Screening Mammography & Breast Cancer Mortality : Meta-Analysis of Quasi-Experimental Studies

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☐	1	PLOS ONE	1932-6203	226708	3.534	4.015	0.416	31496	2.5	1.16582	1.370

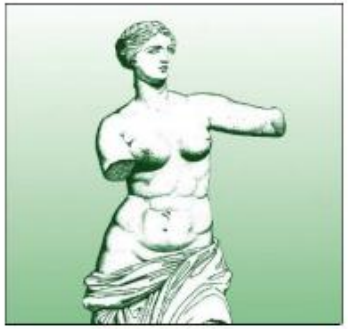
緣起

- 大多數婦女在接受乳房造影邀請前都感到自己是健康的，而接獲邀請便令他們感到不安。
- 乳房造影篩查可能同時製造安全或不安全的感覺

- 篩查的好處和害處參半，參與乳房X光造影篩查可能是明智的選擇，但是不參與也可能是合理的
  - 篩查既有益處，也有害處！

- 進行乳房攝影篩檢前，是否需要知情同意?

乳癌 X 光造影篩查



參與乳癌篩查計劃有甚麼好處和害處?

有多少人會從篩查中受惠，又有多少人會受損?

乳房造影篩查的好處和害處有什麼科學根據?

你期望對乳房造影篩查的理解

The Nordic Cochrane Centre 2012出版

摘要

這 2008 年初版的單張摘要指出：

> 因為篩查的好處和害處參半，參與乳房X光造影篩查可能是明智的選擇，但是不參與也可能是合理的，因篩查既有益處，也有害處。
>
> 參加為期十年的定期乳房造影篩查之二千名婦女中，一位婦女會從中獲益，避免因患上乳癌而死亡。但與此同時，十名健康婦女會因被誤診為癌症病人而接受了不必要的治療，她們會因此接受局部或整個乳房切除手術，多數更要接受放射性電療，甚至化療。
>
> 此外，還有約二百名健康的婦女會收到錯誤警號。不論最終是確診與否，在等待確診期間以及往後的日子，這個患癌病的錯誤警號會給她們造成沉重的心理負擔。
>
> 以上數據是從乳房X光造影篩查的隨機抽樣所作的研究得出。可是，從初時的研究至今日，乳癌的治療已大有改善。近期的研究顯示乳房X光造影篩查對減少乳癌死亡的風險可能再無效；篩查反而將健康婦女誤診為乳癌病人，而這些婦女接受乳癌治療後，會增加她們死亡的風險(例如患上心臟病或癌症等)。

既然不接受乳房造影可以減少被過度診斷為乳癌病患者的危機，婦女們似乎沒有充分的理由去參與篩查。但事實雖然如此，一些婦女仍然選擇接受檢查。

好處

減低乳癌死亡的風險 - 定期乳房造影篩查不能預防乳癌，但有可能減低乳癌的死亡風險。從過往的隨機抽樣篩查試驗得知:

> *二千名參加為期十年定期篩查的婦女中，一位婦女會從中獲益，她因及早從乳房造影中發現癌症而避免因患上乳癌而死亡.*

自這些隨機抽樣篩查試驗開始至今，乳癌的治療有很大的進步。今天的婦女如發現乳房出現任何不尋常的徵狀，會比過往提早向醫護人員求助。此外，現在多國的乳癌診斷和治療均已中央化，由一組乳癌專家處理。

有了這些改進，篩查的效能便比過往低，新近的幾項研究更指出乳房造影對減低乳癌死亡率並沒有幫助(有關內容請查看以下的附屬文件)。篩查不能減低整體的死亡風險或因癌症而死亡的風險(包括乳癌)。

害處

過度診斷及過度治療 -篩查所發現的部分癌症和早期細胞轉變(原位癌)的生長率十分慢，它們可能永不會變化成真正的癌細胞。如不加理會及不作任何治療，大部分這類「偽癌細胞」更有可能自動消失。

由於無法分辨出是惡性或良性的細胞轉變及癌細胞，所有這些細胞都會被診治。故此，乳房造影會導致婦女為了一個她們原本沒有患上的癌症，及不會得癌症的婦女接受多餘的治療。從隨機抽樣試驗得知:

> *二千名參加為期十年定期篩查的婦女，其中十位健康婦女會因此被誤診為乳癌病患者，而接受了不必要的治療。這些婦女會接受局部或整個乳房切除手術，而大多數會接受放射性電療，有些甚至要接受化療。如此醫治健康的婦女增加了她們死亡的風險(例如心臟病或癌症等)。*
>
> *很不幸，部分早期細胞轉變(原位癌)很多時會在乳房多個位置出現。即使只是少部分的細胞轉變會發展成為癌細胞，每四個此類個案，有一個會因此而接受了整個乳房切除的手術。*

較廣泛的手術及輔助治療 – 透過乳房造影被診斷為有少量癌細胞的婦女，她們的手術及輔助治療比起較遲發現癌症的婦女會較為輕微。不過，由於篩查導致健康婦女被誤診而接受不必要的治療，當比較有篩查和沒有篩查的情況，總體上較多婦女在有篩查的情況下會接受乳房切除，而且更多婦女因此接受了不必要的電療。.

錯誤警號 - 如X光顯示有癌細胞的跡像，該女士便會接受進一步檢查。在某些個案中，從X光上看到的細胞其實是良性的，所以造成錯誤警號.

> *在二千名參加為期十年定期篩查的婦女當中，有二百名健康的婦女會收到錯誤警號，在等待確診期間，這個患癌病的可能性對她們的心理可帶來沉重的負擔。許多婦女會因此感到焦慮、擔心、沮喪、失眠、更影響到與家人和朋友的關係、以及性慾方面的改變。這些情況可持續多個月。此外，一些婦女更因此而長期有患病的擔憂，導致她們常去看醫生。*

檢查帶來的痛楚 – 接受乳房X光造影時，乳房會被壓平在磁板間。雖然過程很短，但約五成的婦女感到痛楚不適。

錯誤的保證 - 乳房造影不能檢測到所有的癌細胞。所以當女性感到乳房有硬塊或異樣時，即使最近已接受了乳房造影，亦應向醫生求助。

好處與害處

好處

- 及早發現癌症，及早治療
- 減低乳癌死亡的風險

害處

- 過度診斷及過度治療
- 較廣泛的手術及輔助治療
- 錯誤警號
- 檢查帶來的痛楚
- 錯誤的保證

步驟１：系統性文獻回顧探討的問題為何？

研究族群 / 問題 (Population/ Problem)	Under 50, 50 to 69 and over 70 of women
介入措施 (Intervention)	Mammography screening
比較 (Comparison)	No
結果 (Outcomes)	Breast cancer mortality

步驟 2：系統性文獻回顧的品質如何
F - 研究是否找到 (Find) 所有的相關證據？

P2

Methods

Data sources and searches

Using a broad search strategy, electronic searches were conducted of MEDLINE/PubMed and Embase for articles published up through January 31, 2013 (no start date). The detailed search strategy and the number of studies produced with each strategy are provided in Table S1 and Checklist S1. Figure 1 shows the PRISMA flow diagram of the number of searches returned, excluded and i arches yielded 4,903 citations: 2,249 PubMed and removing duplicates. The number of arti previous meta-analyses. Secondary refer manually searching bibliographies from me systematic reviews. Abstracts and titles were read a eliminated if inclusion criteria were not clearly met. When unclear, articles were reviewed in full. Table S2 lists the number and reasons for abstracts that were excluded from full review.

文獻搜尋至少包括二個主要的資料庫(如：Medline, Cochrane考科藍實證醫學資料庫, EMBASE

步驟 2：系統性文獻回顧的品質如何

F - 研究是否找到 (Find) 所有的相關證據？

P3

Meta-Analysis of Screening Mammography Studies

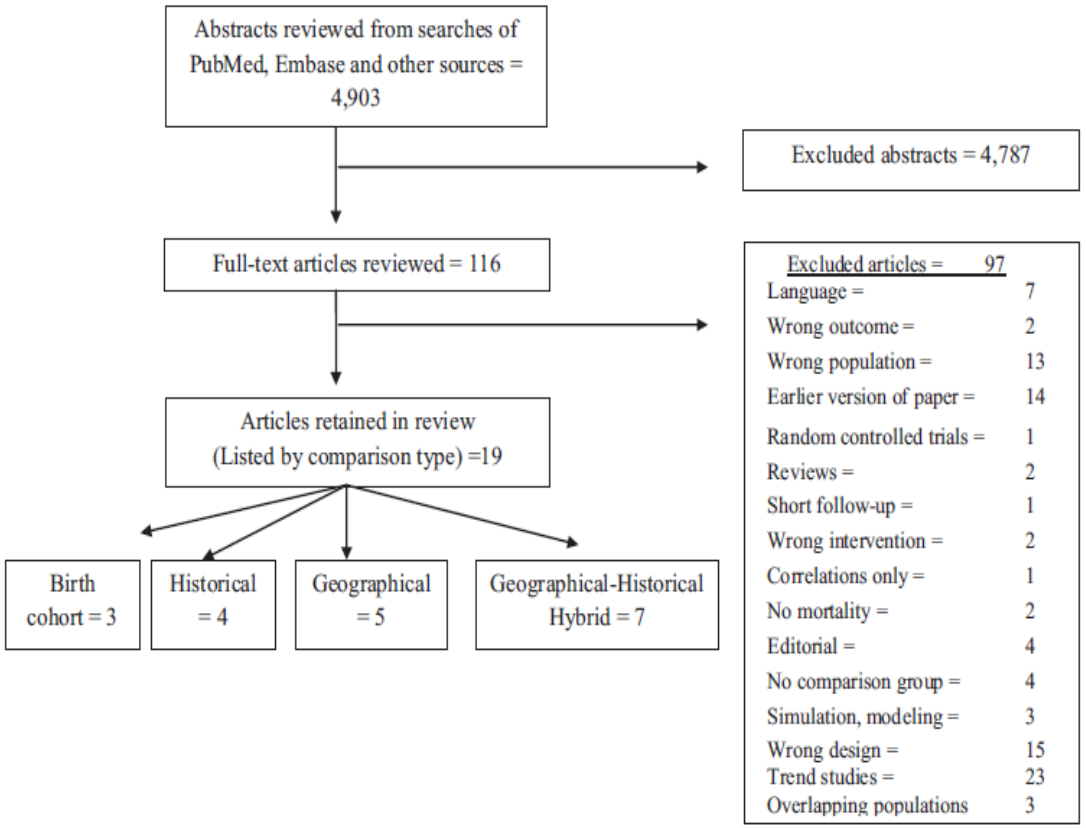


Figure 1. PRISMA Flow diagram. Number of articles excluded and reviewed for inclusion in meta-analysis.
doi:10.1371/journal.pone.0098105.g001

全文文獻數目、
文獻納入與排除
的數量及原因

評讀結果：□是 V否 □不清楚

說明:文獻限於英文，並且未說明是否有使用 MeSH字串

步驟 2：系統性文獻回顧的品質如何？

A - 文獻是否經過嚴格評讀 (Appraisal)？

Methods

P2

Study eligibility

Studies were included if they reported: 1) a population-wide breast cancer screening program (the population could be city, county, or nation) with at least 5 years of study data postimplementation; 2) a comparison group with equal access to breast cancer therapies; and 3) breast cancer mortality. Studies excluded were: RCTs, case-control, simulation studies or modeling studies; studies that compared trends but did not provide mortality numbers; studies that compared only clinical breast or self-breast exam; studies that compared self-selected participants to nonparticipants; and studies of high risk groups or only women diagnosed with breast cancer. Studies that compared observed deaths to expected deaths were excluded [illegible] the expected numbers of deaths were based

在文章的方法章節，可以找到文獻納入/ 排除條件；但未呈現品質評讀工具?

評讀結果： □是 □否 V不清楚

步驟 2：系統性文獻回顧的品質如何
I - 是否只納入 (included) 具良好效度的文章？

Studies from the same country were retained as long as there was no overlap between the population, region or time period studied. When a study reported multiple comparisons in the same paper, the comparison with the larger screening population was retained.

If multiple studies compared the same region, population and time period, typically the study with the longest follow-up period was retained. Below are the specifics of the overlapping studies that were removed. Hakama et al conducted birth cohort analyses of mammography screening in Finland with follow-up at 6 and 9 years [24,25]. The six year follow-up [24] was reported because the purpose of the 9-year follow-up [25] was to demonstrate the effect of gradually screening women originally assigned to control population (Personal communication, Matti Hakama, 10/30/12). Three manuscripts compared similar but not exact Swedish municipalities. The SOSSEG, 2006 paper was retained because it reported the longest follow-up; Duffy et al., 2002 and Tabar et al., 2003 were not included because of their significant overlap with it [26–28]. Although Jorgensen et al., 2010 reported the longer follow-up, Olsen et al., 2005a was retained in the primary meta-analysis because it analyzed incidence-breast cancer mortality [29,30]. Van Dijick et al., 1997 and Broeders et al., 2001, both reported on screening in Nijmegen, the Netherdlands, but Van Dijick was retained in the primary analyses because it analyzed incident breast cancer mortality and reported relative risks without adjustments [31,32]. Similarly, Olsen et al., 2012 and Kalager et al., 2010 reported on similar geographical regions in Norway, but Olsen et al., 2012 was retained in the primary analyses because it had a longer follow-up period [33,34].

P2

文獻挑選依據

Methods

Data extraction

VI reviewed all abstracts; while RK confirmed all included abstracts and those that were undecided. Both authors reviewed all potential full articles. When clarification was needed, the corresponding author for that study was contacted. 14 study authors were contacted with questions and 9 responded. Two study authors were not contacted because all necessary data were available in their publication. Data analyses were conducted by VI and both investigators drafted the manuscript.

評讀結果：V是 □否 □不清楚

步驟 2：系統性文獻回顧的品質如何

T - 作者是否以表格和圖表「總結」(total up) 試驗結果？

Table 1. Screening details, relative risks and confidence intervals for included studies by study design.

Author	Country	Time period of accrual	Time period of screening	Time period of follow-up	Screening Interval	Attendance rates	
Study design: Birth cohort comparisons							
Anttila, 2002	Finland	1986–1997	1986–1997	1986–1997	2 years	82%	
Hakama, 1995	Finland	1982–1983	1982–1989	1982–1991	2 years	86%	
Hakama, 1997	Finland	1987–1989	1987–1992	1987–1995	2 years	90%	
Study design: Historical comparisons							
Ascunce,2007[a]	Spain	1997–2001	1991–2001	1997–2001	2 years	88%	
Duffy, 2010[b, h, j]	UK	1989–2004	1989–2004	1995–2004	3 years	70%	
Otto, 2003[b, c, h, i]	Netherlands	1989–1997	1989–1999	1989–1999	2 years	78%	
SOSSEG, 2006[i]	Sweden	1980–2000	1980–2000	1980–2000	NR	63–93%	
Study design: Geographical comparisons							
Hellquist, 2011[j]	Sweden	1986–2005	1986–2005	1986–2005	1–2 years	80–90%	
Jonsson, 2007[d]	Sweden	1990–1996	1990–2001	1997–2001	1–2 years	83–87%	
Jonsson, 2007[d, i]	Sweden	1990–1996	1990–2001	1997–2001	1–2 years	83–87%	
No authors, 1999[c, g, k]	UK	1980–1983	1980–1995	1980–1995	2 years	60–72%	
Peer, 1995	Netherlands	1975–1976	1975–1990	1975–1990	2 years	87%	
Van Dijck, 1997	Netherlands	1977–1978	1977–1990	1977–1990	2 years	46%	
Study design: Geographical-historical hybrids							
Jonsson, 2000	Sweden	1986–1996	1986–1996	1986–1996	1–2 years	NR	
Jonsson, 2001[i]	Sweden	1986–1994	1986–1994	1986–1997	NR	NR	
Jonsson, 2003[c, i]	Sweden	1974–1986	1974–1986	1977–1998	2–3 years	84%	
Jonsson, 2003 [i]	Sweden	1986–1998	1986–1998	1986–1998	1–2 years	NR	NR
Olsen, 2005	Denmark	1991–2001	1991–2001	1991–2001	2 years	71%	NR
Olsen, 2013	Norway	1996–2002	1996–2002	1996–2008	2 years	NR	NR
Parvinen, 2006[f]	Finland	1987–1997	1987–1997	1987–2001	2 years	NR	NR

NR = Not reported.
A. Most studies reported mortality as incidence-based breast cancer mortality. These studies report both incidence and prevalence-based breast cancer mortalit
B. Studies report only prevalence-based breast cancer mortality. Numbers shown reflect prevalence-based mortality numbers and RR calculations.
C. For the Otto,2003 study, mammograms were 2-view in the first round and were 1-view in subsequent rounds. For the No Author, 1999 study, type of mammogra
received clinical breast exam during non-screened year.
D. Study authors reported all mortality and population numbers by age categories. We excluded women screened ages 40–49 because of the overlap with the Hell
69 and 70–74 in order to include in meta-analyses for each age category.
E. RR and CI reported in this table are only for the comparison of Gavleborg to all of Sweden.
F. RR and CI reported in this table are only for the comparison of Turku to Helsinki. The comparison of Turku to Tampere was not included because of overlap
G. RR slightly different as RR reported in original article was adjusted for pre-trial rates, which we did not do.
H. Study only reports aggregate population data. No individual cases are identified or linked from medical records or cancer registries.
I. The specific year that screening began varied by county or region.
J. Screening expanded to women age 70 in 2002.
K. We only analyzed women in cohort 1.
doi:10.1371/journal.pone.0098105.t001

Table 2. Summary of meta-analysis results by design and age screened[a].

Design & Age Group Screened	Number of Studies	RR (95% CI) BC Mortality	RR (95% CI) BC Mortality Adjusted for Population Size	RR (95% CI) BC Mortality Adjusted for Person-Years
Study design: Birth cohorts				
Incidence-based breast cancer mortality				
Screened ages <50	1	0.11 (0.01, 0.85)	0.11 (0.01, 0.85)	0.11 (0.01, 0.85)
Screened ages 50–59	2	0.77 (0.57, 1.03)	0.77 (0.57, 1.03)	0.77 (0.60, 1.00)
Study design: Historical Comparisons				
Incidence-based breast cancer mortality				
Screened ages 40–69	2	0.67 (0.54, 0.82)	0.57 (0.44, 0.74)	0.57 (0.44, 0.74)
Prevalence-based breast cancer mortality				
Screened ages40–69	3	0.79 (0.62, 0.99)	0.77 (0.76, 0.78)	0.76 (0.75, 0.77)
Study design: Geographical Comparison				
Incidence-ba				
Screened ag				
Screened ag				
Screened ag				
Study desig				
Incidence-ba				
Screened ag				
Screened ag				
Screened ag				

a. Each cell
studies with
based breast
doi:10.1371/j

Table 3. Catalogue of potential threats to internal and external validity of breast cancer screening quasi-experimental studies stratified by specific design[a].

	Birth Cohort (n = 3)	Historical (n = 4)	Geographical (n = 5)	Historical by Geographical (n = 7)
Number of studies that analyzed only aggregate data	0	2	0	0
Death data ascertainment				
National or regional death, health or cancer registries	3	3	3	7
Other	0	0	2[c]	0
Not reported	0	1[b]	0	0
Threats to internal validity				
Maturation	No	No	No	No
Attrition	No	No	No	No
Testing	Yes	Yes	Yes	Yes
History	No	Yes	Possible	No
Instrumentation		Yes	Possible	Possible
Regression		Possible	Possible	No
Selection	No		Possible	Possible
Interaction of selection by maturation	No			
Threats to external validity				
Interaction of testing by screening program				
Interaction of selection by screening program				
Interaction of setting/history by screening program				
Multiple-Program Interference	No			

a. List and definitions of threats of validity from Grembowski D. The Practice of Health Program Evaluation. Sage Publications: Thousand Oaks, CA; 2001
b. Study did no
c. Other forms
doi:10.1371/jou

可找到摘要的圖表

評讀結果：V是 □否 □不清楚

步驟 2：系統性文獻回顧的品質如何
H - 試驗的結果是否相近 - 異質性 (Heterogeneity)？

P2

Methods

Statistical analysis

Meta-analyses were conducted in Stata MP Version 12 (StataCorp, College Station, Texas) using the metan command, random effects. Random effects model was performed because statistical heterogeneity existed. Birth cohorts, historical, geographical and geographical-historical designs were analyzed and reported separately. Within each design, a separate meta-analysis was conducted for each screening age range (<50, 50–69, 70+). Meta-analyses were conducted using the standard weighting procedure (standard error of the studies) and then weighted by total population or total person-years. The resulting RR and CI for each design, screening age and weighting strategy are reported in Table 2. Incident and prevalent breast cancer mortality are analyzed separately. Assessment of bias was analyzed as threats to validity. Each study design was scored according to potential threats to internal and external validity (Table 3).

評讀結果：NA

Discussion (Limitations)

P9

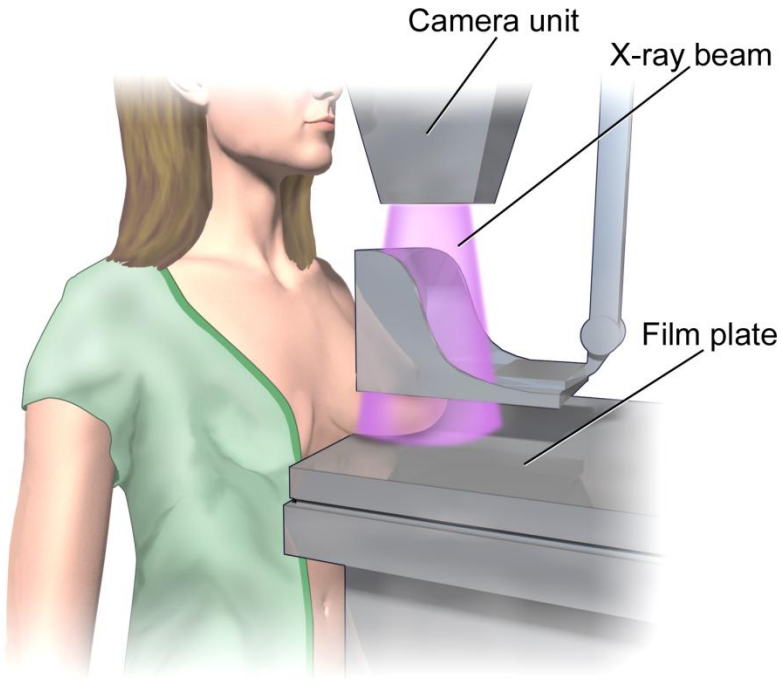
- only identified studies of European screening programs, with presumably primarily Caucasian samples
  - No studies from the United States were included because none could compare a region or time period with an official screening program.
- All-cause mortality could not be analyzed because there were an insufficient number of studies reporting this data
- This review was not registered because we were unaware of registration services when our effort began.
- The authors re-calculated relative risks and confidence intervals for each of the studies to include them in the meta-analysis.
  - The calculations were almost always similar to the original study outcomes.

Conclusion

- Mammography screening may have **modest effects** on cancer mortality between the **ages of 50 and 69** and non-significant effects for women older than age 70.
- Results are consistent with meta-analyses of RCTs.
- Effects on total mortality could not be assessed because of the limited number of studies.

Screening for breast cancer with mammography (Review)

Gøtzsche PC, Jørgensen KJ



Mammogram

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This is a reprint of a Cochrane review, prepared and maintained by The Cochrane Collaboration and published in *The Cochrane Library* 2013, Issue 6

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Screening for breast cancer with mammography (Review)

PLAIN LANGUAGE SUMMARY

Screening for breast cancer with mammography

Screening with mammography uses X-ray imaging to find breast cancer before a lump can be felt. The goal is to treat cancer earlier, when a cure is more likely. The review includes seven trials that involved 600,000 women in the age range 39 to 74 years who were randomly assigned to receive screening mammograms or not. The studies which provided the most reliable information showed that screening did not reduce breast cancer mortality. Studies that were potentially more biased (less carefully done) found that screening reduced breast cancer mortality. However, screening will result in some women getting a cancer diagnosis even though their cancer would not have led to death or sickness. Currently, it is not possible to tell which women these are, and they are therefore likely to have breasts or lumps removed and to receive radiotherapy unnecessarily. If we assume that screening reduces breast cancer mortality by 15% after 13 years of follow-up and that overdiagnosis and overtreatment is at 30%, it means that for every 2000 women invited for screening throughout 10 years, one will avoid dying of breast cancer and 10 healthy women, who would not have been diagnosed if there had not been screening, will be treated unnecessarily. Furthermore, more than 200 women will experience important psychological distress including anxiety and uncertainty for years because of false positive findings.

Women invited to screening should be fully informed of both the benefits and harms. To help ensure that the requirements for informed choice for women contemplating whether or not to attend a screening programme can be met, we have written an evidence-based leaflet for lay people that is available in several languages on www.cochrane.dk. Because of substantial advances in treatment and greater breast cancer awareness since the trials were carried out, it is likely that the absolute effect of screening today is smaller than in the trials. Recent observational studies show more overdiagnosis than in the trials and very little or no reduction in the incidence of advanced cancers with screening.

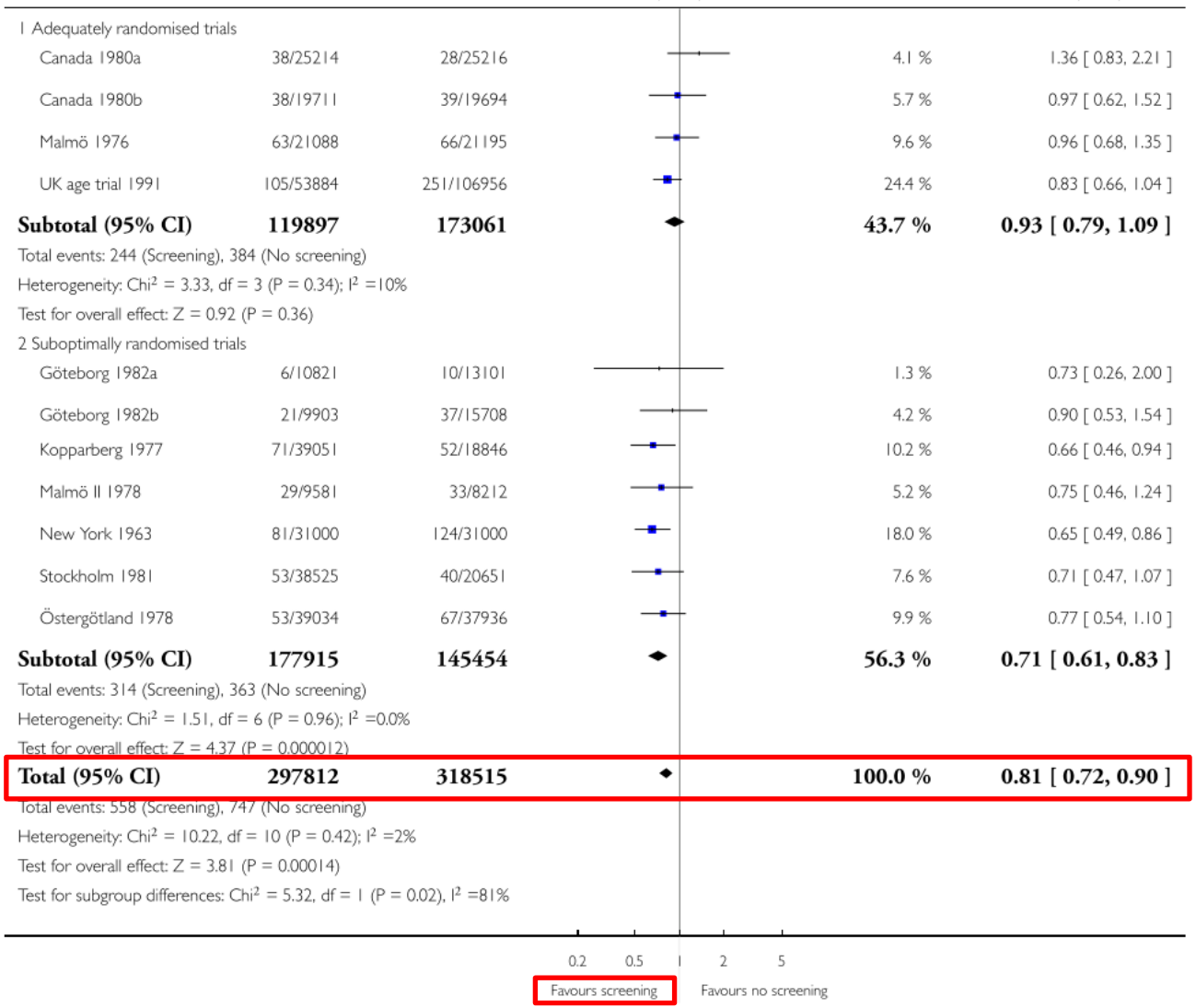
Analysis 1.1. Comparison 1 Screening with mammography versus no screening, Outcome 1 Deaths ascribed to breast cancer, 7 years follow up.

Review: Screening for breast cancer with mammography

Comparison: 1 Screening with mammography versus no screening

Outcome: 1 Deaths ascribed to breast cancer, 7 years follow up

Study or subgroup	Screening n/N	No screening n/N	Risk Ratio M-H,Fixed,95% CI	Weight	Risk Ratio M-H,Fixed,95% CI
1 Adequately randomised trials					
Canada 1980a	38/25214	28/25216		4.1 %	1.36 [0.83, 2.21]
Canada 1980b	38/19711	39/19694		5.7 %	0.97 [0.62, 1.52]
Malmö 1976	63/21088	66/21195		9.6 %	0.96 [0.68, 1.35]
UK age trial 1991	105/53884	251/106956		24.4 %	0.83 [0.66, 1.04]
Subtotal (95% CI)	**119897**	**173061**		**43.7 %**	**0.93 [0.79, 1.09]**
Total events: 244 (Screening), 384 (No screening)					
Heterogeneity: Chi^2 = 3.33, df = 3 (P = 0.34); I^2 =10%					
Test for overall effect: Z = 0.92 (P = 0.36)					
2 Suboptimally randomised trials					
Göteborg 1982a	6/10821	10/13101		1.3 %	0.73 [0.26, 2.00]
Göteborg 1982b	21/9903	37/15708		4.2 %	0.90 [0.53, 1.54]
Kopparberg 1977	71/39051	52/18846		10.2 %	0.66 [0.46, 0.94]
Malmö II 1978	29/9581	33/8212		5.2 %	0.75 [0.46, 1.24]
New York 1963	81/31000	124/31000		18.0 %	0.65 [0.49, 0.86]
Stockholm 1981	53/38525	40/20651		7.6 %	0.71 [0.47, 1.07]
Östergötland 1978	53/39034	67/37936		9.9 %	0.77 [0.54, 1.10]
Subtotal (95% CI)	**177915**	**145454**		**56.3 %**	**0.71 [0.61, 0.83]**
Total events: 314 (Screening), 363 (No screening)					
Heterogeneity: Chi^2 = 1.51, df = 6 (P = 0.96); I^2 =0.0%					
Test for overall effect: Z = 4.37 (P = 0.000012)					
Total (95% CI)	**297812**	**318515**		**100.0 %**	**0.81 [0.72, 0.90]**
Total events: 558 (Screening), 747 (No screening)					
Heterogeneity: Chi^2 = 10.22, df = 10 (P = 0.42); I^2 =2%					
Test for overall effect: Z = 3.81 (P = 0.00014)					
Test for subgroup differences: Chi^2 = 5.32, df = 1 (P = 0.02), I^2 =81%					

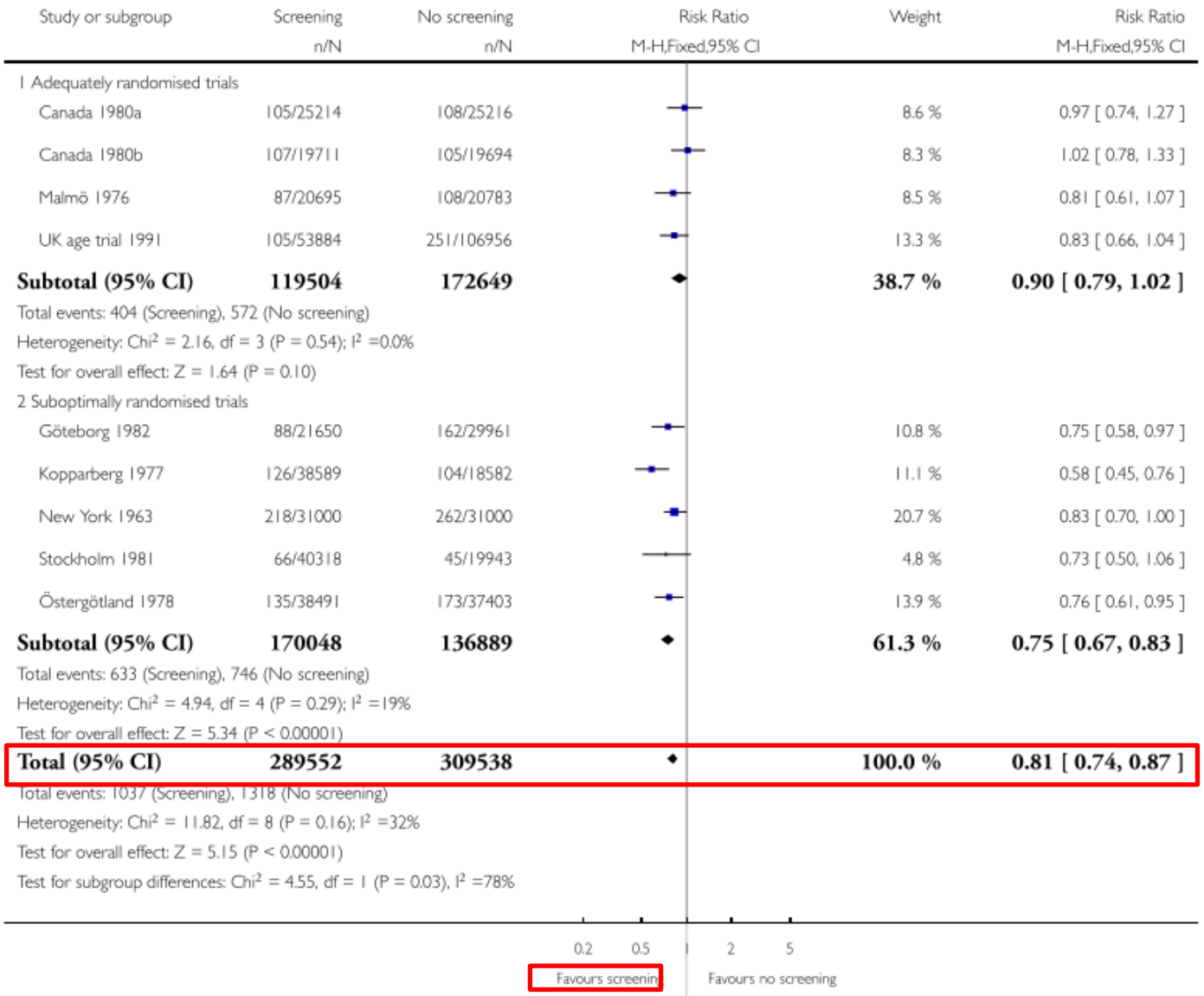


Analysis 1.2. Comparison 1 Screening with mammography versus no screening, Outcome 2 Deaths ascribed to breast cancer, 13 years follow up.

Review: Screening for breast cancer with mammography

Comparison: 1 Screening with mammography versus no screening

Outcome: 2 Deaths ascribed to breast cancer, 13 years follow up



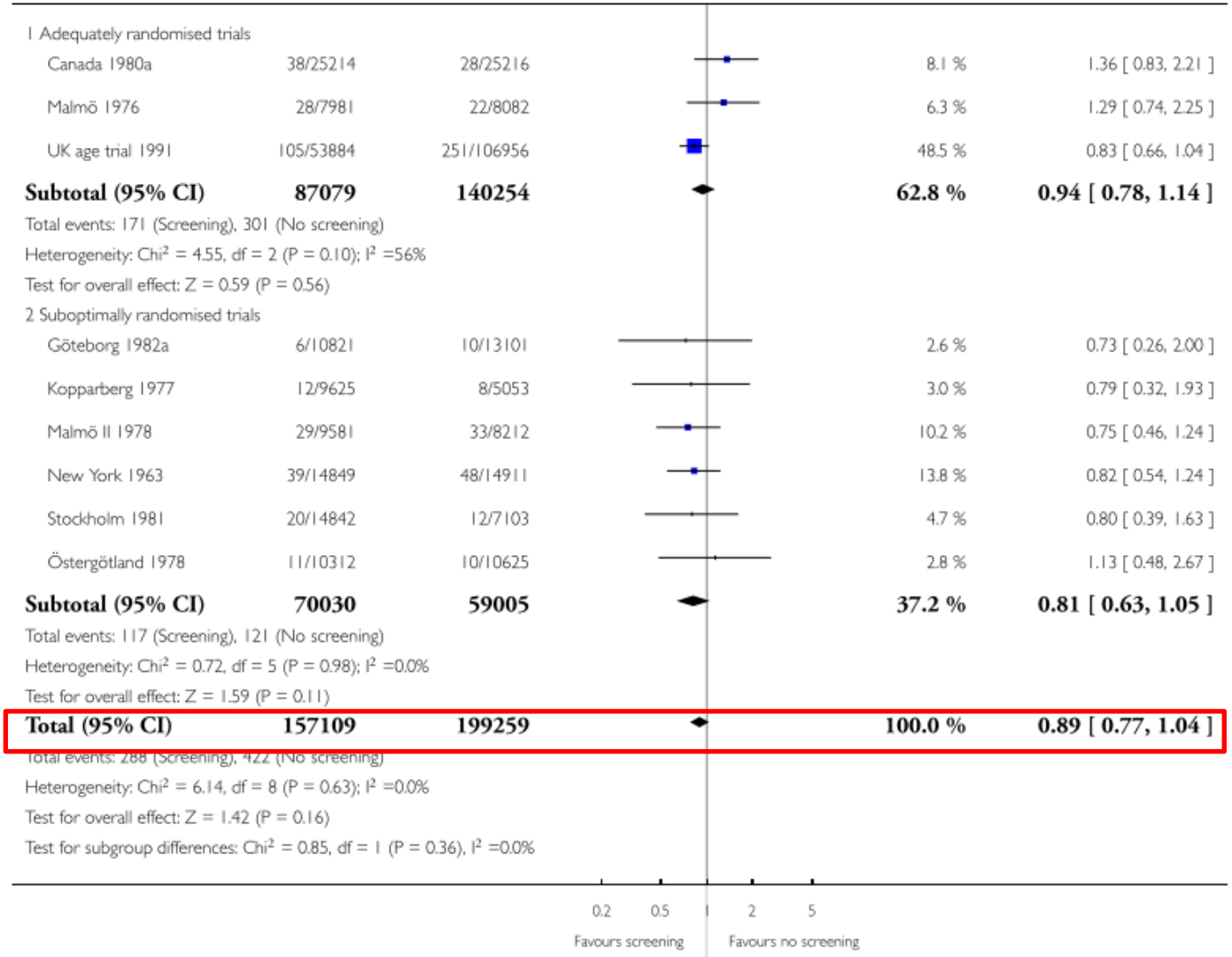
Analysis 1.3. Comparison 1 Screening with mammography versus no screening, Outcome 3 Deaths ascribed to breast cancer, 7 years follow up, women below 50 years of age (Malmö 55).

Review: Screening for breast cancer with mammography

Comparison: 1 Screening with mammography versus no screening

Outcome: 3 Deaths ascribed to breast cancer, 7 years follow up, women below 50 years of age (Malmö 55)

Study or subgroup	Screening n/N	No screening n/N	Risk Ratio M-H,Fixed,95% CI	Weight	Risk Ratio M-H,Fixed,95% CI
1 Adequately randomised trials					
Canada 1980a	38/25214	28/25216		8.1 %	1.36 [0.83, 2.21]
Malmö 1976	28/7981	22/8082		6.3 %	1.29 [0.74, 2.25]
UK age trial 1991	105/53884	251/106956		48.5 %	0.83 [0.66, 1.04]
Subtotal (95% CI)	**87079**	**140254**		**62.8 %**	**0.94 [0.78, 1.14]**
Total events: 171 (Screening), 301 (No screening)					
Heterogeneity: Chi^2 = 4.55, df = 2 (P = 0.10); I^2 =56%					
Test for overall effect: Z = 0.59 (P = 0.56)					
2 Suboptimally randomised trials					
Göteborg 1982a	6/10821	10/13101		2.6 %	0.73 [0.26, 2.00]
Kopparberg 1977	12/9625	8/5053		3.0 %	0.79 [0.32, 1.93]
Malmö II 1978	29/9581	33/8212		10.2 %	0.75 [0.46, 1.24]
New York 1963	39/14849	48/14911		13.8 %	0.82 [0.54, 1.24]
Stockholm 1981	20/14842	12/7103		4.7 %	0.80 [0.39, 1.63]
Östergötland 1978	11/10312	10/10625		2.8 %	1.13 [0.48, 2.67]
Subtotal (95% CI)	**70030**	**59005**		**37.2 %**	**0.81 [0.63, 1.05]**
Total events: 117 (Screening), 121 (No screening)					
Heterogeneity: Chi^2 = 0.72, df = 5 (P = 0.98); I^2 =0.0%					
Test for overall effect: Z = 1.59 (P = 0.11)					
Total (95% CI)	**157109**	**199259**		**100.0 %**	**0.89 [0.77, 1.04]**
Total events: 288 (Screening), 422 (No screening)					
Heterogeneity: Chi^2 = 6.14, df = 8 (P = 0.63); I^2 =0.0%					
Test for overall effect: Z = 1.42 (P = 0.16)					
Test for subgroup differences: Chi^2 = 0.85, df = 1 (P = 0.36), I^2 =0.0%					



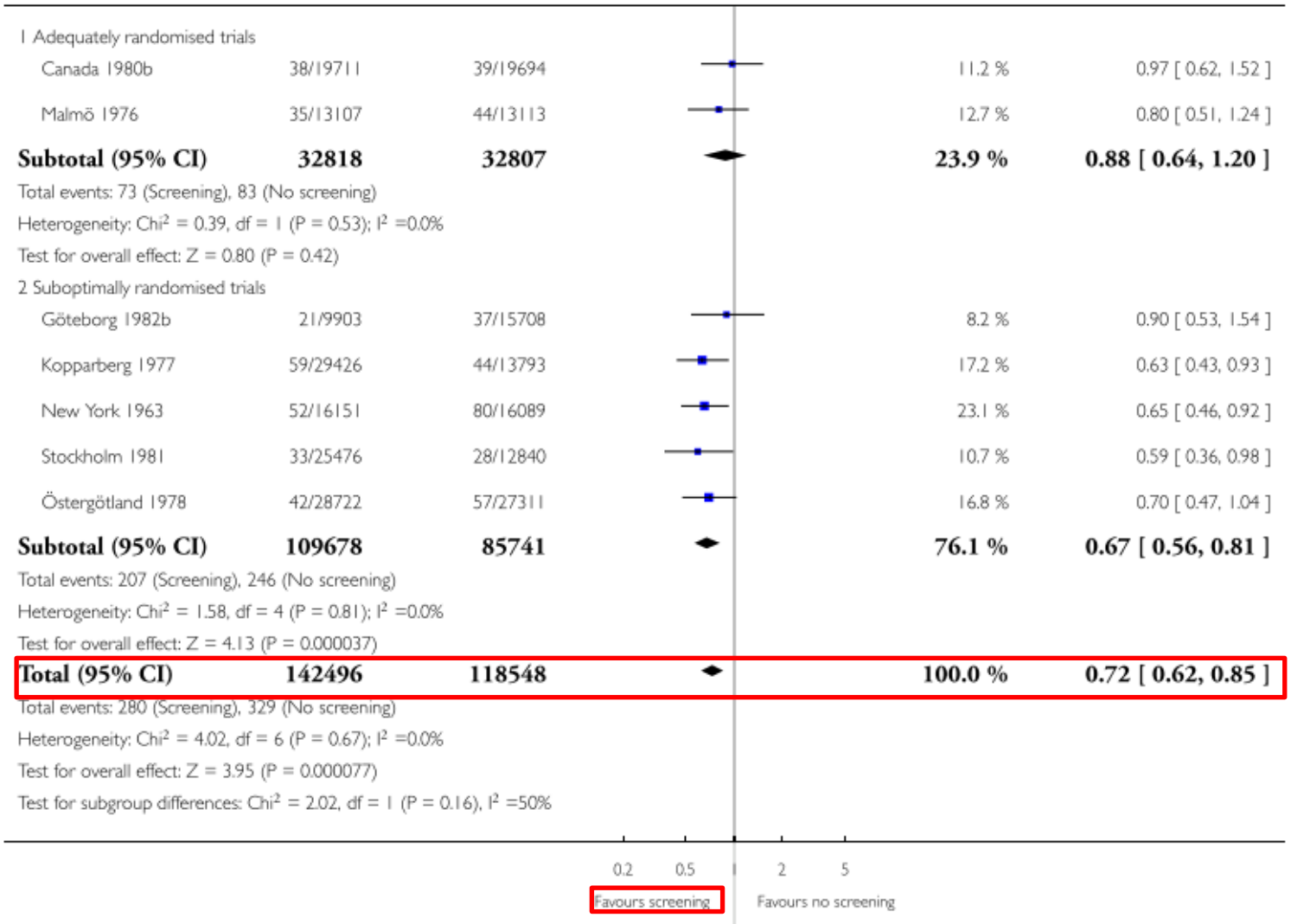
Analysis 1.4. Comparison 1 Screening with mammography versus no screening, Outcome 4 Deaths ascribed to breast cancer, 7 years follow up, women at least 50 years of age (Malmö 55)

Review: Screening for breast cancer with mammography

Comparison: 1 Screening with mammography versus no screening

Outcome: 4 Deaths ascribed to breast cancer, 7 years follow up, women at least 50 years of age (Malmö 55)

Study or subgroup	Screening n/N	No screening n/N	Risk Ratio M-H,Fixed,95% CI	Weight	Risk Ratio M-H,Fixed,95% CI
1 Adequately randomised trials					
Canada 1980b	38/19711	39/19694		11.2 %	0.97 [0.62, 1.52]
Malmö 1976	35/13107	44/13113		12.7 %	0.80 [0.51, 1.24]
Subtotal (95% CI)	**32818**	**32807**		**23.9 %**	**0.88 [0.64, 1.20]**
Total events: 73 (Screening), 83 (No screening)					
Heterogeneity: Chi^2 = 0.39, df = 1 (P = 0.53); I^2 =0.0%					
Test for overall effect: Z = 0.80 (P = 0.42)					
2 Suboptimally randomised trials					
Göteborg 1982b	21/9903	37/15708		8.2 %	0.90 [0.53, 1.54]
Kopparberg 1977	59/29426	44/13793		17.2 %	0.63 [0.43, 0.93]
New York 1963	52/16151	80/16089		23.1 %	0.65 [0.46, 0.92]
Stockholm 1981	33/25476	28/12840		10.7 %	0.59 [0.36, 0.98]
Östergötland 1978	42/28722	57/27311		16.8 %	0.70 [0.47, 1.04]
Subtotal (95% CI)	**109678**	**85741**		**76.1 %**	**0.67 [0.56, 0.81]**
Total events: 207 (Screening), 246 (No screening)					
Heterogeneity: Chi^2 = 1.58, df = 4 (P = 0.81); I^2 =0.0%					
Test for overall effect: Z = 4.13 (P = 0.000037)					
Total (95% CI)	**142496**	**118548**		**100.0 %**	**0.72 [0.62, 0.85]**
Total events: 280 (Screening), 329 (No screening)					
Heterogeneity: Chi^2 = 4.02, df = 6 (P = 0.67); I^2 =0.0%					
Test for overall effect: Z = 3.95 (P = 0.000077)					
Test for subgroup differences: Chi^2 = 2.02, df = 1 (P = 0.16), I^2 =50%					



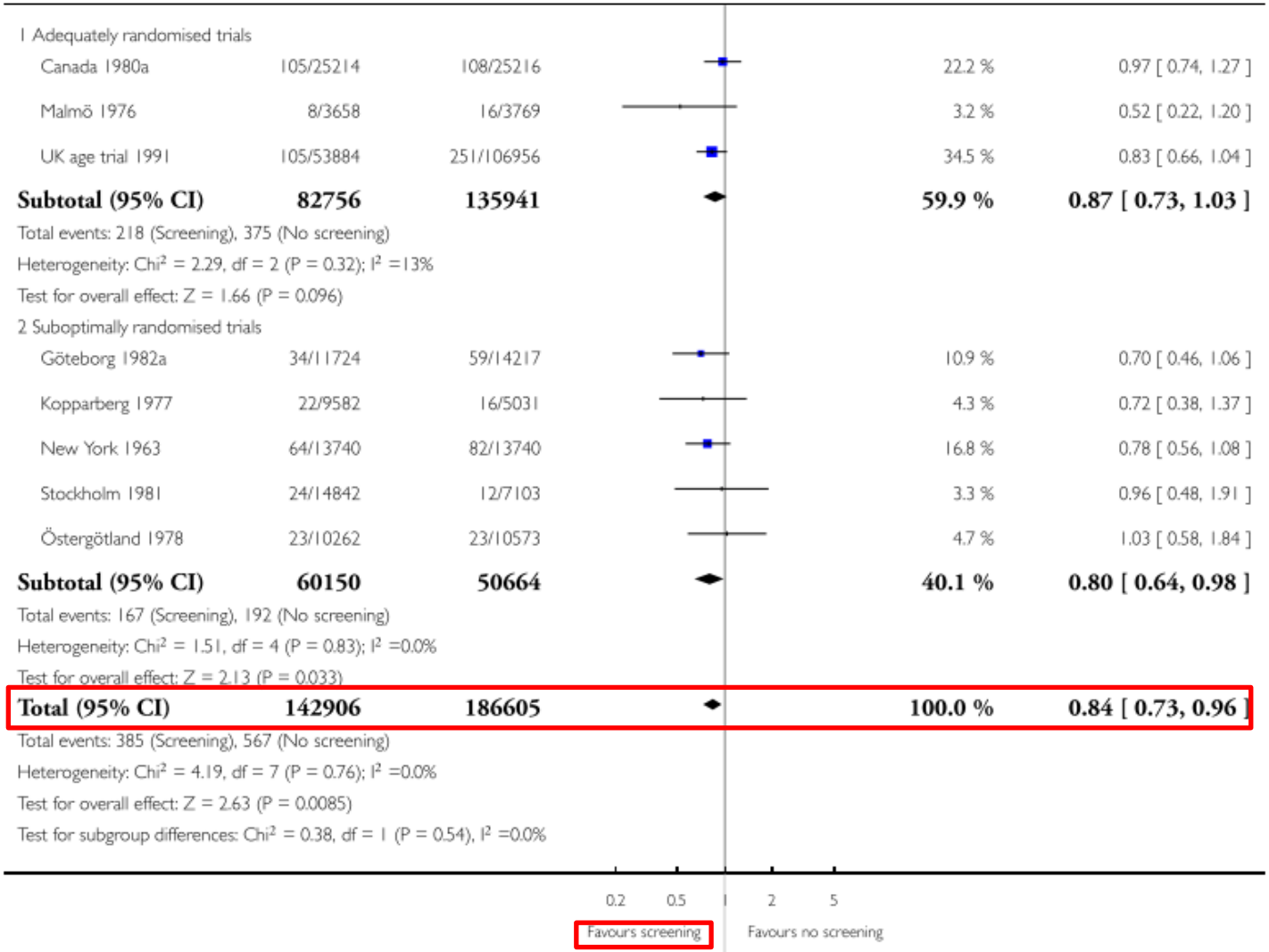
Analysis 1.5. Comparison 1 Screening with mammography versus no screening, Outcome 5 Deaths ascribed to breast cancer, 13 years follow up, women below 50 years of age.

Review: Screening for breast cancer with mammography

Comparison: 1 Screening with mammography versus no screening

Outcome: 5 Deaths ascribed to breast cancer, 13 years follow up, women below 50 years of age

Study or subgroup	Screening n/N	No screening n/N	Risk Ratio M-H,Fixed,95% CI	Weight	Risk Ratio M-H,Fixed,95% CI
1 Adequately randomised trials					
Canada 1980a	105/25214	108/25216		22.2 %	0.97 [0.74, 1.27]
Malmö 1976	8/3658	16/3769		3.2 %	0.52 [0.22, 1.20]
UK age trial 1991	105/53884	251/106956		34.5 %	0.83 [0.66, 1.04]
Subtotal (95% CI)	**82756**	**135941**		**59.9 %**	**0.87 [0.73, 1.03]**
Total events: 218 (Screening), 375 (No screening)					
Heterogeneity: Chi² = 2.29, df = 2 (P = 0.32); I² =13%					
Test for overall effect: Z = 1.66 (P = 0.096)					
2 Suboptimally randomised trials					
Göteborg 1982a	34/11724	59/14217		10.9 %	0.70 [0.46, 1.06]
Kopparberg 1977	22/9582	16/5031		4.3 %	0.72 [0.38, 1.37]
New York 1963	64/13740	82/13740		16.8 %	0.78 [0.56, 1.08]
Stockholm 1981	24/14842	12/7103		3.3 %	0.96 [0.48, 1.91]
Östergötland 1978	23/10262	23/10573		4.7 %	1.03 [0.58, 1.84]
Subtotal (95% CI)	**60150**	**50664**		**40.1 %**	**0.80 [0.64, 0.98]**
Total events: 167 (Screening), 192 (No screening)					
Heterogeneity: Chi² = 1.51, df = 4 (P = 0.83); I² =0.0%					
Test for overall effect: Z = 2.13 (P = 0.033)					
Total (95% CI)	**142906**	**186605**		**100.0 %**	**0.84 [0.73, 0.96]**
Total events: 385 (Screening), 567 (No screening)					
Heterogeneity: Chi² = 4.19, df = 7 (P = 0.76); I² =0.0%					
Test for overall effect: Z = 2.63 (P = 0.0085)					
Test for subgroup differences: Chi² = 0.38, df = 1 (P = 0.54), I² =0.0%					



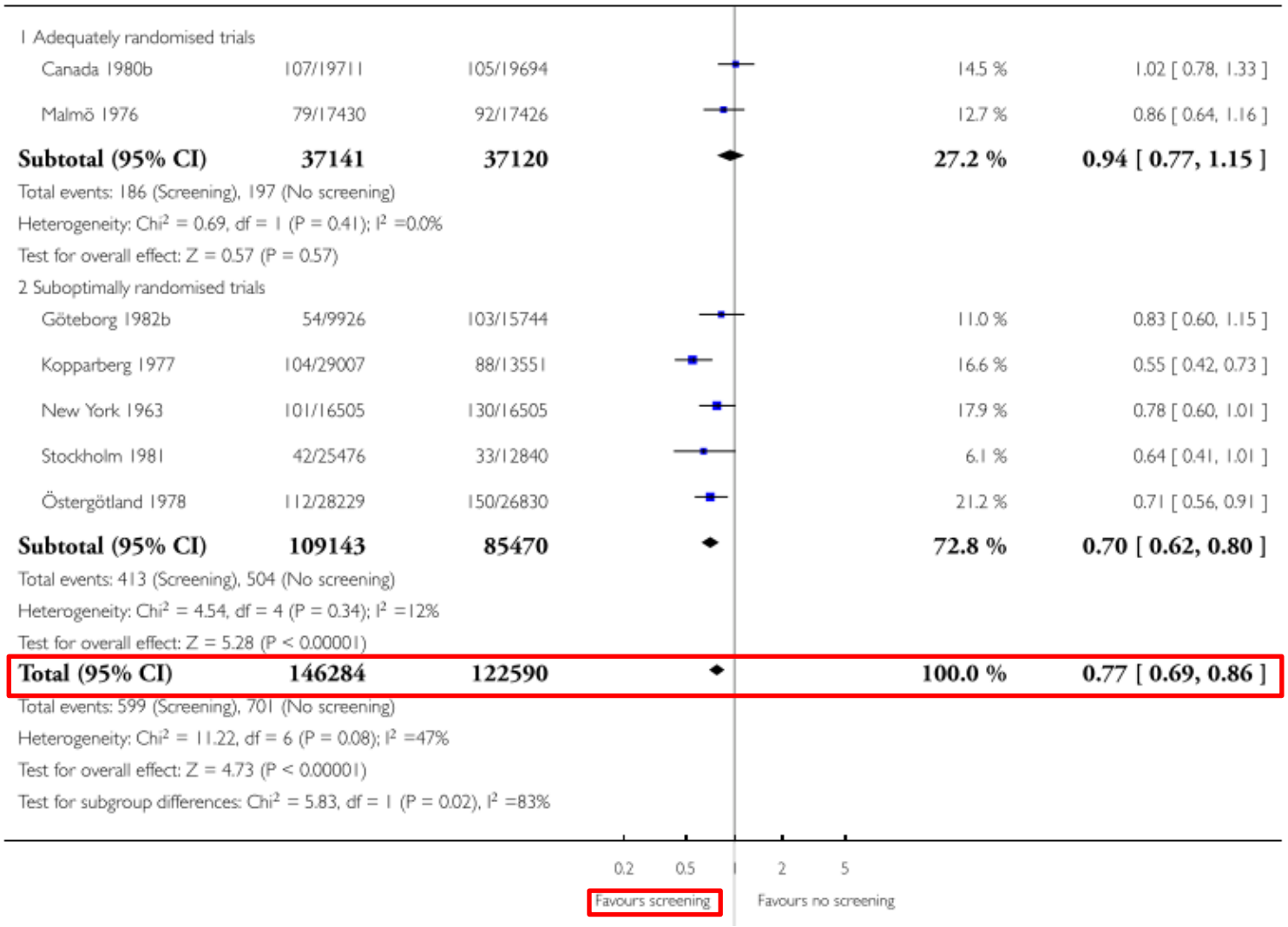
Analysis 1.6. Comparison 1 Screening with mammography versus no screening, Outcome 6 Deaths ascribed to breast cancer, 13 years follow up, women at least 50 years of age.

Review: Screening for breast cancer with mammography

Comparison: 1 Screening with mammography versus no screening

Outcome: 6 Deaths ascribed to breast cancer, 13 years follow up, women at least 50 years of age

Study or subgroup	Screening n/N	No screening n/N	Risk Ratio M-H,Fixed,95% CI	Weight	Risk Ratio M-H,Fixed,95% CI
1 Adequately randomised trials					
Canada 1980b	107/19711	105/19694		14.5 %	1.02 [0.78, 1.33]
Malmö 1976	79/17430	92/17426		12.7 %	0.86 [0.64, 1.16]
Subtotal (95% CI)	**37141**	**37120**		**27.2 %**	**0.94 [0.77, 1.15]**
Total events: 186 (Screening), 197 (No screening)					
Heterogeneity: $Chi^2 = 0.69$, df = 1 (P = 0.41); $I^2 = 0.0\%$					
Test for overall effect: Z = 0.57 (P = 0.57)					
2 Suboptimally randomised trials					
Göteborg 1982b	54/9926	103/15744		11.0 %	0.83 [0.60, 1.15]
Kopparberg 1977	104/29007	88/13551		16.6 %	0.55 [0.42, 0.73]
New York 1963	101/16505	130/16505		17.9 %	0.78 [0.60, 1.01]
Stockholm 1981	42/25476	33/12840		6.1 %	0.64 [0.41, 1.01]
Östergötland 1978	112/28229	150/26830		21.2 %	0.71 [0.56, 0.91]
Subtotal (95% CI)	**109143**	**85470**		**72.8 %**	**0.70 [0.62, 0.80]**
Total events: 413 (Screening), 504 (No screening)					
Heterogeneity: $Chi^2 = 4.54$, df = 4 (P = 0.34); $I^2 = 12\%$					
Test for overall effect: Z = 5.28 (P < 0.00001)					
Total (95% CI)	**146284**	**122590**		**100.0 %**	**0.77 [0.69, 0.86]**
Total events: 599 (Screening), 701 (No screening)					
Heterogeneity: $Chi^2 = 11.22$, df = 6 (P = 0.08); $I^2 = 47\%$					
Test for overall effect: Z = 4.73 (P < 0.00001)					
Test for subgroup differences: $Chi^2 = 5.83$, df = 1 (P = 0.02), $I^2 = 83\%$					



Analysis 1.7. Comparison 1 Screening with mammography versus no screening, Outcome 7 Deaths ascribed to any cancer, all women.

Review: Screening for breast cancer with mammography

Comparison: 1 Screening with mammography versus no screening

Outcome: 7 Deaths ascribed to any cancer, all women

Study or subgroup	Screening n/N	No screening n/N	Risk Ratio M-H,Fixed,95% CI	Weight	Risk Ratio M-H,Fixed,95% CI
1 Adequately randomised trials					
Canada 1980a	280/25214	285/25216		20.0 %	0.98 [0.83, 1.16]
Canada 1980b	464/19711	403/19694		28.3 %	1.15 [1.01, 1.31]
Malmö 1976	707/21088	739/21195		51.7 %	0.96 [0.87, 1.06]
Subtotal (95% CI)	**66013**	**66105**		**100.0 %**	**1.02 [0.95, 1.10]**
Total events: 1451 (Screening), 1427 (No screening)					
Heterogeneity: Chi^2 = 4.69, df = 2 (P = 0.10); I^2 =57%					
Test for overall effect: Z = 0.52 (P = 0.61)					
2 Suboptimally randomised trials (unreliable estimates)					
Kopparberg 1977	666/39051	319/18846		24.6 %	1.01 [0.88, 1.15]
New York 1963	791/30239	823/30765		46.6 %	0.98 [0.89, 1.08]
Östergötland 1978	510/39034	498/37936		28.8 %	1.00 [0.88, 1.13]
Subtotal (95% CI)	**108324**	**87547**		**100.0 %**	**0.99 [0.93, 1.06]**
Total events: 1967 (Screening), 1640 (No screening)					
Heterogeneity: Chi^2 = 0.14, df = 2 (P = 0.93); I^2 =0.0%					
Test for overall effect: Z = 0.29 (P = 0.77)					

討論

- 研究結果顯示：50至69歲的婦女做Mammography篩檢乳癌，仍有其效益
- 台灣現行政策，45至69歲婦女每二年鼓勵做Mammography，但執行過程中皆未說明其檢查的益處及可能的風險，造成民眾可能在執行過程中面臨身、心不適及壓力
- 因許多研究顯示， Mammography乳房篩檢具偽陽性，建議進行知情同意，告知益處及風險
- 降低Mammography偽陽性，提高篩檢工具可信度
  - 在醫院放上診斷科 vs 乳攝車?

討論一

- 若妳本人符合篩檢條件，妳願意接受乳房篩檢？

投票表決

- 8人同意
- 9人懷疑
- 11人不同意

討論二

- 進行乳房攝影篩檢前，是否需要知情同意?

投票表決

- 23人同意
- 4人懷疑
- 1人不同意


Thank you ...