

STATE UNIVERSITY OF MEDICINE AND PHARMACY "NICOLAE TESTEMITANU"

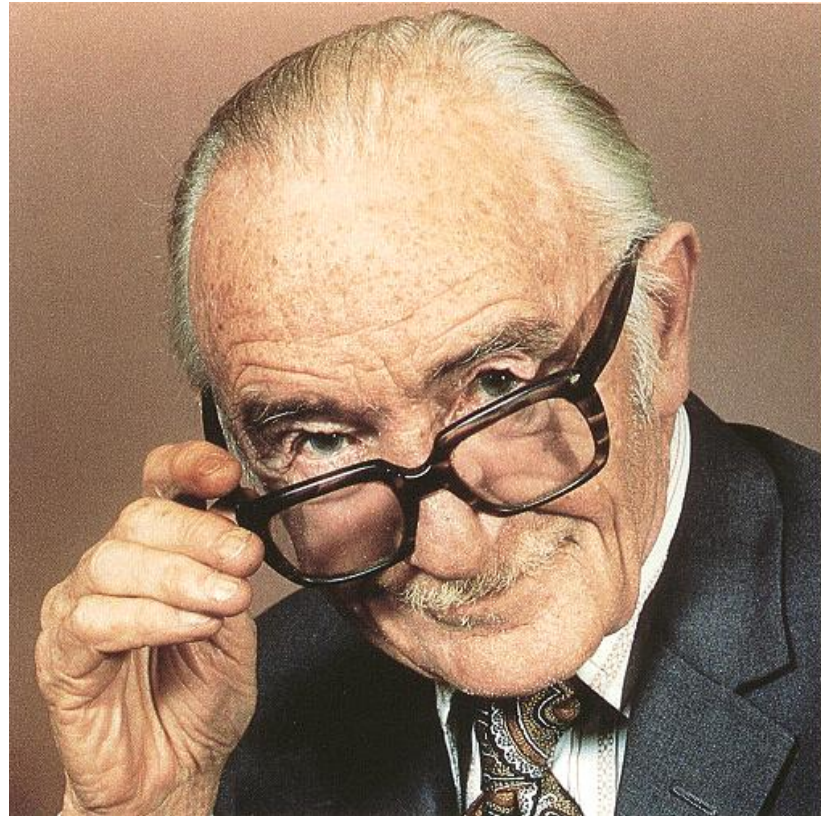
**DEPARTMENT of
MANAGEMENT AND PSYCHOLOGY**

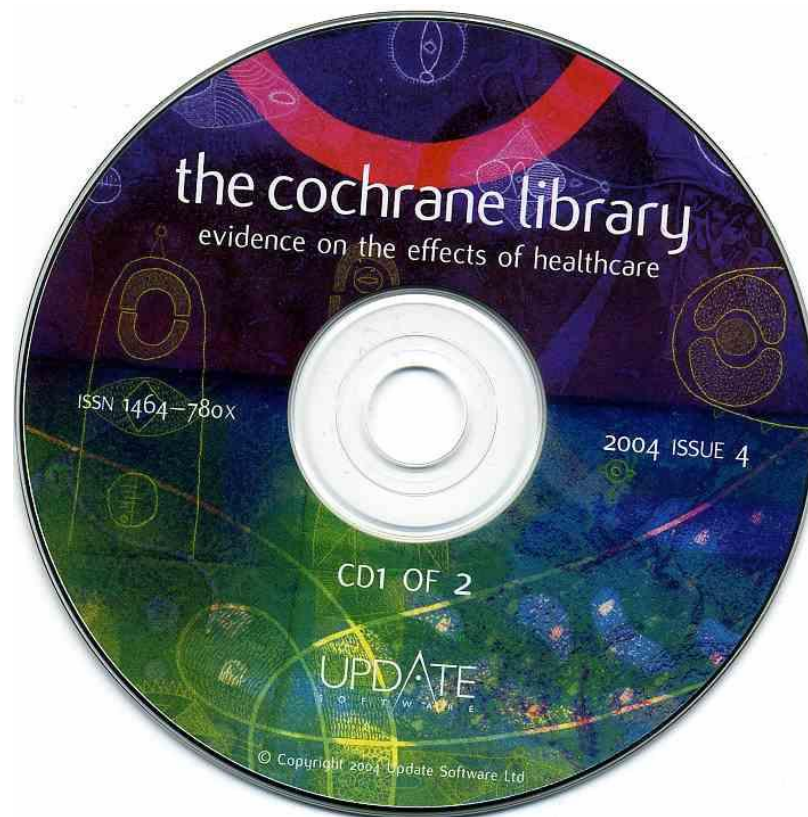


SYSTEMATIC REVIEWS IN SUPPORT OF EVENTS

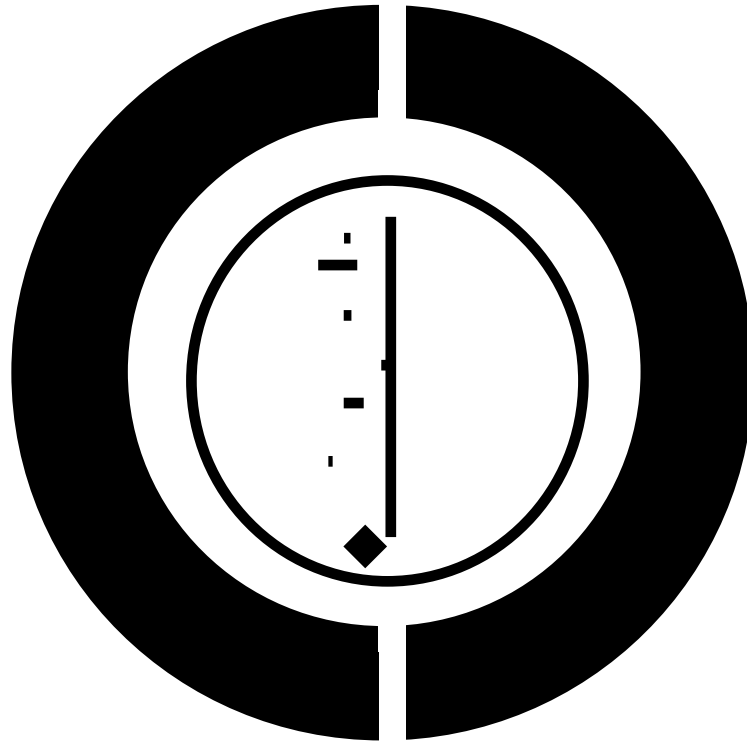
Larisa Spinei
d.h.ș.m., profesor universitar

Archie Cochran





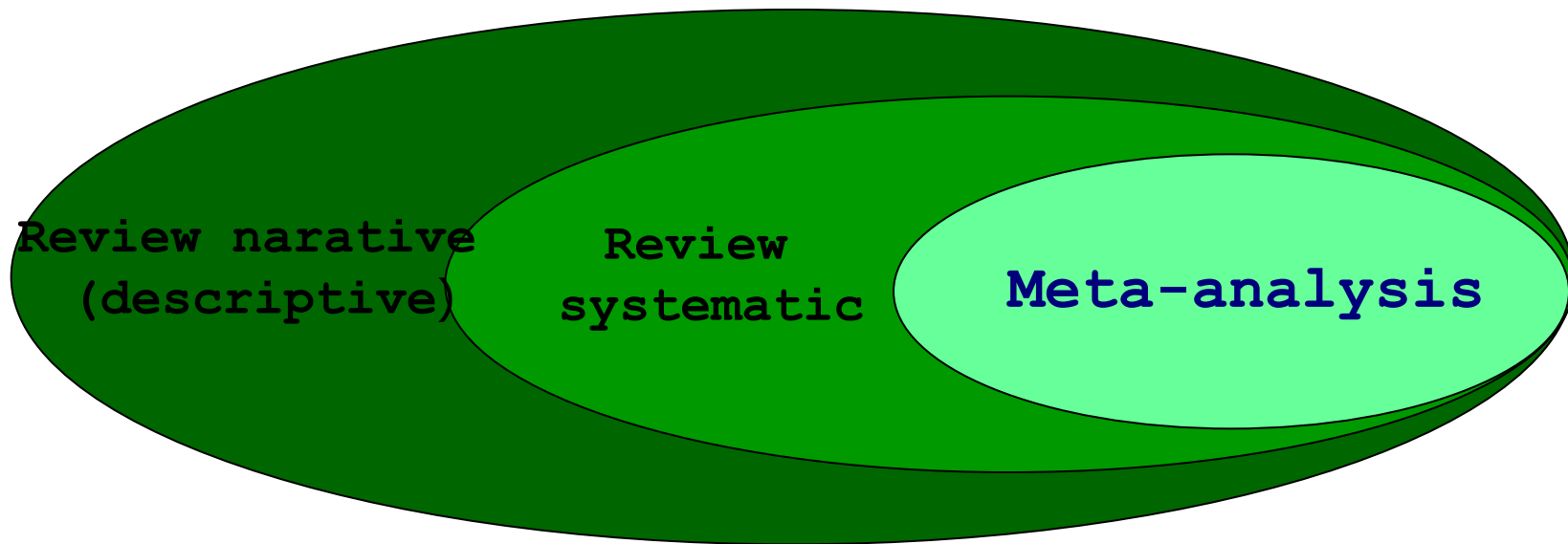
The Cochrane Collaboration



Preparing, maintaining and disseminating
systematic reviews of the effects of health care
Forest plot

TYPES OF REVIEW

- Narrative (descriptive)
- Systematic
- Meta-analysis



- 
- **Narative review (descriptive)**
 - **(highest category)**

 - **Most narrative reviews are unsystematic, as the author did not take in consideration all the evidences**

- 
- **Review systematic –**
primary study review with explicit and
reproducible methodology

TYPES OF REVIEW

Narative Review

- It covers many questions
- It is subject to deviations

Systematic Review

- Review of Primary Studies
- focused
- Answer a question
- It uses an exact methodology
- Minimizes deviation

SYSTEMATIC REVIEW

- Assessing the importance of research
- Evaluation of research design
- Evaluation of research results
- **Data combining - meta-analysis**
- **Significant informatics medicine**

ADVANTAGES OF SYSTEMIC REVIEWS

- **The explicit method limits the error**
- **Summarizes the evidences**
- **They can reduce the lag between research and implementation**
- **Increasing accuracy**
- **Identifies differences between studies and subgroups**

Meta-analysis

- **Meta-analysis** –the mathematical synthesis of the results of two or more primary studies, with the purpose to increase the precision of the results



Systematic Review/meta-analysis

SR

- Review of primary studies with correct and reproducible methodology
- Qualitative review

MA

- Mathematical analysis of several similar primary studies with the purpose of increasing the validity / accuracy of the results
- Quantitative review

Systematic Review / Meta-analysis

- **In 1966 Nobel Prize winner - Prof. L. Paling published a review about the reduction of IRVA by the administration of ascorbic acid** [Paling L. How to live longer and feel better. New York: Freeman; 1986].
- **In 1992, meta-analysis was published on the same issue that did not confirm L. Paling's conclusions**
[Kleijnen J., and Knipschild P. The comprehensiveness of Medline and Embase computer searches. Searches for controlled trials of homoeopathy, ascorbic acid for common cold and ginkgo biloba for cerebral insufficiency and intermittent claudication. PharmWekbl (Sci) 1992;14:316—20].

META-ANALYSIS OF TYPE I

- **Helps solve medical controversy caused by differences in studies**
- **Being an inexpensive alternative to bulky randomized trials**
- **I can "modify" health policy**

META-ANALYSIS OF TYPE II

- **is useful for designing future studies by systematically identifying patients with important outcomes and study characteristics based on previous materials**



STEPS OF META-ANALYSIS

- 1. Identification**
- 2. selection**
- 3. extracting**
- 4. Analyze**

1. IDENTIFICATION

- **The first step in a meta-analysis is to identify all relevant articles to your subject**

NAVIGATION OF SOURCES

1. ELECTRONIC DATABASES

- The Specialized Register of the Cochrane Dementia and Cognitive
- Improvement Group
- Cochrane Central Register of Controlled Trials (CENTRAL)
- MEDLINE
- EMBASE
- PsycINFO (a database of psychological literature)
- CINAHL
- SIGLE (Grey Literature in Europe)
- LILACS (Latin American and Caribbean Health Science Literature)



NAVIGATION OF SOURCES

2. ELECTRONIC DATABASES OF CONFERENCE ABSTRACTS

- **ISTP (Index to Scientific and Technical Proceedings)**
- **INSIDE**
- **(British Library Database of Conference Proceedings and Journals)**



NAVIGATION OF SOURCES

3. ELECTRONIC DATABASES OF THESES

- **Index to Theses (formerly ASLIB) (United Kingdom and Ireland theses)**
- **Australian Digital Theses Program**
- **Canadian Theses and Dissertations**
- **DATAD - Database of African Theses and Dissertations**

- 
- **MEDLINE** –the electronic database of the National Library of Medicine, USA
 - It is an excellent starting point, not the only source of information
 - **MEDLINE** indexes about 4100 journals, dating from 1966 to the present



Cochrane Registry

a.1993

It is an important source for meta-analysis

The registry includes summaries of more than 160 thousand studies

The Cochrane Library



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Independent high-quality evidence for health care decision making

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SEARCH THE COCHRANE LIBRARY

Title, Abstract or Keywords 

community health workers

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HELP 



Notice to all users: The April issue of *The Cochrane library* is now live (14 April 2010). **Please note:** there is a delay in the April publication of the *Cochrane Central Register of Controlled Trials* (CENTRAL). Publication is currently scheduled for Tuesday 27th April at approximately 15:00 GMT. We apologise for any inconvenience caused by the delay.

BROWSE COCHRANE DATABASE OF SYSTEMATIC REVIEWS

[Anaesthesia & pain control](#) (143)

[Blood disorders](#) (94)

[Cancer](#) (252)

[Consumers & communication](#) (29)

[Dentistry and oral health](#) (107)

[Developmental, psychosocial, and learning problems](#) (70)

[Ear, nose, & throat](#) (92)

[Effective practice/health systems](#) (59)

[Endocrine & metabolic](#) (89)

[Eyes & vision](#) (78)

[Gastroenterology](#) (258)

[Genetic disorders](#) (82)

SPECIAL COLLECTIONS



World Malaria Day (25 April 2010)



World Asthma Day (4 May 2010)



Cochrane Evidence Aid: resources for Chile and Haiti earthquakes

[View all](#)

EDITORIAL



"Inadequate control despite regular treatment with inhaled corticosteroids." It's a scenario repeated all over the world in surgeries and outpatients departments, anywhere where people with asthma are routinely treated. Health professional and patients are faced with a familiar problem: increase the dose of corticosteroids or add a new agent, such as an inhaled long-acting beta-agonist (LABA). Which is best?...

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HIGHLIGHTED NEW AND UPDATED COCHRANE REVIEWS



[Legislative smoking bans for reducing secondhand smoke exposure, smoking prevalence and tobacco consumption](#)

The Cochrane Library

Search Results

Show Results in:

[Cochrane Reviews \[19\]](#) | [Other Reviews \[6\]](#) | [Clinical Trials \[235\]](#) | [Methods Studies \[4\]](#) | [Technology Assessments \[0\]](#) | [Economic Evaluations \[7\]](#) | [Cochrane Groups \[0\]](#)

There are 19 results out of 6153 records for: "community health workers in Title, Abstract or Keywords in Cochrane Database of Systematic Reviews"

[Save](#)

View: 1-19

[Edit](#)

[Export All Results](#)

Record Information

Issue: [Current](#) | [All](#) Restrict to: [Reviews](#) | [Protocols](#) Sort by: [Record Title](#) | [Match](#)

- | | |
|--------------------------|--|
| ☐ | Lay health workers in primary and community health care for maternal and child health and the management of infectious diseases
Simon Lewin, Susan Munabi-Babigumira, Claire Glenton, Karen Daniels, Xavier Bosch-Capblanch, Brian E van Wyk, Jan Odgaard-Jensen, Marit Johansen, Godwin N Aja, Merrick Zwarenstein, Inger B Scheel
March 2010
Review |
| ☐ | Flexible working conditions and their effects on employee health and wellbeing
Kerry Joyce, Roman Pabayo, Julia A Critchley, Clare Bamba
February 2010
Review |
| ☐ | Strategies for integrating primary health services in middle- and low-income countries at the point of delivery
C. Jane Briggs, Paul Garner
January 2009
Review |
| ☐ | Directly observed therapy for treating tuberculosis
Jimmy Volmink, Paul Garner
January 2009
Review |
| ☐ | Interventions for promoting smoke alarm ownership and function
Carolyn DiGiuseppi, Cynthia W Goss, Julian PT Higgins
February 2010
Review |
| ☐ | Smart home technologies for health and social care support
Suzanne Martin, Greg Kelly, W George Kernohan, Bernadette McCreight, Christopher Nugent
January 2009
Review |
| ☐ | Community based management of neonatal sepsis in developing countries
Anita KM Zaidi, Muhammad Ammad Saeed, Zulfiqar A Bhutta, Durrane Thaver
January 2009
Protocol |
| ☐ | Home care by outreach nursing for chronic obstructive pulmonary disease
Brian Smith, Sarah Appleton, Robert Adams, Anne Marie AMS Southcott, Dick Ruffin
October 2008
Review |
| ☐ | Advance treatment directives for people with severe mental illness |

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[Intervention Review]
Lay health workers in primary and community health care for maternal and child health and the management of infectious diseases

PDF

- [Summary](#) (67 K)
- [Standard](#) (1741 K)
- [Full](#) (1967 K)

- [Abstract](#)
- [Plain language summary](#)

Quick links

- [What's new](#)
- [Summary of findings](#)

The review

- [Background](#)
- [Objectives](#)
- [Methods](#)
- [Results](#)

[Intervention Review]

Lay health workers in primary and community health care for maternal and child health and the management of infectious diseases

Simon Lewin¹, Susan Munabi-Babigumira¹, Claire Glenton², Karen Daniels³, Xavier Bosch-Capblanch⁴, Brian E van Wyk⁵, Jan Odgaard-Jensen⁶, Marit Johansen⁶, Godwin N Aja⁷, Merrick Zwarenstein⁸, Inger B Scheel⁸

¹Preventive and International Health Care Unit, Norwegian Knowledge Centre for the Health Services, Oslo, Norway. ²Department of Global Health and Welfare, SINTEF Health Research, Oslo, Norway. ³Health Systems Research Unit, Medical Research Council, Tygerberg, South Africa. ⁴Swiss Centre for International Health, Swiss Tropical and Public Health Institute, Basel, Switzerland. ⁵School of Public Health, University of the Western Cape, Bellville, South Africa. ⁶Norwegian Knowledge Centre for the Health Services, Oslo, Norway. ⁷Department of Health Sciences, Babcock University, Ikeja-Lagos, Nigeria. ⁸Combined Health Services Sciences, Sunnybrook Health Sciences Centre, Toronto, Canada

Contact address: Simon Lewin, Preventive and International Health Care Unit, Norwegian Knowledge Centre for the Health Services, Box 7004 St Olavs plass, Oslo, N-0130, Norway. simon.lewin@nokc.no

Editorial group: [Cochrane Effective Practice and Organisation of Care Group](#).

Publication status and date: New search for studies and content updated (conclusions changed), published in Issue 3, 2010.

Review content assessed as up-to-date: 21 October 2009.

Citation: Lewin S, Munabi-Babigumira S, Glenton C, Daniels K, Bosch-Capblanch X, van Wyk BE, Odgaard-Jensen J, Johansen M, Aja GN, Zwarenstein M, Scheel IB. Lay health workers in primary and community care for maternal and child health and the management of infectious diseases. *Cochrane Database of Systematic Reviews* 2010, Issue 3. Art. No.: CD004015. DOI: 10.1002/14651858.CD004015.pub3.

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Abstract

Background

Lay health workers (LHWs) are widely used to provide care for a broad range of health issues. Little is known, however, about the effectiveness of LHW interventions.

The Cochrane Library

Outcome effectiveness of community health workers: an integrative literature review (Structured abstract)

- Authors' objectives
- Searching
- Study selection: study designs
- Study selection: specific interventions
- Study selection: participants
- Study selection: outcomes
- Study selection: how were decisions on the relevance of primary studies made?
- Validity assessment
- Data extraction
- Methods of synthesis: how were the studies combined?
- Methods of synthesis: how were differences between studies investigated?
- Results of the review
- Cost information

Outcome effectiveness of community health workers: an integrative literature review (Structured abstract)

Centre for Reviews and Dissemination

Database of Abstracts of Reviews of Effects 2010 Issue 2

Copyright © 2010 University of York. Published by John Wiley & Sons, Ltd.

Original article: Swider S M. Outcome effectiveness of community health workers: an integrative literature review. *Public Health Nursing*. 2002;19(1):11-20. [Links](#)

Authors' objectives

To review the database literature on the effectiveness of community health workers (CHWs) in community health promotion and disease prevention efforts.

Searching

MEDLINE (from 1981 to 1999), HealthStar (from 1975 to 1999), CINAHL (from 1982 to 1999), EBM Reviews: Best Evidence (from 1991 to 1999), PsycINFO (from 1984 to 1999), PubMed (from 1980 to 1999) were searched. The search terms were not listed. It is implied that only English language studies were included in the review.

Study selection: study designs

Studies of any design seem to have been eligible for inclusion in the review. The included studies had the following designs: cross-sectional or survey; retrospective; randomised controlled trials (RCTs); 'quasi-experimental'.

Study selection: specific interventions

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Enter a term below and click Search to continue.

Search For:

In:

To search using field labels (e.g. heart:ti) use the [Search History](#) page.

Search All Text

AND Enter search term 2 Record Title

AND Enter search term 3 Author

AND Enter search term 4 Abstract

AND Enter search term 5 Keywords

☐ Go directly to Search History

Restrict Search by Product

☒ All of The Cochrane Library

☐ Cochrane Database of Systematic Reviews (Cochrane Reviews)

☐ Database of Abstracts of Reviews of Effects (Other Reviews)

☐ Cochrane Central Register of Controlled Trials (Clinical Trials)

☐ Cochrane Methodology Register (Methods Studies)

☐ Health Technology Assessment Database (Technology Assessments)

☐ NHS Economic Evaluation Database (Economic Evaluations)

☐ About The Cochrane Collaboration (Cochrane Groups)

SEARCH TIPS

Tip No. 1:

Boolean operators AND, OR, and NOT can be selected from the pulldown selection boxes or entered directly within the search text boxes. Use parentheses to separate components when entering complex search directly in text box with mixed Boolean operators.

Example: *(colchicine AND liver) AND (fibrosis OR cirrhosis)*

Tip No. 2:

The AND operator is used by default between search terms. The string *brain stem* will match records where both words are included in any order or proximity. Search for exact phrases by enclosing a string in quotation marks.

Example: *"clodronate therapy"* matches that exact term

Tip No. 3:

Search for accented characters (within all fields except Author) by using both the accented and unaccented versions of a term or by using wildcard (multiple: *) or (single: ?) characters.

Example: *meniere** or *ménière**

Index Medicus

- **It can be just as useful when it is important to research articles published before 1966**

PubMed



U.S. National Library of Medicine
National Institutes of Health

Search: PubMed



[Limits](#) [Advanced search](#) [Help](#)

Search

Clear

Welcome to PubMed

PubMed comprises more than 19 million citations for biomedical articles from MEDLINE and life science journals. Citations may include links to full-text articles from PubMed Central or publisher web sites.

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PubMed

PubMed Clinical Queries

This page provides the following specialized PubMed searches for clinicians:

- [Search by Clinical Study Category](#)
- [Find Systematic Reviews](#)
- [Medical Genetics Searches](#)

Results of searches on these pages are limited to specific clinical research areas. For comprehensive searches, use [PubMed](#) directly.

Search by Clinical Study Category

This search finds citations that correspond to a specific clinical study category. The search may be either broad and sensitive or narrow and specific. The search filters are based on the work of [Haynes RB et al](#). See the [filter table](#) for details.

Search

Category	Scope
☐ etiology	☒ narrow, specific search
☐ diagnosis	☐ broad, sensitive search
☒ therapy	
☐ prognosis	
☐ clinical prediction guides	

Find Systematic Reviews

For your topic(s) of interest, this search finds citations for systematic reviews, meta-analyses, reviews of clinical trials, evidence-based medicine, consensus development conferences, and guidelines.

For more information, see [Help](#). See also [related sources](#) for systematic review searching.

Search ←

NAVIGATION OF SOURCES

<http://epocoslo.cochrane.org/resources-evidence-informed-health-policymaking>



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Scope of our work
Our contributors
Our reviews
Priority topics
Funding and support
Upcoming workshops and events
Other EPOC entities
Other related Cochrane entities
EPOC-specific resources for review authors
Cochrane resources for review authors
Resources for evidence-informed health policymaking
Other related publications
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A REVIEW GROUP OF

THE COCHRANE
COLLABORATION*

Resources for evidence-informed health policymaking

Support for policymakers

[SUPPORT Summaries](#)

Concise summaries of systematic reviews of the effects of health systems interventions for low- and middle-income countries.

[SUPPORT Tools for evidence-informed health Policymaking \(STP\)](#)

The SUPPORT tools for policymaking were published as a series of articles in Health Research Policy and Systems in December 2009: www.health-policy-systems.com/supplements/7/S1. The tools were written for people responsible for making decisions about health policies and programmes (i.e., health system managers and policymakers) and for those who support them. [Available in Chinese, English, French, Portuguese and Spanish.](#)

[Sure Guides for Preparing and Using Evidence-Based Policy Briefs](#)

These guides are intended for those people responsible for preparing and supporting the use of policy briefs and ensuring that decisions about health systems are well-informed by research evidence. The guides focus specifically on these issues in the context of African health systems and the examples used are taken from policy briefs that address important problems in African countries.

[To view the SURE Guides online click here](#)

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[If you have a slow Internet connection, click here](#) to download the SURE Guides in several smaller files

Search

Search



NAVIGATION OF SOURCES

<http://www.support-collaboration.org/supporttool.htm>

SUPPORT Tools for evidence-informed health Policymaking (STP)

Report from Norwegian Knowledge Centre for the Health Services
(Nasjonalt kunnskapssenter for helsetjenesten) No 4–2010

NAVIGATION OF SOURCES

<http://global.evipnet.org/SURE-Guides/>

The screenshot displays the SURE Guides website. On the left is a navigation menu with a 'Contents' tab selected. The menu lists sections such as 'The SURE Guides', 'About the SURE Guides', 'SURE Guides map', 'Quick Start Guide', 'Introduction to the SURE Guides', and a numbered list of chapters from 1 to 8, followed by 'Libraries'. The main content area on the right features the title 'SURE Guides for Preparing and Using Evidence-Based Policy Briefs', the version 'Version 2.1 - Updated November 2011', and the text 'The SURE Collaboration'. Below this is the large 'SURE' logo, which incorporates a map of Africa, and the tagline 'Supporting the Use of Research Evidence'. At the bottom of the page, there is a row of logos for the Seventh Framework Programme, the European Union, REACH (Regional East African Community Health Policy Initiative), EVIPNet (Evidence-Informed Policy Network), the World Health Organization, ZAMFOHR (The Zambia Forum for Health Research), and the Vaccine Development Collaborative.

SURE Guides
for Preparing and Using
Evidence-Based Policy Briefs
Version 2.1 - Updated November 2011

The SURE Collaboration

SURE
Supporting the Use of Research Evidence

Logos at the bottom: Seventh Framework Programme, European Union, REACH, EVIPNet, World Health Organization, ZAMFOHR, Vaccine Development Collaborative.



2. SELECTION

- **Once a large number of studies have been collected with the help of a meta-analysis, then it is important to select the correct studies!**
- **There is a variety of possible inclusion criteria (also called "eligibility")**

2. SELECTION

- If the study includes **sufficient information for an analysis** (standard deviation or standard error outside the fixed value)
- **Year of study**: if the typical drug technology or dosage regimen has changed

2. SELECTION

- **Design of the study** (only randomized controlled trials, particularly in the case of therapeutic trials)
- **Sample size** - Very small studies (with a small sample) may be unrepresentative



2. SELECTION

- **Age of the patient** (adults only, or just over 60 years)
- **Circumstances for deployment** (emergency service, ambulatory, hospital)

3. EXTRACTION

- **Having identified the appropriate group of studies, at the next stage, the author should extract the relevant data from each study**

3. EXTRACTION

- **Sources of potential errors in data extraction**
 - **The article may be incorrect due to typographical or drafting mistakes**
 - **Table data may be interpreted incorrectly**
 - **Errors can occur from the beginning or during data extraction**

"MEASURES" TO MINIMIZE ERRORS

- **Two reviewers will participate in the meta-analysis**
- **The third reviewer or an institution may also be included**
- **A "joint session" to resolve divergences**

"MEASURES" TO MINIMIZE ERRORS

- **Appoint reviewers with the experience of "processing" articles**
- **Compare the abstract and text to identify some "mismatches"**



"MEASURES" TO MINIMIZE ERRORS

- **Which Program was used for data analysis**
- **The results of the data extraction, including the percentage match, are reported**

4. ANALYSIS

- There are many controversies in the analysis of meta-analysis
- **Homogeneity** and **heterogeneity** describe the degree of variability between studies in the comparison group

4. ANALYSIS

- It is more appropriate to combine the results of the homogeneous study group
- Contrary to the combination of results from heterogeneous studies
- As a homogeneity test (to establish homogeneity of studies), the statistical test "ksi-square"

4. ANALYSIS

- **Fixed effects models** - in studies included in a review: interventions, patients, and effects measurements are similar
- Their results must be identical, and differences can only be conditioned by variations within the study

4. ANALYSIS

- **Random effects patterns** - studies included in a revium are randomly selected, being an extract from a multitude of possible studies



ASSESSING THE RELEVANCE OF A META ANALYSIS 1.

Basic meta-analysis evaluation questions

- 1. Can the results change my practice if they are valid?**
- 2. Are the results important to my patients?**
- 3. Are the results valid?**

ASSESSING THE RELEVANCE OF A META ANALYSIS 2.

- A study that meets these three criteria is a **POEM** (Patient Oriented Evidence that Matters, Dovezi Importante în Baza Rezultatelor Obținute de la Pacient)



EVALUATION OF THE VALIDITY OF A META ANALYSIS 1.

- 1. Did the authors correctly formulate the clinical question?**
- 2. Did the inclusion criteria for selecting articles be appropriate?**
- 3. Have any relevant studies been omitted?**



EVALUATION OF THE VALIDITY OF A META ANALYSIS 2.

- 4. Has been assessed the validity of the included studies (the quality of the study)?**
- 5. Was reproducible the trial evaluation (data extraction)?**
- 6. Were the results of the studies similar (homogeneity)?**

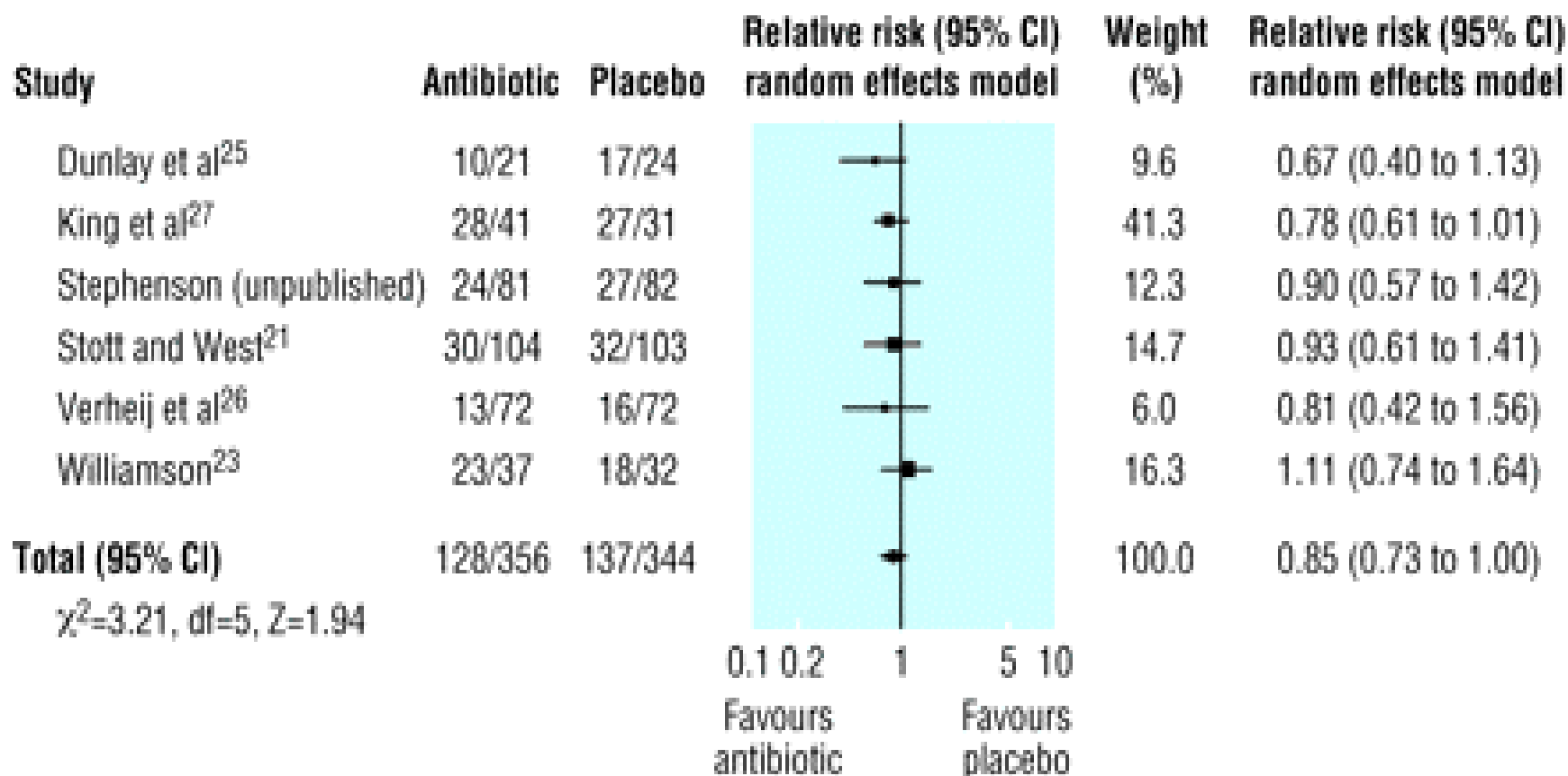


INTERPRETATION OF THE RESULTS OF A META ANALYSIS

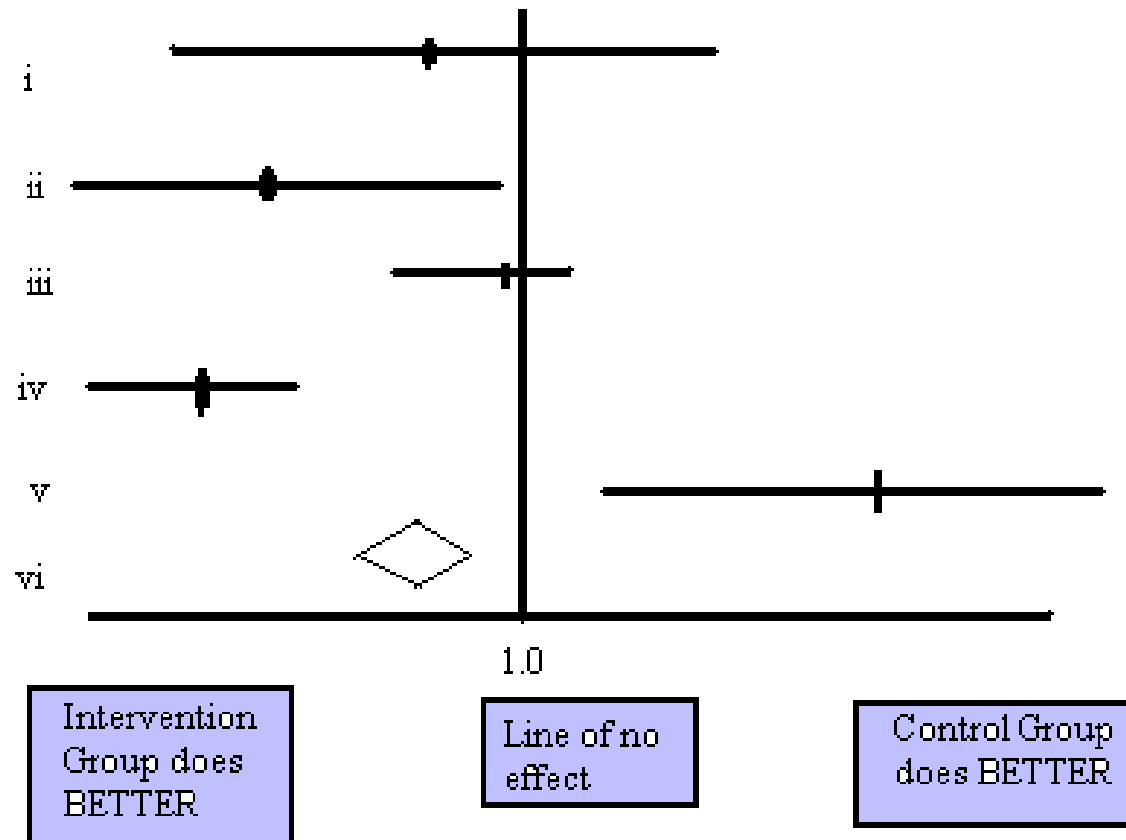
- **RR**
- **CI**
- **Chi-square**

INTERPRETARE REZULTATELOR UNEI METAANALIZE

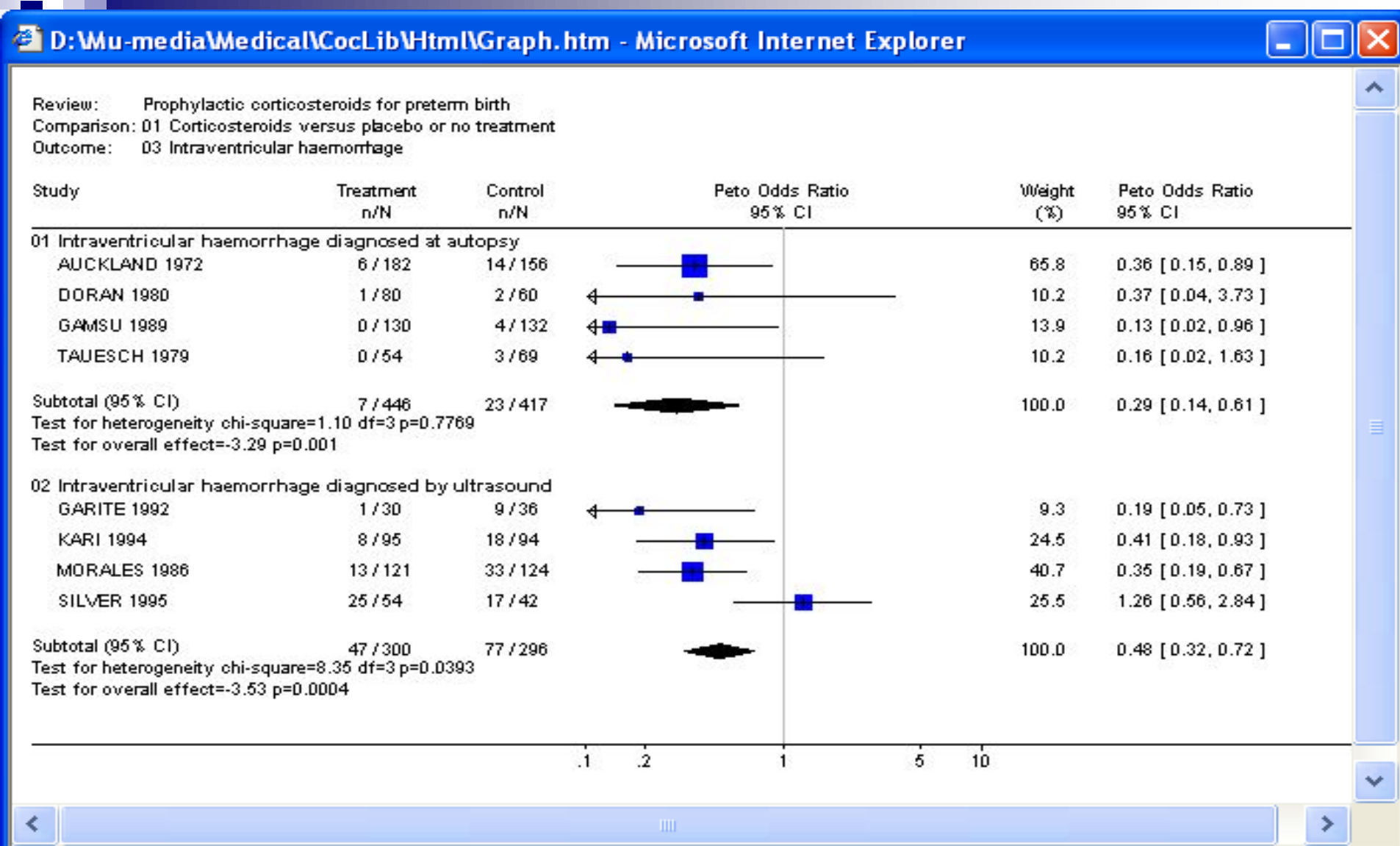
Proportion of subjects with productive cough at follow up



Forest Plot



NE: Horizontal scale may be logarithmic.



Crowley P. Prophylactic corticosteroids for preterm birth (Cochrane Review). In: *The Cochrane Library*, Issue 3, 2004. Chichester, UK: John Wiley & Sons, Ltd

Study

Relative risk (95% CI)

Bevilacqua 1996

Bevilacqua 1997

Dunn 1991

Egberts 1993

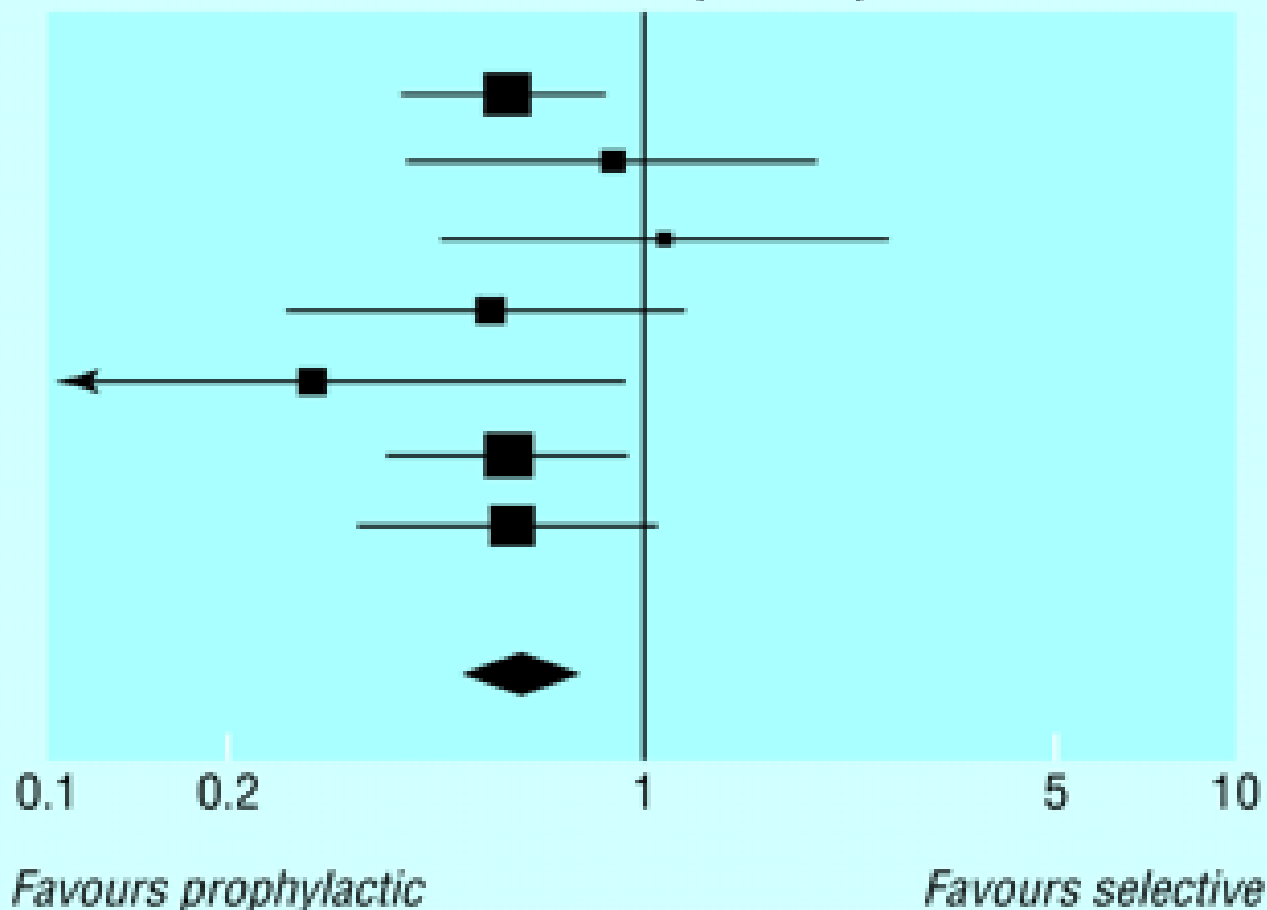
Kattwinkel 1993

Kendig 1991

Walti 1995

Pooled estimate:

0.61 (0.48 to 0.77)



Meta-analysis of prophylactic versus selective use of surfactant to prevent mortality in preterm infants. Adapted from Soll et al. *Cochrane Database Syst Rev* 2003;(4): CD000510

Study

Relative risk (95% CI)

Bevilacqua 1996

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Egberts 1993

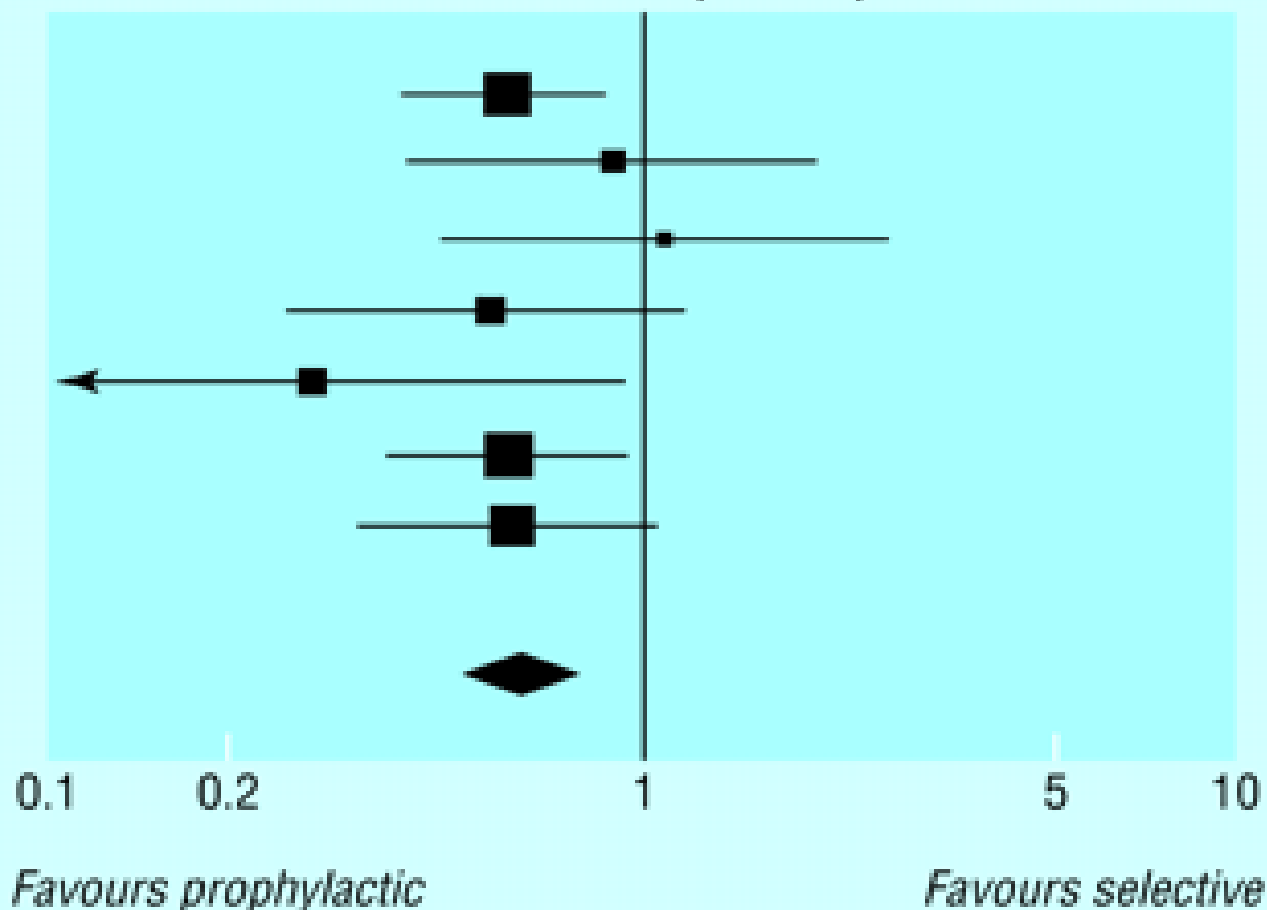
Kattwinkel 1993

Kendig 1991

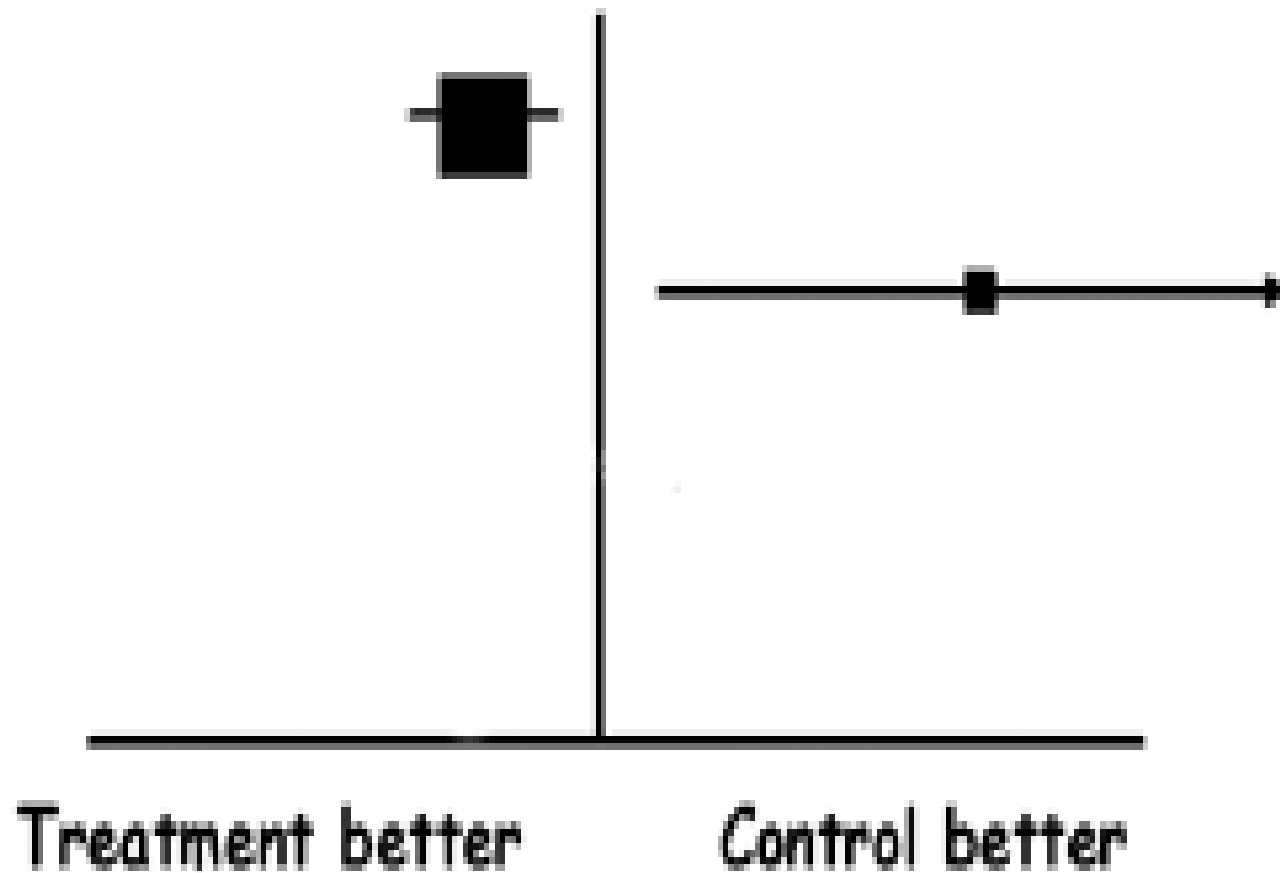
Walti 1995

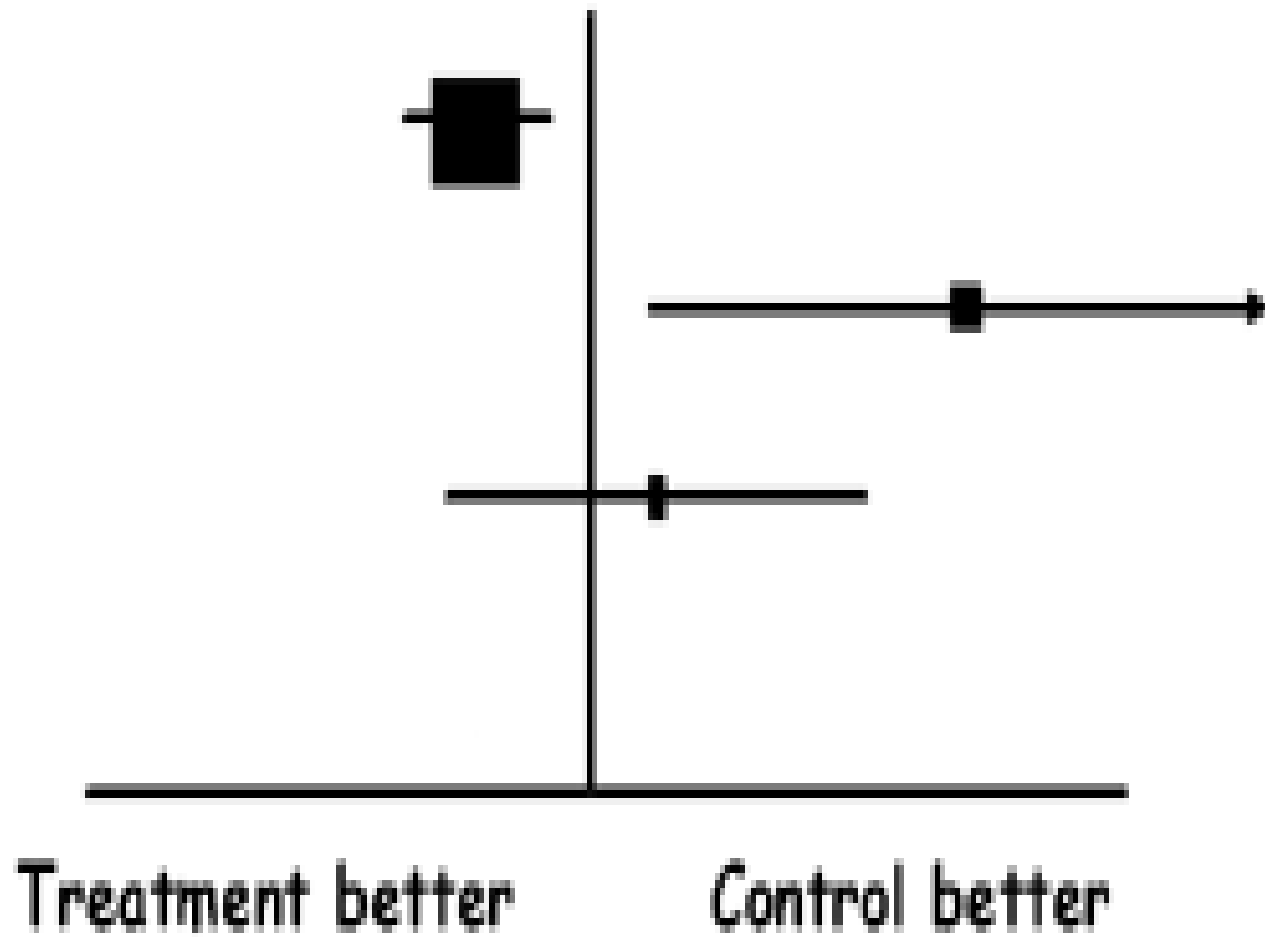
Pooled estimate:

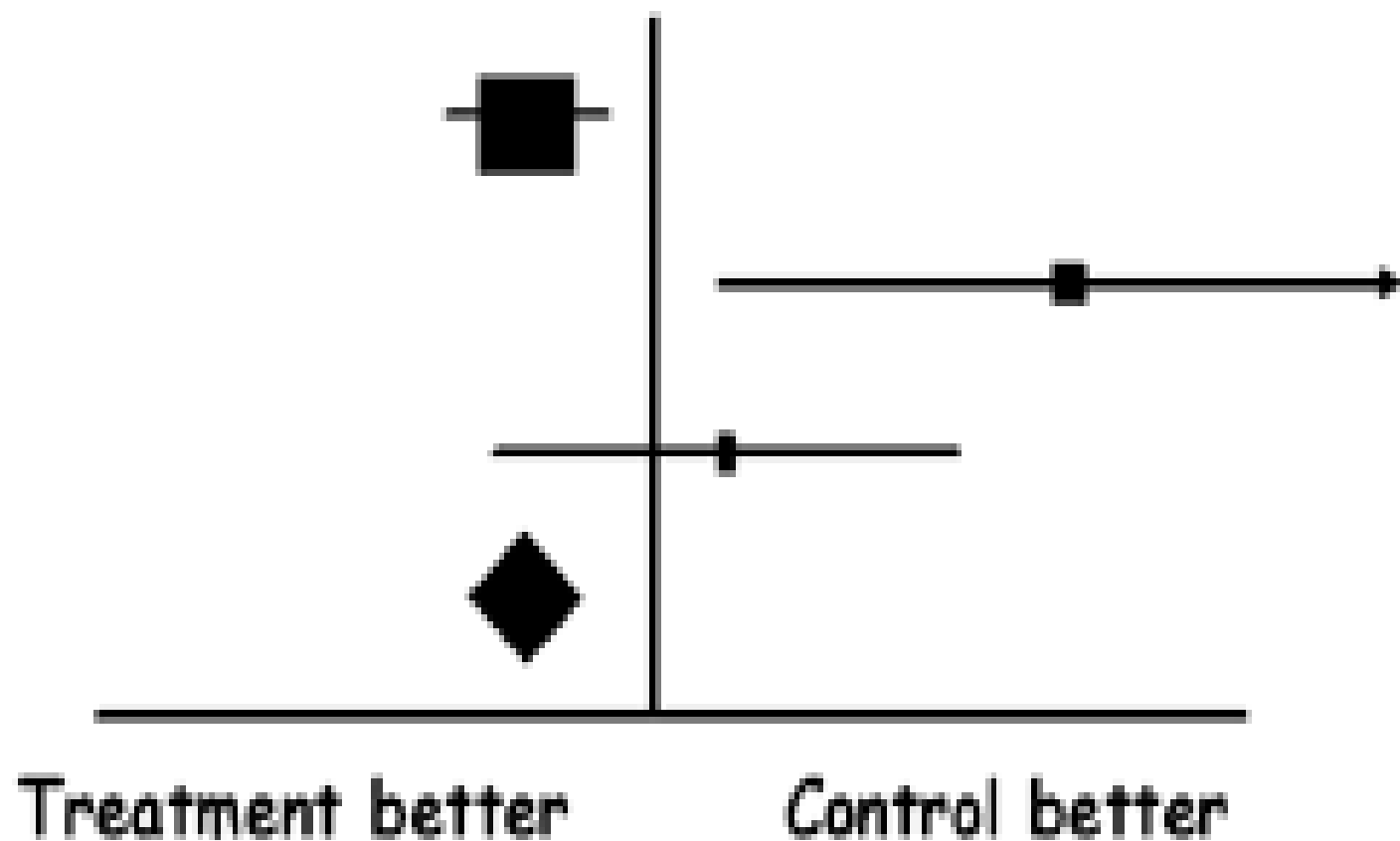
0.61 (0.48 to 0.77)



Meta-analysis of prophylactic versus selective use of surfactant to prevent mortality in preterm infants. Adapted from Soll et al. *Cochrane Database Syst Rev* 2003;(4): CD000510









Interpretation of MA results

- **The horizontal line - the result (the shorter the line, the better the result)**
- **The vertical line indicates the position for different results**



Interpretation of MA results

- **If the horizontal line intersects the vertical line - the result is not statistically significant**
- **Diamond - indicates the result of the meta-analysis**
- **Placement of the diamond from the left - treatment is effective**