

Supplementary Material to: Tan YY, Tasnim S, Fadzil MFB, et al. Risk-based screening programmes for cancer diagnosis: A systematic review with narrative synthesis. Ann Acad Med Singap 2025;54:644-63. DOI: <https://doi.org/10.47102/annals-acadmedsg.202598>

Supplementary Table S1. Complete search strategies used for retrieval of articles in this systematic review in the following databases: (A) CENTRAL, (B) CINAHL, (C) Embase and MEDLINE on OvidSP, (D) PubMed, (E) SCOPUS and (F) Web of Science.

(a) CENTRAL
1 (early detection of cancer):ti,ab,kw (Word variations have been searched) 2 MeSH descriptor: [Early Detection of Cancer] explode all trees 3 MeSH descriptor: [Diagnostic Screening Programs] explode all trees 4 ((cancer near screen*) or cancer screen* test* or early diagnosis of cancer):ti,ab 5 #1 or #2 or #3 or #4 6 ((risk near (stratif* or based or profil*)) or ("risk-stratified" or "risk-stratification" or "risk-stratifiers" or "risk-stratifying" or "risk-based" or "risk-profiling" or "risk-profile" or "risk-profiled")):ti,ab 7 ((personal* or personal* or prevent* or "individualised" or "individualized" or tailor*) near risk):ti,ab 8 #6 or #7 9 MeSH descriptor: [Randomized Controlled Trial] explode all trees 10 MeSH descriptor: [Cohort Studies] explode all trees 11 ("prospective cohort" or "randomized controlled trial" or "randomised controlled trial" or "randomized control trial" or "randomised control trial"):ti,ab 12 #9 or #10 or #11 13 MeSH descriptor: [Neoplasms] explode all trees 14 (neoplas* or cancer or carcinoma or malignan*):ti,ab 15 #13 or #14 16 #5 and #8 and #12 and #15
(b) CINAHL
1 MW "Early detection of cancer" OR MW "Mass Screening" OR MW "Cancer Screening" OR MW "Diagnostic Screening Programs"

- 2 TI (((cancer N2 screening*) or cancer screening test* or early diagnosis of cancer)) OR AB (((cancer N2 screening*) or cancer screening test* or early diagnosis of cancer))
- 3 S1 OR S2
- 4 TI (((risk N2 (stratif* or stratification or based or profil*)) or ("risk-stratified" or "risk-stratification" or "risk-stratifiers" or "risk-stratifying" or "risk-based" or "risk-profiling" or "risk-profile" or "risk-profiled")))) OR AB (((risk N2 (stratif* or stratification or based or profil*)) or ("risk-stratified" or "risk-stratification" or "risk-stratifiers" or "risk-stratifying" or "risk-based" or "risk-profiling" or "risk-profile" or "risk-profiled"))))
- 5 TI (((personal* or personal* or prevent* or "individualised" or "individualized" or tailor*) N2 risk)) OR AB (((personal* or personal* or prevent* or "individualised" or "individualized" or tailor*) N2 risk))
- 6 S4 OR S5
- 7 TI (((prospective N2 cohort) or "randomized controlled trial" or "randomised controlled trial" or "randomized control trial" or "randomised control trial")) OR AB (((prospective N2 cohort) or "randomized controlled trial" or "randomised controlled trial" or "randomized control trial" or "randomised control trial"))
- 8 (random* control* trial*) or RCT or (clinical control* trial) or (prospective N2 cohort) or (observation* N2 cohort)
- 9 S7 OR S8
- 10 TI ((neoplas* or cancer or carcinoma or malignan*)) OR AB ((neoplas* or cancer or carcinoma or malignan*)) OR MM neoplasm
- 11 S3 AND S6 AND S9 AND S10
- 12 PT (letter or comment or editorial or note or news or abstract or survey or case report or review)
- 13 S11 not S12

(c) Embase and MEDLINE on OvidSP

- 1 exp Early Detection of Cancer/ or exp Mass Screening/ or exp Cancer Screening/ or *Diagnostic Screening Programs/
- 2 ((cancer adj2 screening*) or cancer screening test* or early diagnosis of cancer).ti,ab.
- 3 1 or 2
- 4 ((risk adj2 (stratif* or stratification or based or profil*)) or ("risk-stratified" or "risk-stratification" or "risk-stratifiers" or "risk-stratifying" or "risk-based" or "risk-profiling" or "risk-profile" or "risk-profiled")).ti,ab.
- 5 ((personal* or personal* or prevent* or "individualised" or "individualized" or tailor*) adj2 risk).ti,ab.
- 6 4 or 5
- 7 ((prospect* or random*) adj2 cohort).ti,ab,kw.

- 8 exp randomized controlled trial/
- 9 exp cohort studies/
- 10 7 or 8 or 9
- 11 3 and 6 and 10
- 12 exp Neoplasms/
- 13 (neoplas* or cancer or carcinoma or malignan*).ti,ab.
- 14 12 or 13
- 15 3 and 6 and 10 and 14
- 16 (letter or comment or editorial or note or news or abstract or survey or case report or review).pt.
- 17 Animals/ not (Animals/ and Humans/)
- 18 15 not (16 or 17)
- 19 remove duplicates from 18
- 20 exp diagnostic screening programs/
- 21 20 and (cancer or carcinoma or neoplas*).ti.
- 22 ((1 or 21) and 6 and 10 and 14) not (16 or 17)

(d) PubMed

- 1 "Early Detection of Cancer"[MeSH Terms] OR "Mass Screening"[MeSH Terms] OR "Diagnostic Screening Programs"[MeSH]
- 2 ("cancer screen"[tiab:~2] or "cancer screening"[tiab:~2])or ("early diagnosis of cancer"[tiab:~2])
- 3 #2 or #3
- 4 "risk stratified"[tiab:~2] OR "risk stratification"[tiab:~2] OR "risk stratifying"[tiab:~2] OR "risk based"[tiab:~2] OR "risk profile"[tiab:~2] OR "risk profiling"[tiab:~2] OR "risk profiled"[tiab:~2]
- 5 "risk-stratified"[tiab] or "risk-stratification"[tiab] or "risk-stratifiers"[tiab] or "risk-stratifying"[tiab] or "risk-based"[tiab] or "risk-profiling"[tiab] or "risk-profile"[tiab] or "risk-profiled"[tiab]
- 6 "personal risk"[tiab:~2] or "personalized risk"[tiab:~2] or "personalised risk"[tiab:~2] or "prevent risk"[tiab:~2] or "prevention risk"[tiab:~2] or "preventing risk"[tiab:~2] or "preventive risk"[tiab:~2] or "individual risk"[tiab:~2] or "individualized risk"[tiab:~2] or "individualised risk"[tiab:~2] or "tailor risk"[tiab:~2] or "tailored risk"[tiab:~2] or "tailoring risk"[tiab:~2]
- 7 #4 or #5 or #6

- 8 "randomized controlled trial" [publication type] or "controlled clinical trial"[publication type]
- 9 ("pragmatic clinical trial"[Publication Type]) OR ("observational study"[Publication Type])
- 10 "prospective cohort"[tiab:~2] or "randomized controlled trial"[title/abstract] or "randomised controlled trial"[title/abstract] or "randomized control trial"[title/abstract] or "randomised control trial"[title/abstract]
- 11 #8 or #9 or #10
- 12 "neoplasms"[mesh]
- 13 ("neoplas*"[tiab] or "cancer"[tiab] or "carcinoma"[tiab] or "malignan*"[tiab])
- 14 #12 or #13
- 15 #3 and #7 and #11 and #14

(e) SCOPUS

- 1 TITLE-ABS-KEY ("Early Detection of Cancer" OR "Mass Screening" OR "Cancer Screening" OR "Diagnostic Screening Programs")
- 2 TITLE-ABS ((cancer OR malignan* OR neoplas*) W/3 (test OR screen OR diagnosis))
- 3 (TITLE-ABS-KEY ("Early Detection of Cancer" OR "Mass Screening" OR "Cancer Screening" OR "Diagnostic Screening Programs")) OR (TITLE-ABS ((cancer OR malignan* OR neoplas*) W/3 (test OR screen OR diagnosis)))
- 4 TITLE-ABS ((risk W/2 (stratif* OR stratification OR based OR profil*)) OR ("risk-stratified" OR "risk-stratification" OR "risk-stratifiers" OR "risk-stratifying" OR "risk-based" OR "risk-profiling" OR "risk-profile" OR "risk-profiled"))
- 5 TITLE-ABS ((personal* OR personal* OR prevent* OR "individualised" OR "individualized" OR tailor*) W/2 risk)
- 6 (TITLE-ABS ((personal* OR personal* OR prevent* OR "individualised" OR "individualized" OR tailor*) W/2 risk)) OR (TITLE-ABS ((risk W/2 (stratif* OR stratification OR based OR profil*)) OR ("risk-stratified" OR "risk-stratification" OR "risk-stratifiers" OR "risk-stratifying" OR "risk-based" OR "risk-profiling" OR "risk-profile" OR "risk-profiled")))
- 7 TITLE-ABS-KEY (((prospective OR observation*) W/2 cohort) OR "randomized controlled trial" OR "randomised controlled trial" OR "randomized control trial" OR "randomised control trial")
- 8 TITLE-ABS-KEY (neoplas* OR cancer OR carcinoma OR malignan*)
- 9 ((TITLE-ABS-KEY ("Early Detection of Cancer" OR "Mass Screening" OR "Cancer Screening" OR "Diagnostic Screening Programs")) OR (TITLE-ABS ((cancer OR malignan* OR neoplas*) W/3 (test OR screen OR diagnosis)))) AND ((TITLE-ABS ((personal* OR personal* OR prevent* OR "individualised" OR "individualized" OR tailor*) W/2 risk)) OR (TITLE-ABS ((risk W/2 (stratif* OR stratification OR based OR profil*)) OR ("risk-stratified" OR "risk-stratification" OR "risk-stratifiers" OR "risk-stratifying" OR "risk-based" OR "risk-profiling" OR "risk-profile" OR "risk-profiled")))) AND (TITLE-ABS-KEY (((prospective OR observation*) W/2 cohort) OR "randomized controlled trial" OR "randomised controlled trial" OR "randomized control trial" OR "randomised control trial")

"randomised controlled trial" OR "randomized control trial" OR "randomised control trial")) AND (TITLE-ABS-KEY (neoplas* OR cancer OR carcinoma OR malignan*))

10 ((TITLE-ABS-KEY ("Early Detection of Cancer" OR "Mass Screening" OR "Cancer Screening" OR "Diagnostic Screening Programs")) OR (TITLE-ABS ((cancer OR malignan* OR neoplas*) W/3 (test OR screen OR diagnosis))) AND ((TITLE-ABS ((personal* OR personal* OR prevent* OR "individualised" OR "individualized" OR tailor*) W/2 risk)) OR (TITLE-ABS ((risk W/2 (stratif* OR stratification OR based OR profil*)) OR ("risk-stratified" OR "risk-stratification" OR "risk-stratifiers" OR "risk-stratifying" OR "risk-based" OR "risk-profiling" OR "risk-profile" OR "risk-profiled")))) AND (TITLE-ABS-KEY (((prospective OR observation*) W/2 cohort) OR "randomized controlled trial" OR "randomised controlled trial" OR "randomized control trial" OR "randomised control trial")) AND (TITLE-ABS-KEY (neoplas* OR cancer OR carcinoma OR malignan*)) AND (LIMIT-TO (DOCTYPE , "ar"))

(f) Web of Science

- 1 ALL=((Early Detection of Cancer) OR (Mass Screening) OR (Cancer Screen) OR (Diagnostic Screening Program))
- 2 TI=((cancer near/2 screening*) or cancer screen* test* or early diagnosis of cancer) OR AB=((cancer near/2 screening*) or cancer screen* test* or early diagnosis of cancer)
- 3 #1 OR #2
- 4 TI=((risk NEAR/2 (stratif* or stratification or based or profil*)) or ("risk-stratified" or "risk-stratification" or "risk-stratifiers" or "risk-stratifying" or "risk-based" or "risk-profiling" or "risk-profile" or "risk-profiled")) OR AB=((risk NEAR/2 (stratif* or stratification or based or profil*)) or ("risk-stratified" or "risk-stratification" or "risk-stratifiers" or "risk-stratifying" or "risk-based" or "risk-profiling" or "risk-profile" or "risk-profiled"))
- 5 TI=((personal* or prevent* or "individualised" or "individualized" or tailor*) NEAR/2 risk) OR AB=((personal* or prevent* or "individualised" or "individualized" or tailor*) NEAR/2 risk)
- 6 #4 OR #5
- 7 TI=((prospective NEAR/2 cohort) or "randomized controlled trial" or "randomised controlled trial" or "randomized control trial" or "randomised control trial") OR AB=((prospective NEAR/2 cohort) or "randomized controlled trial" or "randomised controlled trial" or "randomized control trial" or "randomised control trial")
- 8 ALL=(randomized controlled trial) OR ALL=(cohort study)
- 9 #7 OR #8
- 10 ALL=(neoplas* or cancer or carcinoma or malignan*)
- 11 #3 AND #6 AND #9 AND #10
- 12 #3 AND #6 AND #9 AND #10 and Article or Early Access (Document Types)