Appendices

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Poster presentation: EE60
Title: An overview of systematic reviews of economic evaluations (SREEs) on cancer screening: landscape, quality and recommendations
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Appendix I – Search strategies

A) Search strategy for Medline via Ovid®

Concept	No.	Search	Adapted from
Economic evaluation	1	(Cost Benefit Analys* or CBA).ti,ab. or exp Cost-Benefit Analysis/	Viscondi et al. (2018)
	2	Cost* analys*.ti,ab. or exp "Costs and Cost Analysis"/	
	3	(Cost effectiveness or CEA or cost-utility analys* or CUA or cost benefit analys* or CBA).ti,ab.	
	4	Econ* evaluat*.ti,ab.	
	5	(economic adj2 (analys?s or Evaluation)).ti,ab.	
	6	(benefit or effectiveness or utility) adj2 (analys* or evaluation).ti,ab.	
	7	exp Models, economic/ or exp Economics/ or exp Economics, medical/ or exp Decision trees/ or exp Budgets/	Kwon et al. (2022)
	8	1 or 2 or 3 or 4 or 5 or 6 or 7 or 8	
Systematic Review	9	Systematic review*.ti,ab.	Azar et al. (2017); Howard-Wilsher et al. (2016)
	10	Meta-analys?s.ti,ab.	
	11	(((((exp meta analysis/ or meta.mp.) adj1 analy*.mp.) or metaanaly*.mp. or exp systematic review/ or systematic.mp.) adj1 review*.mp.) or systematic.mp.) adj1 overview*.ti,ab.	Avau et al. (2021)
	12	9 or 10 or 11	
Screening	13	"early detection of cancer".ti,ab. or exp "Early Detection of Cancer"/ or exp Mass Screening/	Viscondi et al. (2018)
	14	(early adj2 detection).ti,ab.	
	15	(cancer adj2 screening).ti,ab.	

	16	((screening* or rescreen* or prescreen* or (diagnos* or detect*)) adj2 (early or prevent* or imag*)).ti,ab.	Mohan and Chattopadhyay (2020)
	17	13 or 14 or 15 or 16	
Cancer	18	exp cancer/	Chad-Friedman et al. (2017); Mohan and Chattopadhyay (2020)
	19	(cancer* or neoplas* or malig* or tumor* or tumour or carcinoma* or sarcoma* or adeno*).ti,ab.	
	20	18 or 19	
	21	8 and 12 and 17 and 20	
Limitations	22	limit 21 to (english language and yr="2012 - Current")	

B) Search strategy for Embase via Ovid®

Concepts	**No.**	**Search**	**Adapted from**
Economic Evaluation	1	(cost effectiveness or cost-effectiveness).ti,ab.	Viscondi et al. (2018)
	2	exp "cost effectiveness analysis"/	
	3	"cost benefit analys*".ti,ab.	
	4	exp "cost benefit analysis"/	
	5	"cost utility analys*".ti,ab.	
	6	exp "cost utility analysis"/	
	7	econ* evaluat*.ti,ab. or exp economic evaluation/	
	8	((benefit or effectiveness or utility).ti,ab.) adj2 (analys?s.ti,ab. or exp evaluation/ or evaluation.ti,ab.)	
	9	exp Models, economic/ or exp Economics/ or exp Economics, medical/ or exp Decision trees/ or exp Budgets/	Kwon et al. (2022)
	10	1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10	
Systematic review	11	(((exp 'meta analysis'/ or meta.mp.) adj1 analy*.mp.) or metaanaly*.mp. or exp 'systematic review'/ or systematic.mp.) adj1 review*.ti,ab.	Avau et al. (2021); Azar et al. (2017)
Screening	12	exp 'cancer screening'/	Viscondi et al. (2018)
	13	cancer.ti,ab. and (exp 'screening'/ or screening.ti,ab.)	
	14	exp 'early diagnosis'/	
	15	exp 'mass screening'/	
	16	mass.ti,ab. adj2 (exp 'screening'/ or screening.ti,ab.)	

	17	((screening* or rescreen* or prescreen* or (diagnos* or detect*)) adj2 (early or prevent* or imag*)).ti,ab. or exp Mass Screening/ or exp "Early Detection of Cancer"/	Mohan and Chattopadhyay (2020)
	18	12 or 13 or 14 or 15 or 16 or 17	
Cancer	19	exp 'cancer'/	Chad-Friedman et al. (2017); Mohan and Chattopadhyay (2020)
	20	(cancer* or neoplas* or malig* or tumor* or tumour or carcinoma* or sarcoma* or adeno*).ti,ab.	
	21	19 or 20	
	22	10 and 11 and 18 and 21	
Limitations	23	limit 23 to (english language and yr="2012 - Current")	

C) Search strategy for EconLit via ProQuest

Concepts	**Search**	**Adapted from**
Economic Evaluation	N/A for EconLit	Seefat et al. (2021)
AND		
Systematic review	Systematic review* or Systematic overview* or Review literature or Meta-analys?s or meta analy* or metaanaly	Avau et al. (2021); Azar et al. (2017)
AND		
Screening	cancer screening or early diagnosis or mass screening or screening* or rescreen* or prescreen* or diagnos* or detect* or early or prevent* or imag* or early detection of cancer	Mohan and Chattopadhyay (2020); Viscondi et al. (2018)
AND		
Cancer	cancer* or neoplasm* or neoplasia* or malig* or tumor* or tumour or carcinoma* or sarcoma* or adeno*	Chad-Friedman et al. (2017); Mohan and Chattopadhyay (2020)
AND		
Exclusions	Additional limits - Date: From 2012 to 2022; Language: English	

D) Search strategy for NHS Economic Database (NHSEED)

Search

((systematic review or systematic reviews or meta analysis or meta-analysis) AND (Cancer) AND (Screening)) and ((Economic evaluation:ZDT and Bibliographic:ZPS) OR (Economic evaluation:ZDT and Abstract:ZPS) OR Project record:ZDT OR Full publication record:ZDT) IN NHSEED, HTA FROM 2012 TO 2022

Reference list for appendix I

Avau, B., Van Remoortel, H., & De Buck, E. (2021). Translation and validation of PubMed and Embase search filters for identification of systematic reviews, intervention studies, and observational studies in the field of first aid. *J Med Libr Assoc*, *109*(4), 599-608. https://doi.org/10.5195/jmla.2021.1219

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Kwon, J., Squires, H., Franklin, M., Lee, Y., & Young, T. (2022). Economic evaluation of community-based falls prevention interventions for older populations: a systematic methodological overview of systematic reviews. *BMC Health Services Research*, *22*(1), 401. https://doi.org/10.1186/s12913-022-07764-2

Mohan, G., & Chattopadhyay, S. (2020). Cost-effectiveness of Leveraging Social Determinants of Health to Improve Breast, Cervical, and Colorectal Cancer Screening: A Systematic Review. (2374-2445 (Electronic)).

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Viscondi, J. Y. K., Faustino, C. G., Campolina, A. G., Itria, A., & Soárez, P. C. d. (2018). Simple but not simpler: a systematic review of Markov models for economic evaluation of cervical cancer screening. *Clinics*, *73*, e385. https://doi.org/https://doi.org/10.6061/clinics/2018/e385

Appendix II - Completeness of reporting based on the key data fields that should be extracted by SREEs of cancer screening

Reported data fields	Hanly (2012)	Howard (2012)	Ruggeri (2012)	Kriza (2013)	Areia (2013)	Skally (2013)	Rashidian (2013)	Xiong (2013)	Yoo (2013)	Nahvijou (2014)	Lao (2015)	Wong (2016)	Raymakers (2016)	Mezei (2017)	Schiller-Fruhwirth (2017)	Sanghera (2018)	Mendivil (2019)	Ran (2019)	Khalili (2020)	Canakis (2020)	Rezapour (2020)	Sroczynski (2020)	Muhlberger (2020)	Khan (2021)	Nguyen (2021)	Sarmasti (2021)	Thankappan (2021)	Grover (2022)	Wang (2022)	Li (2022)	To
(A) Setting, population and evaluation framework																															
1. Author, publication year	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	29
2. Country or region	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	28
3. Study design (e.g. model, RCT etc.)	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	29
4. Target population residence	0	1	0	1	0	0	0	0	0	0	0	1	0	1	1	1	1	0	0	1	0	0	0	1	1	1	1	0	0	0	12
5. Target population age, sex	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	30
6. Type of analysis (e.g. CEA, CUA, CBA etc.)	0	1	1	1	1	0	1	1	0	0	0	1	0	0	1	0	1	0	0	1	1	1	1	1	1	1	1	1	0	0	18
7. Perspective (e.g. public sector, societal etc.)	0	1	1	1	0	1	1	1	0	0	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	24
8. Time horizon / follow-up period	1	1	1	1	0	1	0	1	0	0	1	1	1	0	1	1	1	1	1	1	0	1	1	1	1	1	0	1	1	1	23
9. Discount rate	0	1	0	0	0	1	0	1	0	1	0	1	1	1	1	0	1	1	1	0	1	1	1	1	1	1	1	1	1	1	21
Number of fields	5	9	7	8	5	7	6	6	4	4	6	9	7	6	9	7	9	7	6	7	7	8	8	9	9	8	9	8	7	7	
(B) Cancer epidemiology																															
1. Cancer type	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	30
2. Population risk factors (e.g. age, history, prevalence)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	0	1	1	1	1	28
3. Health utility/outcome measurement (e.g. DALY, QALY etc.)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	30
4. Non-health outcomes	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	1	4
5. Health consequence types	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	3
6. Societal consequence types	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
7. All-cause morbidity costs	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	1	6
8. Cost measurement method in RCT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of fields	4	4	3	3	3	4	3	3	3	3	3	3	5	3	4	3	3	2	5	4	3	3	3	4	3	2	4	3	3	7	
(C) Screening																															
1. Screening type	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	30
2. Screening components (steps, pathway)	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	1	1	0	8
3. Screening duration or frequency	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	28
4. Professional staff involved in pathway	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5. Comparator	1	1	1	1	0	1	1	1	1	0	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	27
6. Recruitment method/setting	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	3
7. Risk identification method	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	1	1	1	0	7
8. Resource used in screening pathway	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	1	0	0	0	1	0	0	6
9. Total cost of screening	1	1	1	1	0	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	27
10. Societal resource cost (indirect)	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	1	0	4
11. Coverage, adherance, participation, uptake	1	1	0	1	0	1	0	0	0	0	0	0	1	0	0	1	1	0	0	0	0	1	0	1	0	0	1	1	0	11
12. Sample size	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	5
13. Screening sensitivity/specificity	1	1	0	1	0	1	0	1	1	0	0	0	1	1	0	0	1	1	0	0	1	0	0	0	1	1	0	1	1	1	16
14. Overdiagnosis, overtreatment, lead-time bias	1	0	0	1	0	0	0	0	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	1	1	1	0	0	1	1	0	0	10
Number of fields	7	10	4	8	3	7	4	5	5	3	4	4	5	7	3	6	10	6	5	6	5	5	6	8	9	4	8	11	8	5	
(D) Decision model features																															
1. Model type	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	29
2. Model data sources	0	1	0	0	0	1	1	1	1	0	0	1	0	0	0	0	1	0	1	1	0	0	0	1	1	0	1	1	0	0	13
3. Characterising baseline risk of cancer	0	1	1	1	0	1	0	1	1	0	0	0	0	0	0	0	1	0	1	1	0	0	0	1	0	0	0	1	0	0	11
Number of fields	1	3	2	2	1	3	2	3	3	0	1	2	0	1	1	1	3	1	3	3	1	1	1	3	2	1	2	3	1	1	
(E) Evaluation methods and results																															
1. Cost-per-unit ratio (e.g. ICER, NMB)	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	29
2. Aggregate costs (e.g. total costs) and health outcomes (e.g. life-years gained (LYG), QALYs, DALYs)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	29
3. Original currency type	1	1	1	1	1	1	1	0	0	0	1	1	1	1	1	1	1	0	1	1	1	1	0	0	1	1	1	1	1	1	24
4. Costs converted into the same currency	1	0	0	0	0	0	1	0	0	1	0	1	1	1	0	0	0	1	1	0	0	1	1	1	1	0	0	0	1	0	13
5. Subgroup/targeting methods/results	1	1	0	1	1	0	1	0	1	0	1	0	0	0	1	0	1	0	1	1	1	1	0	1	1	1	0	0	0	1	17
6. Handling parameter uncertainty (e.g. deterministic or probabilistic sensitivity analysis)	1	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	25
7. Scenario analysis methods/results	1	1	0	1	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	1	1	1	0	0	1	1	14
8. Equity analysis methods/results	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9. Quality checklist	1	0	0	1	1	1	1	0	1	1	1	1	0	0	0	0	1	1	1	1	1	1	0	1	1	1	1	1	1	1	22
Number of fields	8	6	4	7	7	5	6	3	3	4	6	6	5	5	5	3	7	4	7	6	7	8	5	7	8	7	5	5	7	7	
(F) Discussions by evaluation authors																															
1. Generalisability and policy implementation	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	29
2. Strengths and limitations	0	0	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	26
Number of fields	1	1	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	1	2	2	2	2	1	2	2	2	2	
Total number of fields	26	33	22	30	21	28	23	22	20	16	21	26	24	24	24	22	34	22	28	28	24	27	25	33	33	23	30	32	28	29	
Result *	P	Y	P	P	P	P	P	P	N	N	P	P	P	P	P	P	Y	P	P	P	P	P	P	Y	Y	P	P	Y	P	P	

Abbreviations: **CBA**, cost-benefit analysis; **CEA**, cost-effectiveness analysis; **CUA**, cost-utility analysis; DALY, disability adjusted life-year; ICER, incremental cost-effectiveness ratio; **NMB**, net monetary benefit; **QALY**, quality adjusted life-year; **RCT**, randomised controlled trial; **SD**, standard deviation.

Appendix III – AMSTAR-2 summary

Item	Hanly (2012)	Howard (2012)	Ruggeri (2012)	Kriza (2013)	Areia (2013)	Skally (2013)	Rashidian (2013)	Yoo (2013)	Nahvijou (2014)	Lao (2015)	Wong (2016)	Raymakers (2016)	Mezei (2017)	Schiller-Fruhwirth (2017)	Xiong (2017)	Sanghera (2018)	Mendivil (2019)	Ran (2019)	Khalili (2020)	Canakis (2020)	Rezapour (2020)	Sroczynski (2020)	Muhlberger (2020)	Khan (2021)	Nguyen (2021)	Sarmasti (2021)	Thankappan (2021)	Grover (2022)	Wang (2022)	Li (2022)
Q1	P	P	P	Y	P	Y	P	N	Y	P	P	P	Y	Y	P	N	Y	Y	Y	N	Y	P	Y	Y	Y	P	P	P	P	Y
Q2	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	N	N	N	N	Y	N	Y	N	N	N	Y	N	Y	Y	N	Y
Q3	N	N	N	N	N	N	P	N	Y	N	N	N	N	Y	N	N	Y	P	N	N	N	Y	N	N	N	N	N	N	N	N
Q4	Y	P	N	P	Y	P	Y	P	P	P	P	P	Y	Y	P	P	P	Y	Y	P	P	P	P	P	Y	P	P	Y	P	P
Q5	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Q6	Y	N	N	Y	N	Y	Y	N	Y	N	N	N	N	N	N	N	N	N	N	N	Y	N	Y	N	N	N	Y	Y	Y	N
Q7	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Q8	P	Y	P	P	P	P	P	N	N	P	P	P	P	P	P	P	Y	P	P	P	P	P	P	Y	Y	P	P	Y	P	P
Q9	N	N	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	N	N	N	N	N	N	N	N	Y
Q10	N	N	N	N	N	N	N	N	N	N	Y	N	Y	N	N	N	N	N	N	N	P	N	N	N	N	N	N	N	N	N
Q11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Q12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Q13	Y	N	N	N	N	N	N	Y	Y	N	Y	Y	N	Y	Y	N	Y	N	N	N	Y	Y	N	Y	N	P	N	Y	Y	N
Q14	Y	N	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	N	N	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y
Q15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Q16	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	N	Y
Number of 'Partial Yes'	2	2	2	2	2	2	3	1	1	3	3	3	1	0	3	2	1	2	1	2	3	3	2	1	0	4	3	1	3	2
Number of 'Yes'	6	2	2	4	5	5	5	4	7	2	5	4	6	9	3	2	7	5	5	3	8	5	5	6	7	3	4	8	3	6
% Partial or Yes	61.5	30.8	30.8	46.2	53.8	53.8	61.5	38.5	61.5	38.5	61.5	53.8	53.8	69.2	37.5	30.8	61.5	53.8	46.2	38.5	84.6	61.5	53.8	53.8	53.8	53.8	53.8	69.2	46.2	61.5

Figure 1 AMSTAR-2 summary (n = 30)

** "Yes" scores were awarded when all criteria outlined in the AMSTAR-2 guidance were fulfilled. "Partial Yes" scores were awarded when some, but not all the criteria were met.*
Abbreviations: **Y**, Yes; **P**, Partial Yes; **N**, No.

AMSTAR-2 questions

Q1) Did the research questions and inclusion criteria for the review include the components of PICO?
Q2) Did the report of the review contain an explicit statement that the review methods were established prior to the conduct of the review and did the report justify any significant deviations from the protocol?
Q3) Did the review authors explain their selection of the study designs for inclusion in the review?
Q4) Did the review authors use a comprehensive literature search strategy?
Q5) Did the review authors perform study selection in duplicate?
Q6) Did the review authors perform data extraction in duplicate?
Q7) Did the review authors provide a list of excluded studies and justify the exclusions?
Q8) Did the review authors describe the included studies in adequate detail?
Q9) Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review?
Q10) Did the review authors report on the sources of funding for the studies included in the review?
Q11) If meta-analysis was performed did the review authors use appropriate methods for statistical combination of results?
Q12) If meta-analysis was performed, did the review authors assess the potential impact of RoB in individual studies on the results of the meta-analysis or other evidence synthesis?
Q13) Did the review authors account for RoB in individual studies when interpreting/ discussing the results of the review?

Q14) Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review?
Q15) If they performed quantitative synthesis did the review authors carry out an adequate investigation of publication bias (small study bias) and discuss its likely impact on the results of the review?
Q16) Did the review authors report any potential sources of conflict of interest, including any funding they received for conducting the review?

Appendix IV – Commissioning and research recommendation summary

Review	Title	Commissioning recommendations	Implications / future research topics
Anal Cancer			
Howard, 2012	The CE of screening for anal cancer in men who have sex with men: a SR	• "The US analyses suggest that screening is almost always CE, whereas the UK analyses suggest exactly the opposite, namely that screening is unlikely to be CE. • This uncertainty is primarily driven by uncertainty in the data that informs the structure and parameters of these modelled analyses" (p. 617)	• "By understanding where the key uncertainties are in existing models, this review can inform the design and conduct of future clinical and economic studies, so as to provide better data to inform these key parameters" (p.617)
Breast Cancer			
Khan et al, 2021	CE of risk-based BC screening: A SR	• RBS is considered more CE compared to ABS. However, the results of this study were not generalisable	• "More evidence is needed in terms of risk calculation, risk-thresholds, screening outcomes (harms-benefits) in relation to risk categories (especially low-risk) and cost and utility parameters" (p. 807)
Rashidian et al, 2013	CE of BC Screening Using Mammography; a SR	• "…biennial screening for BC using mammograms…on 50–70-year-olds might be the most CE option in many parts of the world. Screening individuals aged more than 70 is less CE than those aged 50-70. Despite discrepancies between the results of different studies, it also suggests that screening those aged less than 50 should not be recommended" (p. 354) • "…extrapolating these findings to LMICs should be conducted with care" (p. 355)	• Further need for conducting CE studies for BC screening, particularly in LMICs, alongside clinical trials

Li et al, 2022	CEA of Imaging Modalities for BC Surveillance Among BRCA1/2 Mutation Carriers: A SR	• "Combined mammography and MRI strategy is CE in BRCA1 mutation carriers for the middle-aged group (age 35 to 54). BRCA2 mutation carriers are less likely to benefit from adjunct MRI screening, which implies that mammography alone would be sufficient from a CE perspective, regardless of dense breast cancer" (p. 1)	• "Presently, CEA comparing screening modalities in BRCA1/2 mutation carriers are still limited, failing to cover all age intervals, which requires more investigations to fill the gaps" (p. 8)
Rezapour et al, 2020	CE of DM compared to FM in screening for BC: a SR	• "Whilst this study did not confirm the DMS for all conditions, it shows that moving forward towards digital technologies may be inevitable in future, therefore it is recommended to apply digital mammography gradually" (p. 123)	• "In regard to making an evidence-based decision on BC screening by mammography, there is a need for more specific studies especially for developing countries" (p. 123)
Schiller-Frühwirth et al, 2017	CE Models in BC Screening in the General Population: A SR	• "State-transition modelling was the most common analytic approach in modelling BC screening using individual-level microsimulation as statistical analysis. • Stage-shift modelling was the most used method of determining the effect of BC screening, but models made a variety of assumptions in the absence of a valid theory of the natural history of BC • Sensitivity analyses are critical to address uncertainties regarding modelling the natural history in breast cancer screening as well as validation steps to improve the confidence in outcomes of CE models" (p. 334)	• Further studies required to reach agreement. Different methods in modelling the progression of ductal carcinoma in situ to invasive cancer were identified because there is currently no agreement on the biological behaviour of non-invasive BC

Mühlberger et al, 2020	CE of BC screening and prevention: a SR with a focus on risk-adapted strategies	• "…European economic models almost unanimously suggest that BC screening and primary prevention are CE in the European setting, even in more recent studies when overdiagnosis-related harms are accounted for more explicitly" (p. 1340)	• "European models evaluating risk-adapted screening strategies are still rare. However, existing evaluations suggest that risk-adapted screening should be more effective and efficient than conventional screening. Therefore, future evaluations of BC screening should more strongly focus on risk-adapted strategies. • What is needed are strong and reliable predictors of BC risk that can be translated into optimized and individualized screening algorithms with risk-adapted intervals or target selection in order to maximize benefits and minimize harms for screened women" (p. 1340)
Yoo et al, 2013	Is Mammo-graphy for BC Screening CE in Both Western and Asian Countries? Results of a SR	• "The results show that mammography mass screening is not CE in Asian countries, unlike Western countries, due to BC incidence rate and racial characteristics issues (p. 4147)	• "The countries that have a low breast cancer incidence rate, such as Asian countries, should act prudently when implementing mammography as the reference test targeting the general population. Other screening methods such as clinical breast examination could be a possible alternative" (p. 4147)
Cervical Cancer			

Mezei et al, 2017	CE of CC screening methods in LMICs: A SR	• "Implementing CC screening programs in developing countries is a moral imperative…most [CC] deaths are preventable… • Every study… evaluated at least one screening strategy that reduced CC incidence at a cost per life saved below the studied country's GDP per capita, which demonstrates the economic feasibility…" (p. 445)	• Further studies are required to evaluate the emerging screening methods in the context of LMICs
Nahvijou et al, 2014	A SR of Economic Aspects of CC Screening Strategies Worldwide: Discrepancy between Economic Analysis and Policymaking	• "Despite the variety of different screening strategies available for cervical cancer prevention, implementing HPV DNA testing seems to be the most appealing and CE strategy for almost all populations and should be included in the screening program. In addition, we suggest starting the cervical screening at the age of 30 years or older and repeating the screening in the 5-year or longer intervals" (p. 8235)	• "Closer collaboration with health economists is required during the development of guidelines in order to achieve the most CE program for cervical cancer prevention" (p. 8235)
Colorectal Cancer			
Khalili et al, 2020	CEA of CRC Screening: A SR	• All CRC screening techniques were shown to be CE when compared with no screening	• Further research is needed to determine the most optimal technique for CRC screening
Kriza et al, 2013	An international review of the main CE drivers of virtual CTC versus conventional COL for CRC screening: Is the tide changing due to adherence?	• "CTC has the potential to be a CE CRC screening strategy when compared to COL" (p. e632) • "Our review suggests that if CE modelling applies real adherence and compliance rates that have been observed in clinical practice, the CE balance is likely to be turned in favour of CTC methods" (p. e633)	• 7 out of 9 studies in this review were an analysis on the US perspective, limiting the international view of this research. Further studies are required from a larger variety of settings

Skally et al, 2013	CE of fDNA Screening for ColC: A SR and Quality Appraisal of the Literature	• "fDNA testing appears CE when compared with no screening but is not yet CE compared with other primary ColC screening tests" (p.182)	• "fDNA testing needs to strive for high sensitivity without compromising specificity, and be offered at a greatly reduced price to become a more realistic alternative to other ColC screening tests • Comprehensive fDNA screening guidelines informing issues such as screening intervals are necessary to inform the selection of appropriate parameters for future fDNA CE studies" (p. 182)
Hanly et al, 2012	CE of CTC in ColC screening: A SR	• "Evidence on the CE of CTC screening is heterogeneous • CTC appears CE compared with no screening and is CE compared with faecal tests and FS in some studies. • CE compared with colonoscopy is uncertain. The heterogeneity is due largely to between-study differences in comparators and parameter values" (p. 421)	• "Given that FOBT is the most frequently used test in screening programmes future studies should focus on CTC vs. FOBT and the various alternative version of FIT • Future CE analyses should model clinically appropriate CTC screening scenarios, with 10-yearly screening intervals and a polyp referral threshold of 6 mm or 10 mm; make more realistic assumptions regarding screening uptake; and include a range of indirect costs" (p. 422)
Wang et al, 2022	CE of risk-tailored screening strategy for ColC: A SR	• "…risk-tailored screening is promising for personalized cancer control and decreasing resource load. However, studies on the EE of risk-tailored ColC screening are limited, and current evidence is not sufficient to support the replacement of risk-tailored screening for traditional age-based screening" (p. 1242)	• Further studies are needed. "In such a risk-tailored strategy, we need to be informed that the risk-stratification tool is highly accurate and relatively less expensive with well acceptance in the screening population" (p. 1242)

Mendivil et al, 2019	EE of screening strategies for the early detection of ColC in the average-risk population: A systematic literature review	• "ColC screening is an efficient alternative to no screening. Nevertheless, it is not possible to conclude which strategy should be preferred for population-based screening programs" (p. 2)	• "The majority of studies (73%) adequately reported at least 50% of the items included in the CHEERS checklist. Least well reported items included setting, study perspective, discount rate, model choice, and methods to identify effectiveness data or to estimate resource use and costs. There is still room for improvement in economic evaluations reporting in this field" (p. 1-2)
Ran et al, 2019	CE of ColC Screening Strategies —A SR	• "ColC screening (common strategies) remains cost effective (even cost saving in most US models) compared to no screening. COL every 10 years was less costly and/or more effective than other common strategies in the United States. CTC, every 5 or 10 years, was cost effective compared to no screening" (p. 1970)	• Further studies required in Asia and Australian settings. "Asian and Australian studies were under-represented in our review. Therefore, no clear pattern in Asian studies could be identified other than the high incremental costs per LYG or QALY gained in 2 of them" (p. 1978)
Gastric Cancer			
Sarmasti et al, 2021	CE of Screening *H. pylori f*or GC Prevention: a SR	• General population screening for *H. pylori* was more CE than no screening • Limited evidence on the most CE method of screening for *H. pylori*	• Further research is needed to determine which method of *H. pylori* screening is most CE
Canakis et al, 2020	Decision model analyses of upper endoscopy for GC screening and preneoplasia surveillance: a SR	• Logistical difficulties in conducting direct comparative clinical studies, means DA offers a unique mechanism to model costs and outcomes of various GC reduction strategies efficiently with real-time evaluation of how altering certain parameters might affect the predicted outputs	• "DA could benefit high-incidence [of GC] but resource limited countries to inform resource allocation and motivate discovery into lower cost interventions • Low-to-intermediate incidence countries [can do this too], to better define the high-risk subgroups who might benefit most from GC screening…" (p. 19)

Areia et al, 2013	Screening for GC and Surveillance of Premalignant Lesions: a SR of CE Studies	• "The available evidence shows that *H. pylori* serology population screening with treatment of positive cases is CE, with adjustments to the screening age according to *H. pylori* prevalence or even after early GC endoscopic resection… • Endoscopy is also a CE population screening option, depending on the GC incidence and cost of the endoscopy • At the moment, conflicting results do not allow agreement on the endoscopic surveillance of gastric premalignant conditions or lesions" (p. 335)	• "More studies are needed in this field, and better implementation of published guidelines is desirable" (p. 335)
Liver Cancer			
Nguyen et al, 2021	A SR and Narrative Synthesis of Health EEs of HC Screening Strategies	• Biannual US + AFP was the most CE strategy • This is in line with previous recommendations	• "Future robust studies need to consider all key parameters, including central adiposity, real-world utilization rates, and projections of increasing incidence over time" (p. 740)
Xiong et al, 2017	CE of image-based surveillance for HC in cirrhotic patients: a SR	• "Screening programs for HC are cost effective when applying US every 6 months to cirrhotic patients for HCC screening" (p. 9624)	• "There is a lack of RCTs that could help to address many of the questions about the cost effectiveness of HC screening programs in a real setting. In particular, the organization of healthcare is likely to be the key factor determining the effectiveness and CE of a screening program. • RCTs should be designed following an HTA-based approach, considering cost effectiveness as well as organizational, societal, and safety aspects of both the screening techniques and the subsequent treatment" (p. 9623)

Ruggeri, 2012	HC: CE of screening. A SR	• "US alone or in association with AFP technology is likely to be the most CE and the use of CT gives controversial results" (p. 49)	• "The need to design specific RCTs to investigate the effectiveness of one single technology or combination of technologies is likely to be clear from this review. RCTs should be designed following an HTA-based approach, considering CE as well as organizational, societal, and safety aspects of both the screening techniques and the following treatment" (p. 54)
Lung Cancer			
Grover et al, 2022	SR of the CE of screening for LC with LDCT	• "Most studies conclude that screening for LC with LDCT is CE. However, there are ongoing uncertainties including the impacts of: disutility from screening; using risk prediction models to identify the eligible population; and nodule management criteria" (p. 30)	• "Further CE analyses may be necessary to inform policy-makers prior to widespread implementation of LC screening; these evaluations should seek to address these areas of uncertainty, and could be informed by data from ongoing research" (p.30)
Raymakers et al, 2016	CEA of LC Screening Strategies Using LDCT: a SR	• "Results from CEA of lung cancer screening with LDCT are varied. • Smoking cessation programs appear to be an important component of a LC screening strategy" (p. 409)	• "Improvements in methods to properly identify high-risk patients will impact CE of screening strategies" (p. 409)
Oral Cancer			

Thankappan et al, 2021	CE of oral cancer screening approaches by visual examination: SR	• Screening for oral cancer was shown to be CE in the majority of studies, particularly in an opportunistic setting and the high-risk subgroup • However, due to the heterogeneity of studies, it is not possible to generalise from this study	• Uncertainty around the parameters of cost and effectiveness means that additional studies that include better estimates in modelling assessments are needed • Heterogeneity limited comparison and generalization. Therefore, more robust EEs in oral cancer screening are needed, especially in high prevalence countries with limited resources (LMICs)
Ovarian Cancer			
Sroczynski et al, 2020	A SR on CE Studies Evaluating OC Early Detection and Prevention Strategies	• "In postmenopausal women from the general population, ovarian cancer screening using ROCA-based MMS may be considered CE depending on the assumptions made regarding the long-term mortality reduction. However, overall results were shown to be sensitive to screening-test costs, screening-test performance characteristics and screening intervals" (p. 438)	• "…further evidence from clinical trials is needed to prove significant long-term mortality reduction. Screening with TVS was less effective, resulted in higher overtreatment and was more costly compared with ROCA-based MMS" (p. 438)
Prostate Cancer			
Sanghera et al, 2018	CE of PC screening: a SR of DA models	• Unclear whether PC screening is CE due to lack of robust evidence • "Any recommendations to decision-makers should be comprehensively tested for uncertainty in model inputs" (p. 14)	• "Current country-specific data are required, along with prospective QoL data that are incorporated into clinically verified models using recommended methods" (p. 14)

Lao et al, 2015	EE of PC screening: a SR	• "The decision-making for prostate cancer screening should be based on the cost per quality-adjusted life year rather than the cost per cancer identified or the cost per life year saved • The estimated cost per LY saved and the cost per QALY gained by PC screening were significantly higher than the CE threshold, suggesting that even when based on favourable RCTs in younger age groups, PC screening is still not CE" (p. 475)	• "Future EE studies on prostate cancer screening should take into account the harm caused by screening • High-risk patients with a family history of prostate cancer might be the future research subjects" (p. 475)
Multiple			
Wong et al, 2016	Possible Impact of ICER on Decision Making for Cancer Screening in Hong Kong: A SR	• "An ICER threshold approach for policy decision making is common in developed countries but research on the appropriate ICER threshold for a positive decision in Hong Kong is lacking. • Linking published evidence to Government recommendations and practice on cancer screening, ICERs influence decisions on the adoption of health technologies in Hong Kong. • The potential ICER thresholds for decision making on which to recommend and accept cancer screening in Hong Kong are US$61,600 and US$8,044 per effectiveness unit, respectively" (p. 647)	• Further research needed on the appropriateness of using ICER in decision making, funding and recommendation in Hong Kong