

## Appendix S1

### Search strategy

Ovid MEDLINE(R) ALL <1946 to October 06, 2022>

#### Medline

1	exp smoking/ or Smokers/	616696	
2	(smoking or smoker* or tobacco usage or "tobacco use" or cigarette*).tw,kf.		795947
3	1 or 2	954726	
4	(male* and female*).tw,kf.	1422627	
5	((sex or gender) adj2 (difference* or disparit*)).tw.		227684
6	sex* dimorph*.tw,kf.	37016	
7	(gender difference* or gender disparit*).kw.	12034	
8	(sex or gender).ti.	359929	
9	(gender based or gender specific).tw,kw.	41479	
10	Sex Factors/	290947	
11	Sex Characteristics/	63305	
12	(sex dependent or sex factor* or sex characteristic*).tw,kf.		21801
13	or/4-12	1963943	
14	3 and 13	88495	
15	exp Renal Insufficiency, Chronic/	268704	
16	(chronic adj2 (renal or kidney) adj3 (disease* or insufficienc* or failure)).tw,kf.		259103
17	ckd.tw,kf.	113025	
18	(end stage renal or end stage kidney).tw,kf.	124634	
19	esrd.tw,kf.	52605	
20	exp Renal Dialysis/	256083	
21	dialysis.tw,kf.	303583	
22	Albuminuria/	38070	
23	Albuminuria.tw,kf.	34580	
24	Glomerular Filtration Rate/	121237	
25	Creatinine/	296510	
26	Creatinine.tw,kf.	349307	
27	Nephrosis/	8961	
28	nephrosis.tw,kf.	10893	
29	Nephrotic Syndrome/	48825	
30	Nephrotic Syndrome*.tw,kf.	49833	
31	Kidney Glomerulus/	55903	
32	Glomerulonephritis/	67130	
33	glomerulonephritis.tw,kf.	75209	
34	eskd.tw,kf.	6216	
35	(glomerular filtration rate or egfr).tw,kf.	304654	
36	h?emodialysis.tw,kf.	215341	
37	or/15-36	1559997	

38 14 and 37 5203  
 39 exp animals/ not humans/ 17337966  
 40 38 not 39 3972  
 41 limit 40 to english language 3727  
 42 **41 use medall 1556**

## Embase

43 smoking/ or "tobacco use"/ or smoking habit/ or cigarette smoke/ or cigarette/ or cigarette  
 smoking/ 618541  
 44 (smoking or smoker\* or tobacco usage or "tobacco use" or cigarette\*).tw. 790476  
 45 43 or 44 949283  
 46 (male\* and female\*).tw. 1420205  
 47 ((sex or gender) adj2 (difference\* or disparit\*)).tw. 227684  
 48 sex\* dimorph\*.tw. 34884  
 49 (sex or gender).ti. 359929  
 50 (gender based or gender specific).tw. 41422  
 51 \*sex factor/ or sex difference/ 502184  
 52 sex dependent.tw. 13412  
 53 \*sexual characteristics/ 1371  
 54 (sex dependent or sex factor\* or sex characteristic\*).tw. 17039  
 55 or/46-54 2023834  
 56 45 and 55 97233  
 57 exp chronic kidney failure/ 237973  
 58 (chronic adj2 (kidney or renal) adj3 (disease\* or failure\* or insufficienc\*)).tw. 246669  
 59 ckd.tw. 110960  
 60 (end stage renal or end stage kidney or esrd or eskd).tw. 133081  
 61 exp \*hemodialysis/ 148766  
 62 (dialysis or h?emodialysis).tw. 418128  
 63 \*albuminuria/ 12455  
 64 Albuminuria.tw. 32599  
 65 exp \*glomerulus filtration rate/ 16857  
 66 (Glomerular Filtration Rate or egfr).tw. 299384  
 67 \*creatinine/ 22562  
 68 Creatinine.tw. 346978  
 69 \*nephrosis/ 4732  
 70 Nephrosis.tw. 9790  
 71 \*nephrotic syndrome/ 29906  
 72 Nephrotic Syndrome\*.tw. 48051  
 73 \*glomerulus/ 9046  
 74 \*glomerulonephritis/ or \*chronic glomerulonephritis/ 40679  
 75 Glomerulonephritis.tw. 71356  
 76 or/57-75 1353375  
 77 56 and 76 5651

78	(exp animals/ or animal experimentation/) not exp humans/	11158265
79	conference abstract.pt.	4559436
80	77 not (78 or 79)	3971
81	limit 80 to english language	3658
82	<b>81 use emczd 2565</b>	
83	42 or 82	4121



# PRISMA 2020 Checklist

Section and Topic	Item #	Checklist item	Location where item is reported
<b>TITLE</b>			
Title	1	Identify the report as a systematic review.	1
<b>ABSTRACT</b>			
Abstract	2	See the PRISMA 2020 for Abstracts checklist.	2
<b>INTRODUCTION</b>			
Rationale	3	Describe the rationale for the review in the context of existing knowledge.	4
Objectives	4	Provide an explicit statement of the objective(s) or question(s) the review addresses.	5
<b>METHODS</b>			
Eligibility criteria	5	Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses.	19
Information sources	6	Specify all databases, registers, websites, organisations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.	5
Search strategy	7	Present the full search strategies for all databases, registers and websites, including any filters and limits used.	41
Selection process	8	Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process.	5
Data collection process	9	Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process.	5
Data items	10a	List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g. for all measures, time points, analyses), and if not, the methods used to decide which results to collect.	6
	10b	List and define all other variables for which data were sought (e.g. participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information.	6
Study risk of bias assessment	11	Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process.	6
Effect measures	12	Specify for each outcome the effect measure(s) (e.g. risk ratio, mean difference) used in the synthesis or presentation of results.	n/a
Synthesis methods	13a	Describe the processes used to decide which studies were eligible for each synthesis (e.g. tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5)).	n/a
	13b	Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions.	n/a
	13c	Describe any methods used to tabulate or visually display results of individual studies and syntheses.	n/a
	13d	Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used.	n/a
	13e	Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression).	n/a
	13f	Describe any sensitivity analyses conducted to assess robustness of the synthesized results.	n/a
Reporting bias assessment	14	Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases).	6
Certainty assessment	15	Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome.	6



# PRISMA 2020 Checklist

Section and Topic	Item #	Checklist item	Location where item is reported
<b>RESULTS</b>			
Study selection	16a	Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram.	6
	16b	Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded.	n/a
Study characteristics	17	Cite each included study and present its characteristics.	20
Risk of bias in studies	18	Present assessments of risk of bias for each included study.	39
Results of individual studies	19	For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (e.g. confidence/credible interval), ideally using structured tables or plots.	n/a
Results of syntheses	20a	For each synthesis, briefly summarise the characteristics and risk of bias among contributing studies.	6
	20b	Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g. confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect.	n/a
	20c	Present results of all investigations of possible causes of heterogeneity among study results.	n/a
	20d	Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results.	n/a
Reporting biases	21	Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed.	n/a
Certainty of evidence	22	Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed.	n/a
<b>DISCUSSION</b>			
Discussion	23a	Provide a general interpretation of the results in the context of other evidence.	8
	23b	Discuss any limitations of the evidence included in the review.	11
	23c	Discuss any limitations of the review processes used.	11
	23d	Discuss implications of the results for practice, policy, and future research.	11
<b>OTHER INFORMATION</b>			
Registration and protocol	24a	Provide registration information for the review, including register name and registration number, or state that the review was not registered.	5
	24b	Indicate where the review protocol can be accessed, or state that a protocol was not prepared.	5
	24c	Describe and explain any amendments to information provided at registration or in the protocol.	n/a
Support	25	Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review.	11
Competing interests	26	Declare any competing interests of review authors.	11
Availability of data, code and other materials	27	Report which of the following are publicly available and where they can be found: template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review.	12

From: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ* 2021;372:n71. doi: 10.1136/bmj.n71

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