

Research synthesis: An important element for evidence informed decision making

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Alarming burden

Chronic disease of lifestyle are the leading cause of death and disability worldwide.

- will cause over 75% of all deaths by 2030
- > 80% of deaths from chronic disease occur in low and middle income countries
- in South Africa, CDL are amongst the top 10 causes of premature mortality

South Africans with CDL risk factors: ≥ 15 years

Risk factor	Estimated number affected
Smoking tobacco	7.7 million
High BMI	9.1 million
Hypertension	6.3 million
Diabetes II	0.9 million
High blood cholesterol	7.9 million
Low fruit and veg	13.4 million
Physical inactivity	13.6 million

*Source: South African Comparative Risk Assessment
Norman et al, 2007*

Implementing response: various questions

Risk factors

Prevention strategies

Screening risk factors

Burden of disease


Rehabilitation

Screening disease

Health system

Treatment strategies

Making diagnosis



Research synthesis is an important approach to find answers

- ‘Research synthesis is the process through which two or more research studies are assessed with the objective of summarizing the evidence relating to a particular question.’
- ‘The results of a particular research study cannot be interpreted with any confidence unless it has been considered together with the results of other studies addressing the same or similar questions.’

Iain Chalmers

The process of research synthesis is
thus the application, in practice,
of the principle that
science is cumulative.

It informs...

- New research
- Decision making for action

Research synthesis is research, so - as in all research – scientifically defensible steps must be taken to reduce:

- biases of various kinds
- the effects of the play of chance
- and, thus, the danger of false conclusions

Up to date, relevant and robust systematic reviews

Systematic reviews have several advantages

- reduce risk of bias in selecting and interpreting the results of studies.
- reduce risk of being misled by play of chance in identifying studies for inclusion or risk of focusing on a limited subset of relevant evidence.
- provide a critical appraisal of available research and place individual studies or subgroups of studies in context of all of relevant evidence.
- allow others to appraise critically judgements made in selecting studies and collection, analysis and interpretation of results.

Lavis JN, Posada FB, Haines A, Osei E: Use of research to inform public policymaking. Lancet 2004; 364:1615-21.

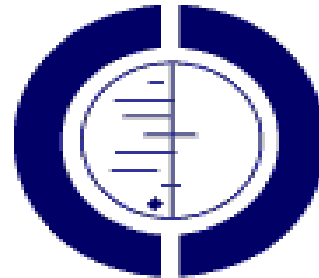
Metabolic and Endocrine
disorder Group

Tobacco addiction Group

Heart Group

Public Health Group

Hypertension Group



THE COCHRANE
COLLABORATION®

Stroke Group

<http://www.cochrane.org/>
<http://www.thecochranelibrary.com/>

Effective Practice and
organisation of care
Group

Airways Group

Statins for the primary prevention of cardiovascular disease

Risk factor		Number of reviews in <i>The Cochrane Library</i> (Cochrane and non-Cochrane) – Issue 5, 2012	
Intervention	Smoking tobacco	92	
	High BMI	323	
	Hypertension	520	
	Diabetes II	663	
Effective	High blood cholesterol	220	
	Low fruit and veg	25	
Psychosocial	Physical inactivity	295	

Intervention

Effective

Outcome

Outcome

Psychosocial

Does reducing saturated fat intake, by reducing and/or modifying dietary fat, in the longer term (at least 6 months) reduce mortality, cardiovascular mortality or cardiovascular morbidity (or individual health events such as myocardial infarction, stroke, diabetes or cancer)?

- Protective of cardiovascular events overall - reduction of 14%
(RR 0.86, 95% CI 0.77 to 0.96; 24 comparisons; 65,614 participants)
⊕⊕⊕○ moderate GRADE evidence

Moderate: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.

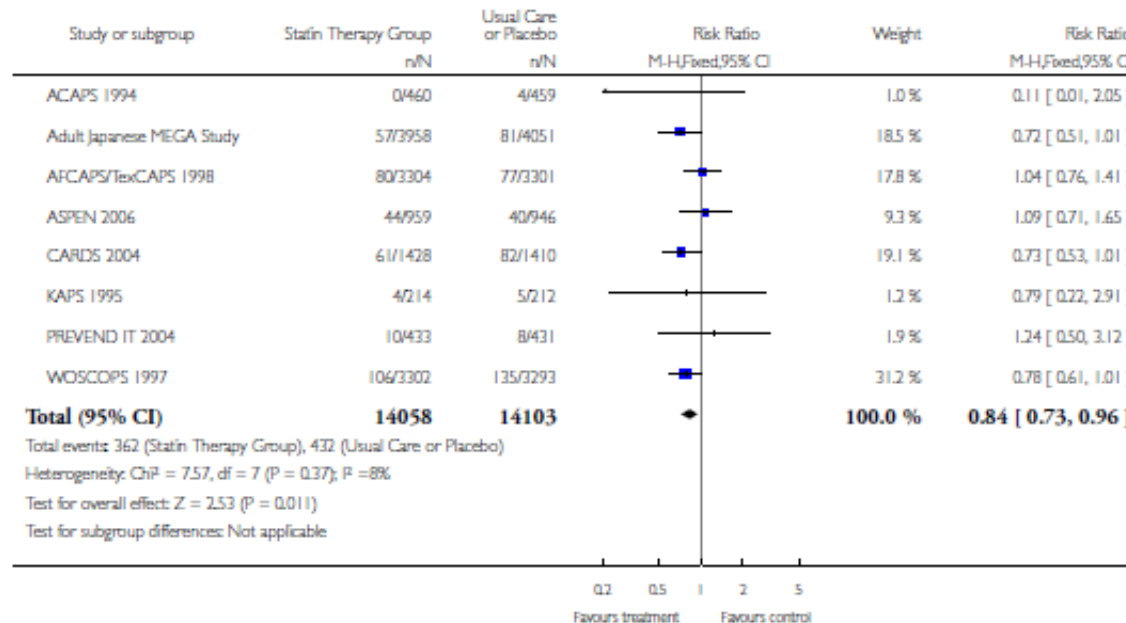
Hooper 2012

Statins for the primary prevention of cardiovascular disease

Review: Statins for the primary prevention of cardiovascular disease

Comparison: 2 Mortality and Morbidity

Outcome: 1 Total Mortality



- 14 RCTs (34,272 participants) - High risk patients (raised lipids, diabetes, hypertension, microalbuminuria)
- All-cause mortality RR 0.84, 95% CI 0.73 to 0.96
- Combined fatal and non-fatal CVD endpoints RR 0.70, 95% CI 0.61 to 0.79
- Total cholesterol and LDL cholesterol were reduced in all trials



CEBHC: Conducting and supporting conduct of systematic reviews

- Identifying relevant review topics
- Conducting range of systematic reviews
- Provide methodological support and mentorship

Pycnogenol® (extract of French maritime pine bark) for the treatment of chronic disorders^{*} for the treatment of chronic disorders (Review)

Schoonees A, Visser J, Musekiwa A, Volmink J



This is a reprint of a Cochrane review, prepared and maintained by The Cochrane Collaboration and published in *The Cochrane Library* 2012, Issue 4

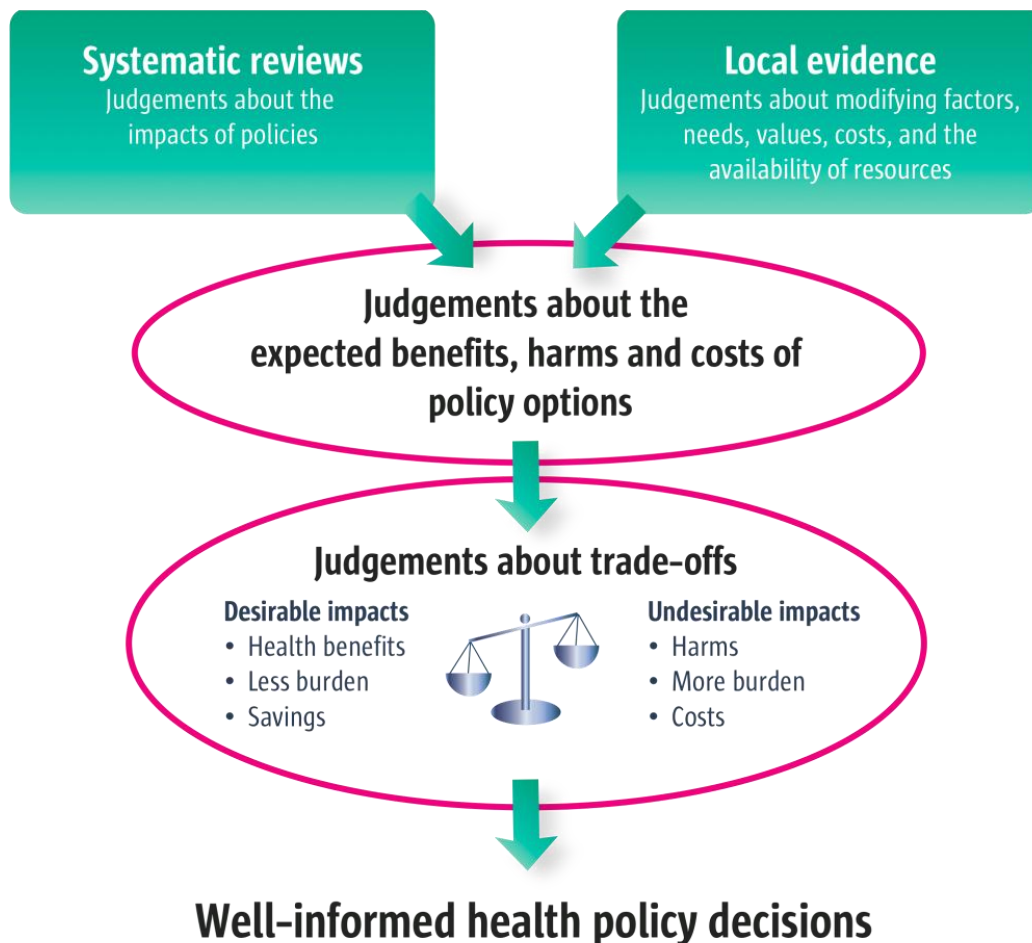
<http://www.thecochranelibrary.com>



Pycnogenol® (extract of French maritime pine bark) for the treatment of chronic disorders^{*} for the treatment of chronic disorders (Review)
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CEBHC: Promoting use of best evidence



PUSH: Summaries of systematic reviews

- Heart and Stroke Foundation monthly emails
- SUPPORT summaries

DIALOGUE:
Participating in SO4 working group
Healthy lifestyle

PULL: Responsive input on evidence from systematic reviews

PUSH: Evidence informed policy brief on *Continuity of care for chronic diseases*

• Actionable messages

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• Systematic reviews of research

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• Individual studies, articles, and reports

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• Basic, theoretical and methodological information

HSFSA Resource Manual update



CEBHC: Supporting training in systematic reviews and EBHC

- Support and mentorship for systematic reviews
- Workshops – *How to read systematic reviews*
- Supporting the MSc Clinical Epidemiology

www.sun.ac.za/clinepi

- Systematic review
- Clinical guidelines
- Health Systems and Services Research

Collaborative engagement with CDIA

- Identification of relevant topics for systematic reviews
- Conduct relevant systematic reviews
- Support and mentor review conduct
- Increase the use of evidence from systematic reviews in decision making
 - Reactive to needs
 - Enhancing capacity to read systematic reviews

We will serve the public more
responsibly and ethically
when research designed to reduce the
likelihood that we will be misled by bias and the
play of chance has become
an expected element of professional and policy
making practice, not an optional add-on.

Iain Chalmers

Acknowledgements

SURE

(<http://www.evipnet.org/local/SURE%20Website/home%20page.htm>)

EHCRC (<http://www.liv.ac.uk/evidence/index.htm>)

SUPPORT (www.support-collaboration.org)