 49 Child Day Care Centers/ or exp Nurseries/ or Schools, Nursery/ (8682)
- 50 (pre-school* or preschool* or kindergar* or daycare or day-care or nurser* or school* or pupil* or student*).ti,ab,jn. (452006)
- 51 ("under 18*" or "under eighteen*" or "under 25*" or "under twenty five*").ti,ab. (3763)
- 52 or/38-51 (5040018)
- 53 36 and 52 (1185)
- 54 37 or 53 (2791)
- 55 Observational Studies as Topic/ (4459)
- 56 Observational Study/ (70244)
- 57 Epidemiologic Studies/ (8151)
- 58 exp Case-Control Studies/ (1034649)
- 59 exp Cohort Studies/ (1924233)
- 60 Cross-Sectional Studies/ (310281)
- 61 Controlled Before-After Studies/ (444)
- 62 Historically Controlled Study/ (164)
- 63 Interrupted Time Series Analysis/ (713)
- 64 Comparative Study.pt. (1846855)
- 65 case control\$.tw. (107499)
- 66 case series.tw. (55509)

Medline Strategy, searched 25th November 2019
Database: Ovid MEDLINE(R) <1946 to November 22, 2019>
Search Strategy:

- 67 (cohort adj (study or studies)).tw. (155859)
- 68 cohort analy\$.tw. (6225)
- 69 (follow up adj (study or studies)).tw. (44027)
- 70 (observational adj (study or studies)).tw. (79587)
- 71 longitudinal.tw. (193720)
- 72 prospective.tw. (474287)
- 73 retrospective.tw. (416121)
- 74 cross sectional.tw. (265653)
- 75 or/55-74 (4228210)
- 76 54 and 75 (1813)

RQ4.1

- In adults, children and young people with CKD, what are the optimal blood pressure ranges for slowing kidney disease progression, and for reducing cardiovascular disease risk and mortality?

Table 10: search strategy

Medline Strategy, searched 15th November 2019
Database: Ovid MEDLINE(R) <1946 to November 15, 2019>
Search Strategy:

- 1 exp Renal Insufficiency, Chronic/ (110868)
- 2 ((chronic* or progressi*) adj1 (renal* or kidney*)).tw. (71049)
- 3 ((kidney* or renal*) adj1 insufficien*).tw. (21124)
- 4 ckd*.tw. (22124)
- 5 ((kidney* or renal*) adj1 fail*).tw. (85702)
- 6 ((endstage* or end-stage* or "end stage*") adj1 (renal* or kidney*)).tw. (34629)
- 7 (esrd* or eskd*).tw. (13916)
- 8 "Chronic Kidney Disease-Mineral and Bone Disorder"/ (3428)
- 9 or/1-8 (209703)
- 10 exp Blood Pressure/ (285504)

Medline Strategy, searched 15th November 2019

Database: Ovid MEDLINE(R) <1946 to November 15, 2019>

Search Strategy:

- 11 ((blood pressure* or bp) adj3 (lower* or control* or decreas* or reduc* or optim* or target* or goal* or rang* or manag* or regulat*)).tw. (82087)
- 12 exp Hypertension/ (249165)
- 13 hypertensi*.tw. (375609)
- 14 or/10-13 (643661)
- 15 9 and 14 (30828)
- 16 randomized controlled trial.pt. (494259)
- 17 randomi?ed.mp. (766734)
- 18 placebo.mp. (189933)
- 19 or/16-18 (817436)
- 20 (MEDLINE or pubmed).tw. (149967)
- 21 systematic review.tw. (107976)
- 22 systematic review.pt. (116423)
- 23 meta-analysis.pt. (107741)
- 24 intervention\$.ti. (116924)
- 25 or/20-24 (352469)
- 26 19 or 25 (1068201)
- 27 15 and 26 (3088)
- 28 limit 27 to english language (2916)
- 29 animals/ not humans/ (4609926)
- 30 28 not 29 (2832)
- 31 limit 30 to yr="2011 -Current" (1372)
- 32 exp Infant/ or Infant Health/ or Infant Welfare/ (1114337)
- 33 (prematu* or pre-matur* or preterm* or pre-term* or infan* or newborn* or new-born* or perinat* or peri-nat* or neonat* or neo-nat* or baby* or babies or toddler*).ti,ab,in,jn. (827677)
- 34 exp Child/ or exp Child Behavior/ or Child Health/ or Child Welfare/ (1868833)
- 35 Minors/ (2544)
- 36 (child* or minor or minors or boy* or girl* or kid or kids or young*).ti,ab,in,jn. (2271661)
- 37 exp pediatrics/ (56493)

Medline Strategy, searched 15th November 2019
Database: Ovid MEDLINE(R) <1946 to November 15, 2019>
Search Strategy:

- 38 (pediatric* or paediatric* or peadiatric*).ti,ab,in,jn. (794431)
- 39 Adolescent/ or Adolescent Behavior/ or Adolescent Health/ (1971780)
- 40 Puberty/ (13103)
- 41 (adolescen* or pubescen* or prepubescen* or pre-pubescen* or pubert* or prepubert* or pre-pubert* or teen* or preteen* or pre-teen* or juvenil* or youth* or under*age*).ti,ab,in,jn. (405675)
- 42 Schools/ (36267)
- 43 Child Day Care Centers/ or exp Nurseries/ or Schools, Nursery/ (8683)
- 44 (pre-school* or preschool* or kindergar* or daycare or day-care or nurser* or school* or pupil* or student*).ti,ab,jn. (451693)
- 45 ("under 18*" or "under eighteen*" or "under 25*" or "under twenty five*").ti,ab. (3762)
- 46 or/32-45 (5037663)
- 47 9 and 46 (45585)
- 48 14 and 26 and 47 (522)
- 49 limit 48 to english language (496)
- 50 animals/ not humans/ (4609926)
- 51 49 not 50 (488)
- 52 31 or 51 (1629)

To retrieve evidence on adults that had been published since the search strategies were last run for the former guideline, the search was limited from 2011. No date restrictions were applied to the section of the search strategies on children and young people because this population had not been included in the former guideline. RCT and systematic reviews filters were used.

RQ5.1 and 5.2

- RQ5.1 For people with stage 4 or 5 CKD who are not on dialysis, which phosphate binder, calcium and non-calcium based, is most effective in managing serum phosphate and its associated outcomes?
- RQ5.2 For people with stage 5 CKD who are on dialysis, which phosphate binder, calcium and non-calcium based, is most effective in managing serum phosphate and its associated outcomes?

Table 11: search strategy

Medline Strategy, searched 9th July 2019

Database: Ovid MEDLINE(R) <1946 to July 08, 2019>

Search Strategy:

- 1 exp Renal Insufficiency, Chronic/ (108298)
- 2 ((chronic* or progressi*) adj1 (renal* or kidney*).tw. (69043)
- 3 ((kidney* or renal*) adj1 insufficien*).tw. (20938)
- 4 ckd*.tw. (20933)
- 5 ((kidney* or renal*) adj1 fail*).tw. (84856)
- 6 ((endstage* or end-stage* or "end stage*") adj1 (renal* or kidney*).tw. (33803)
- 7 (esrd* or eskd*).tw. (13475)
- 8 "Chronic Kidney Disease-Mineral and Bone Disorder"/ (3391)
- 9 or/1-8 (205559)
- 10 Hyperphosphatemia/ (1161)
- 11 hyperphosphat*.tw. (3967)
- 12 or/10-11 (4340)
- 13 9 or 12 (207778)
- 14 (phosph* adj3 bind*).tw. (22695)
- 15 Sevelamer/ (634)
- 16 Lanthanum/ (4688)
- 17 (sevelamer or lanthanum).tw. (4205)
- 18 Calcium Carbonate/ (6965)
- 19 (calcium adj3 (carbonate* or acetate* or alginate* or ketoglutarate*).tw. (7596)
- 20 magnesium carbonate*.tw. (229)
- 21 Aluminum Hydroxide/ (3662)
- 22 aluminum hydroxide*.tw. (1888)
- 23 Sucroferri* oxyhydroxide*.tw. (38)
- 24 ferric citrate*.tw. (539)
- 25 or/14-24 (44934)
- 26 13 and 25 (2687)
- 27 (MEDLINE or pubmed).tw. (142510)
- 28 systematic review.tw. (101620)

Medline Strategy, searched 9th July 2019
Database: Ovid MEDLINE(R) <1946 to July 08, 2019>
Search Strategy:

- 29 systematic review.pt. (108891)
- 30 meta-analysis.pt. (102487)
- 31 intervention\$.ti. (112989)
- 32 or/27-31 (337295)
- 33 randomized controlled trial.pt. (484751)
- 34 randomi?ed.mp. (748162)
- 35 placebo.mp. (186315)
- 36 or/33-35 (798233)
- 37 32 or 36 (1038575)
- 38 26 and 37 (524)
- 39 animals/ not humans/ (4563292)
- 40 38 not 39 (515)
- 41 limit 40 to english language (487)
- 42 limit 41 to ed=20111001-20190709 (228)

The search was limited from 2011 to update the search used for the former guideline.

RCT and systematic reviews filters used (see Section 3)

RQ6.1

- RQ6.1 For people with CKD, what eGFR threshold should trigger investigation of anaemia being due to CKD?

Table 12: search strategy

Medline Strategy, searched 30th September 2019
Database: Ovid MEDLINE(R) <1946 to September 30, 2019>
Search Strategy:

- 1 exp Renal Insufficiency, Chronic/ (109876)
- 2 ((chronic* or progressi*) adj1 (renal* or kidney*)).tw. (70304)
- 3 ((kidney* or renal*) adj1 insufficien*).tw. (21051)
- 4 ckd*.tw. (21691)
- 5 ((kidney* or renal*) adj1 fail*).tw. (85386)

Medline Strategy, searched 30th September 2019
Database: Ovid MEDLINE(R) <1946 to September 30, 2019>
Search Strategy:

- 6 ((endstage* or end-stage* or "end stage*") adj1 (renal* or kidney*).tw. (34322)
- 7 (esrd* or eskd*).tw. (13752)
- 8 "Chronic Kidney Disease-Mineral and Bone Disorder"/ (3420)
- 9 or/1-8 (208144)
- 10 exp Anemia/ (157480)
- 11 (anemi* or anaemi*).tw. (128237)
- 12 10 or 11 (206607)
- 13 Glomerular Filtration Rate/ (42253)
- 14 (glomerul* or GFR* or eGFR* or e-GFR*).tw. (154000)
- 15 13 or 14 (167210)
- 16 9 and 12 and 15 (1624)
- 17 (MEDLINE or pubmed).tw. (146281)
- 18 systematic review.tw. (105227)
- 19 systematic review.pt. (112481)
- 20 meta-analysis.pt. (104971)
- 21 intervention\$.ti. (115205)
- 22 or/17-21 (345425)
- 23 randomized controlled trial.pt. (490055)
- 24 randomi?ed.mp. (758017)
- 25 placebo.mp. (187967)
- 26 or/23-25 (808445)
- 27 exp "Sensitivity and Specificity"/ (561959)
- 28 (sensitivity or specificity).tw. (868561)
- 29 ((pre-test or pretest or post-test) adj probability).tw. (2163)
- 30 (predictive value* or PPV or NPV).tw. (95729)
- 31 likelihood*.tw. (113972)
- 32 exp likelihood functions/ (21383)
- 33 (ROC curve* or AUC).tw. (70677)

Medline Strategy, searched 30th September 2019

Database: Ovid MEDLINE(R) <1946 to September 30, 2019>

Search Strategy:

- 34 (diagnos* adj2 (performance* or accurac* or utilit* or value* or valid* or efficien* or effectiveness)).tw. (92822)
 - 35 (reference or gold standard).tw. (379756)
 - 36 (sensitiv: or diagnos:).mp. or di.fs. (5526051)
 - 37 validation studies/ (96758)
 - 38 validation studies as topic/ (2066)
 - 39 or/27-38 (6169173)
 - 40 Cross sectional.tw. (260714)
 - 41 Cross-sectional studies/ (304705)
 - 42 40 or 41 (375348)
 - 43 22 or 26 or 39 or 42 (7156166)
 - 44 16 and 43 (856)
 - 45 limit 44 to english language (727)
 - 46 animals/ not humans/ (4587128)
 - 47 45 not 46 (706)
- RCT, systematic review and diagnosis filters used (see Section 3)

RQ7.1

- RQ7.1 What should be the aspirational blood haemoglobin (Hb) target range for children and young people undergoing treatment for anaemia in CKD?

Table 13: search strategy

Medline Strategy, searched 27th June 2019

Database: Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations <1946 to June 26, 2019>

Search Strategy:

- 1 exp Renal Insufficiency, Chronic/ (108136)
- 2 ((chronic* or progressi*) adj1 (renal* or kidney*)).tw. (79151)
- 3 ((kidney* or renal*) adj1 insufficien*).tw. (22147)
- 4 ckd*.tw. (25833)
- 5 ((kidney* or renal*) adj1 fail*).tw. (91631)

Medline Strategy, searched 27th June 2019

Database: Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations <1946 to June 26, 2019>

Search Strategy:

- 6 ((endstage* or end-stage* or "end stage*") adj1 (renal* or kidney*)).tw. (38893)
- 7 (esrd* or eskd*).tw. (15633)
- 8 "Chronic Kidney Disease-Mineral and Bone Disorder"/ (3385)
- 9 or/1-8 (225307)
- 10 exp Anemia/ (156463)
- 11 (anemi* or anaemi*).tw. (140887)
- 12 10 or 11 (218816)
- 13 9 and 12 (13867)
- 14 exp Hemoglobins/ (122231)
- 15 (haemoglobin* or hemoglobin* or hb or hgb).tw. (174051)
- 16 14 or 15 (222628)
- 17 13 and 16 (4146)
- 18 (MEDLINE or pubmed).tw. (177769)
- 19 systematic review.tw. (131097)
- 20 systematic review.pt. (108831)
- 21 meta-analysis.pt. (102276)
- 22 intervention\$.ti. (134941)
- 23 or/18-22 (406199)
- 24 randomized controlled trial.pt. (484558)
- 25 randomi?ed.mp. (825342)
- 26 placebo.mp. (205282)
- 27 or/24-26 (882194)
- 28 23 or 27 (1175980)
- 29 17 and 28 (703)
- 30 exp Infant/ or Infant Health/ or Infant Welfare/ (1100278)
- 31 (prematu* or pre-matur* or preterm* or pre-term* or infan* or newborn* or new-born* or perinat* or peri-nat* or neonat* or neo-nat* or baby* or babies or toddler*).ti,ab,in,jn. (897689)
- 32 exp Child/ or exp Child Behavior/ or Child Health/ or Child Welfare/ (1841806)

Medline Strategy, searched 27th June 2019

Database: Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations <1946 to June 26, 2019>

Search Strategy:

- 33 Minors/ (2508)
 - 34 (child* or minor or minors or boy* or girl* or kid or kids or young*).ti,ab,in,jn. (2547177)
 - 35 exp pediatrics/ (55449)
 - 36 (pediatric* or paediatric* or peadiatric*).ti,ab,in,jn. (894207)
 - 37 Adolescent/ or Adolescent Behavior/ or Adolescent Health/ (1941110)
 - 38 Puberty/ (13001)
 - 39 (adolescen* or pubescen* or prepubescen* or pre-pubescen* or pubert* or prepubert* or pre-pubert* or teen* or preteen* or pre-teen* or juvenil* or youth* or under*age*).ti,ab,in,jn. (459391)
 - 40 Schools/ (35244)
 - 41 Child Day Care Centers/ or exp Nurseries/ or Schools, Nursery/ (8597)
 - 42 (pre-school* or preschool* or kindergar* or daycare or day-care or nurser* or school* or pupil* or student*).ti,ab,jn. (514111)
 - 43 ("under 18*" or "under eighteen*" or "under 25*" or "under twenty five*").ti,ab. (4257)
 - 44 or/30-43 (5424666)
 - 45 29 and 44 (98)
 - 46 limit 45 to english language (95)
- RCT and systematic reviews filters used (see Section 3)

RQ8.1

- RQ8.1 For people with stage 5 chronic kidney disease (CKD) who are on dialysis, what amount of intravenous (IV) iron is most clinically and cost effective in managing anaemia and its associated outcomes?

Table 14: search strategy

Medline Strategy, searched 17th June 2019

Database: Ovid MEDLINE(R) <1946 to June 14, 2019>

Search Strategy:

- 1 exp Renal Insufficiency, Chronic/ (107959)
- 2 ((chronic* or progressi*) adj1 (renal* or kidney*)).tw. (68743)
- 3 ((kidney* or renal*) adj1 insufficien*).tw. (20908)
- 4 ckd*.tw. (20780)
- 5 ((kidney* or renal*) adj1 fail*).tw. (84732)
- 6 ((endstage* or end-stage* or "end stage*") adj1 (renal* or kidney*)).tw. (33680)

Medline Strategy, searched 17th June 2019

Database: Ovid MEDLINE(R) <1946 to June 14, 2019>

Search Strategy:

- 7 (esrd* or eskd*).tw. (13435)
- 8 "Chronic Kidney Disease-Mineral and Bone Disorder"/ (3381)
- 9 or/1-8 (204989)
- 10 exp Renal Replacement Therapy/ (197090)
- 11 (haemodialys* or hemodialys* or dialys* or predialys* or pre-dialys*).tw. (138733)
- 12 ((kidney* or renal*) adj1 replac*).tw. (10604)
- 13 or/10-12 (244846)
- 14 9 or 13 (360946)
- 15 exp Anemia/ (156350)
- 16 (anemi* or anaemi*).tw. (126939)
- 17 15 or 16 (204816)
- 18 exp Administration, Intravenous/ (139586)
- 19 (iv or i-v or intraven*).tw. (630829)
- 20 18 or 19 (685027)
- 21 iron/ (90665)
- 22 exp iron compounds/ (67132)
- 23 (iron or ferric or ferrous or ferritin*).tw. (164632)
- 24 (ferumoxytol or rienso or fersaday or galfer or ferrosuccinate or fefol or feospan or ferinject or cosmofer or monofer or venofer).tw. (371)
- 25 or/21-24 (227574)
- 26 20 and 25 (10956)
- 27 14 and 17 and 26 (1110)
- 28 randomized controlled trial.pt. (483592)
- 29 randomi?ed.mp. (745900)
- 30 placebo.mp. (185889)
- 31 or/28-30 (795884)
- 32 (MEDLINE or pubmed).tw. (141527)
- 33 systematic review.tw. (100773)
- 34 systematic review.pt. (107996)
- 35 meta-analysis.pt. (101875)
- 36 intervention\$.ti. (112431)
- 37 or/32-36 (335269)
- 38 31 or 37 (1034745)
- 39 27 and 38 (243)
- 40 animals/ not humans/ (4556558)
- 41 39 not 40 (242)
- 42 limit 41 to english language (231)

RCT and systematic reviews filters used

Study Design Filters

Study design filters

The study filters and limiting search strategies used as part of the literature searches are presented below.

RCT

- 1 randomized controlled trial.pt.
- 2 randomi?ed.mp.
- 3 placebo.mp.
- 4 or/1-3

Source:

[McMaster Therapy – Medline](#) - “best balance of sensitivity and specificity” version.

Haynes RB et al. (2005) [Optimal search strategies for retrieving scientifically strong studies of treatment from Medline: analytical survey](#). *BMJ*, 330, 1179-1183.

Systematic Review

- 1 MEDLINE or pubmed).tw.
- 2 systematic review.tw.
- 3 systematic review.pt.
- 4 meta-analysis.pt.
- 5 intervention\$.ti.
- 6 or/1-5

Source:

Lee, E. et al. (2012) [An optimal search filter for retrieving systematic reviews and meta-analyses](#). *BMC Medical Research Methodology*, 12(1), 51.

In MEDLINE, the standard NICE modifications were used: pubmed.tw added; systematic review.pt added from MeSH update 2019.

Prognosis

- 1 prognosis.sh.
- 2 diagnosed.tw.
- 3 cohort.mp.
- 4 predictor:.tw.
- 5 death.tw.
- 6 exp models, statistical/
- 7 or/1-6

Source:

Wilczynski NL, Haynes RB; The Hedges Team. [Developing optimal search strategies for detecting clinically sound prognostic studies in MEDLINE](#). *BMC Medicine*. 2004;2:23 (5 pages). Optimal version used in both MEDLINE and Embase (Optimal version)

Health economics search strategies

Economic evaluations and quality of life data

Sources searched to identify economic evaluations

- Econlit (Ovid)
- Embase (Ovid)
- HTA database (CRD)
- MEDLINE (Ovid)
- MEDLINE In-Process (Ovid)
- NHS EED (Wiley)

Search filters to retrieve economic evaluations and quality of life papers were appended to the MEDLINE and Embase searches reported above. The searches were conducted between June 2019 and April 2020. The searches were re-run in September 2020.

Table 8: Economic evaluation and quality of life filters

Medline Strategy	
Economic evaluations	
1	Economics/
2	exp "Costs and Cost Analysis"/
3	Economics, Dental/
4	exp Economics, Hospital/
5	exp Economics, Medical/
6	Economics, Nursing/
7	Economics, Pharmaceutical/
8	Budgets/
9	exp Models, Economic/
10	Markov Chains/
11	Monte Carlo Method/
12	Decision Trees/
13	econom\$.tw.
14	cba.tw.
15	cea.tw.
16	cua.tw.
17	markov\$.tw.
18	(monte adj carlo).tw.
19	(decision adj3 (tree\$ or analys\$)).tw.
20	(cost or costs or costing\$ or costly or costed).tw.
21	(price\$ or pricing\$).tw.
22	budget\$.tw.
23	expenditure\$.tw.
24	(value adj3 (money or monetary)).tw.
25	(pharmacoeconomic\$ or (pharmaco adj economic\$)).tw.
26	or/1-25

Medline Strategy

The economics filter above was adapted from the following: Glanville J et al. (2009) [Development and Testing of Search Filters to Identify Economic Evaluations in MEDLINE and EMBASE](#). Alberta: Canadian Agency for Drugs and Technologies in Health (CADTH)

Several modifications have been made to the filter over the years that are standard NICE practice.

Quality of life

- 1 "Quality of Life"/
- 2 quality of life.tw.
- 3 "Value of Life"/
- 4 Quality-Adjusted Life Years/
- 5 quality adjusted life.tw.
- 6 (qaly\$ or qald\$ or qale\$ or qtime\$).tw.
- 7 disability adjusted life.tw.
- 8 daly\$.tw.
- 9 Health Status Indicators/
- 10 (sf36 or sf 36 or short form 36 or shortform 36 or sf thirtysix or sf thirty six or shortform thirtysix or shortform thirty six or short form thirtysix or short form thirty six).tw.
- 11 (sf6 or sf 6 or short form 6 or shortform 6 or sf six or sfsix or shortform six or short form six).tw.
- 12 (sf12 or sf 12 or short form 12 or shortform 12 or sf twelve or sftwelve or shortform twelve or short form twelve).tw.
- 13 (sf16 or sf 16 or short form 16 or shortform 16 or sf sixteen or sfsixteen or shortform sixteen or short form sixteen).tw.
- 14 (sf20 or sf 20 or short form 20 or shortform 20 or sf twenty or sftwenty or shortform twenty or short form twenty).tw.
- 15 (euroqol or euro qol or eq5d or eq 5d).tw.
- 16 (qol or hql or hqol or hrqol).tw.
- 17 (hye or hyes).tw.
- 18 health\$ year\$ equivalent\$.tw.
- 19 utilit\$.tw.
- 20 (hui or hui1 or hui2 or hui3).tw.
- 21 disutili\$.tw.
- 22 rosser.tw.
- 23 quality of wellbeing.tw.
- 24 quality of well-being.tw.
- 25 qwb.tw.
- 26 willingness to pay.tw.
- 27 standard gamble\$.tw.
- 28 time trade off.tw.
- 29 time tradeoff.tw.
- 30 tto.tw.
- 31 or/1-30

