Cochrane reviews:
improving usefulness and use

1 April 2011

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Evidence Based Health Care

- Is not just about randomised trials of the effects of interventions
- Randomised trials, and systematic reviews of them, provide one component of evidence based health care: an estimate of the effects of treatment
- Reliable evidence on which interventions are beneficial, which are harmful and which have little or no effect is vital to well informed decision making
- Reliable evidence needs to minimise chance and bias

"I look forward to such an organisation of the literary records of medicine that a puzzled worker in any part of the world shall in an hour be able to gain the knowledge pertaining to a subject of the experience of every other person in the world."

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George Gould, First President of the Medical Libraries Association, USA (May 1898)

"We look forward to a system where everyone making a decision about their own, or someone else's, health care in any part of the world will, in 15 minutes, be able to obtain up-to-date, reliable evidence of the effects of interventions they might choose, based on all relevant research from anywhere in the world."

"Over two million articles are published annually in the biomedical literature in over 20,000 journals - literally a small mountain of information, [a stack] would rise 500 metres."

Mulrow 1995


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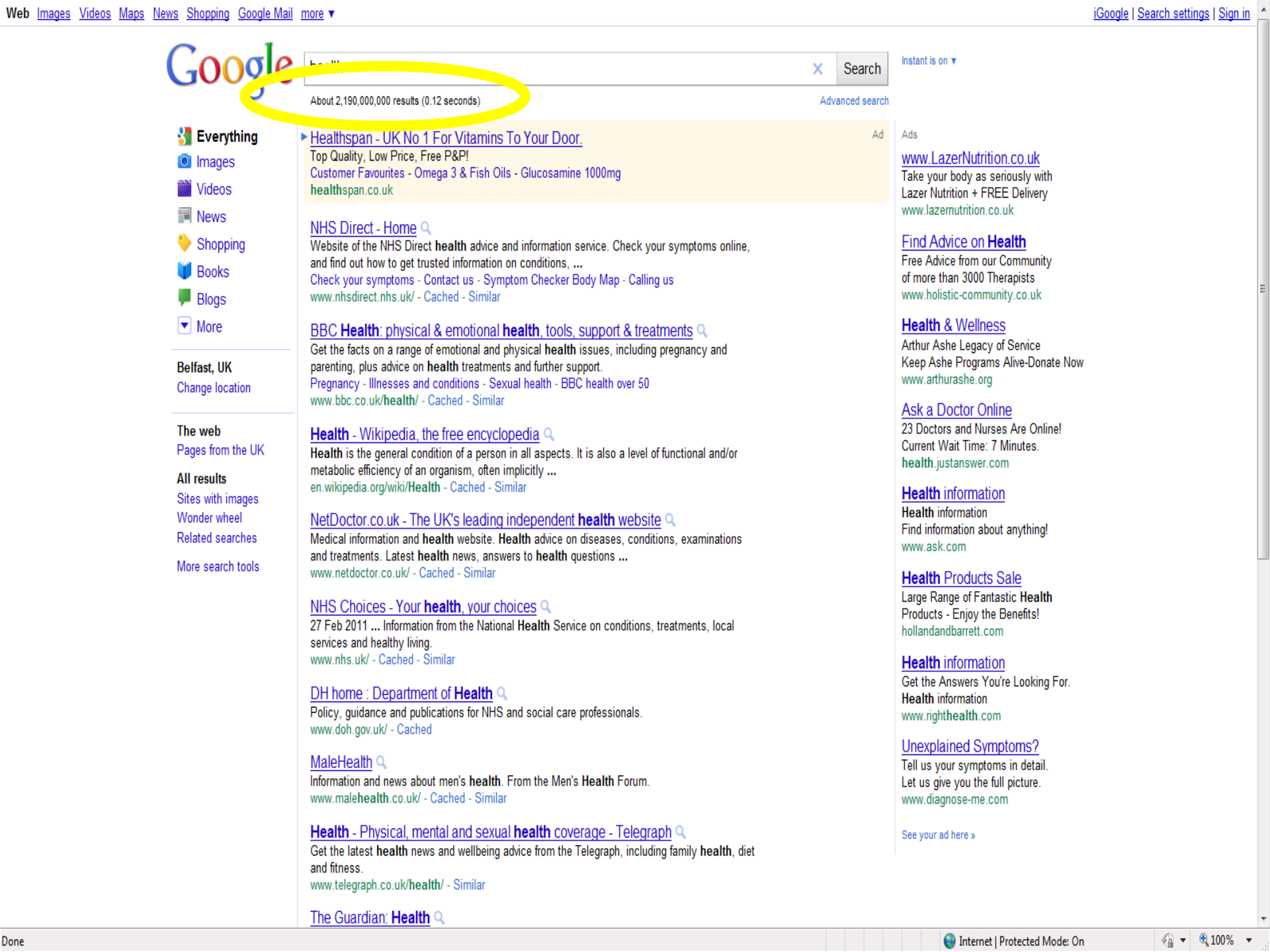
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PLoS MEDICINE

Policy Forum

Seventy-Five Trials and Eleven Systematic Reviews a Day: How Will We Ever Keep Up?

Hilda Bastian[1]*, Paul Glasziou[2], Iain Chalmers[3]

1 German Institute for Quality and Efficiency in Health Care (IQWiG), Cologne, Germany, 2 Centre for Research in Evidence-Based Practice, Faculty of Health Sciences, Bond University, Gold Coast, Australia, 3 James Lind Library, James Lind Initiative, Oxford, United Kingdom

Thirty years ago, and a quarter of a century after randomised trials had become widely accepted, Archie Cochrane reproached the medical profession for not having managed to organise a "critical summary, by speciality or subspeciality, adapted periodically, of all relevant randomised controlled trials" [1]. Thirty years after Cochrane's reproach we feel it is timely to consider the extent to which health professionals, the public and policymakers could now use "critical summaries" of trials for their decision-making.

Summary Points

- When Archie Cochrane reproached the medical profession for not having critical summaries of all randomised controlled trials, about 14 reports of trials were being published per day. There are now 75 trials, and 11 systematic reviews of trials, per day and a plateau in growth has not yet been reached.
- Although trials, reviews, and health technology assessments have undoubtedly had major impacts, the staple of medical literature synthesis remains the non-systematic narrative review. Only a small minority of trial reports are being analysed in up-to-date systematic reviews. Given the constraints, Archie Cochrane's vision will not be achieved without some serious changes in course.
- To meet the needs of patients, clinicians, and policymakers, unnecessary trials need to be reduced, and systematic reviews need to be prioritised. Streamlining and innovation in methods of systematic reviewing are necessary to enable valid answers to be found for most patient questions. Finally, clinicians and patients require open access to these important resources.

The Landscape

Keeping up with information in health care has never been easy. Even in 1753, when James Lind published his landmark review of what was then known about scurvy, he needed to point out that "…before the subject could be set in a clear and proper light, it was necessary to remove a great deal of rubbish" [2]. And 20 years later, Andrew Duncan launched a publication summarising research for clinicians, lamenting that critical information "…is scattered through a great number of volumes, many of which are so expensive, that they can be purchased for the libraries of public societies only, or of very wealthy individuals" [3]. We continue to live with these two problems—an overload of unfiltered information and lack of open access to information relevant to the well-being of patients.

A century later, the precursor of the US National Library of Medicine (NLM) began indexing the medical literature. Between 1865 and 2006, the index grew from 1,600 references to nearly 10 million [4]. Even with the assistance of electronic databases such as NLM's MEDLINE, the problem of having to trawl through and sift vast amounts of data has grown. As mountains of unsynthesised research evidence accumulate, we need to keep improving our methods for gathering, filtering, and synthesising it. Some of the key events in the story so far are shown on the timeline in Figure 1.

A legal regulatory framework overseen by the US Food and Drug Administration (FDA) requiring proof of efficacy of new drugs was introduced in 1962, and other countries followed suit. These developments made it inevitable that randomised trials would increasingly become an important component of the evidence base [5]. Government health technology assessment agencies were also established as policymakers sought to have more reliable evidence of the effects of other forms of health care interventions [6].

As the number of clinical trials grew, so too did the science of reviewing trials. Systematic reviews and meta-analyses endeavouring to make sense of multiple trials began to appear in a variety of health fields in the 1970s and 1980s (see Box 1). An important early example showed that postoperative radiotherapy after surgical treatment of breast cancer was associated with a previously unrecognised increased risk of death [7]. Another challenged beliefs about vitamin C and the common cold [8]. A third suggested a previously

The Policy Forum allows health policy makers around the world to discuss challenges and opportunities for improving health care in their societies.

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Published September 21, 2010

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Competing Interests: HB works for a health technology assessment agency.

Abbreviations: CCTR, Cochrane Central Register of Controlled Trials; FDA, US Food and Drug Administration; HTA, health technology assessment; IQWiG, Institute for Quality and Efficiency in Health Care; NICE, National Institute for Health and Clinical Excellence; NLM, US National Library of Medicine; SIGN, Scottish Intercollegiate Guidelines Network

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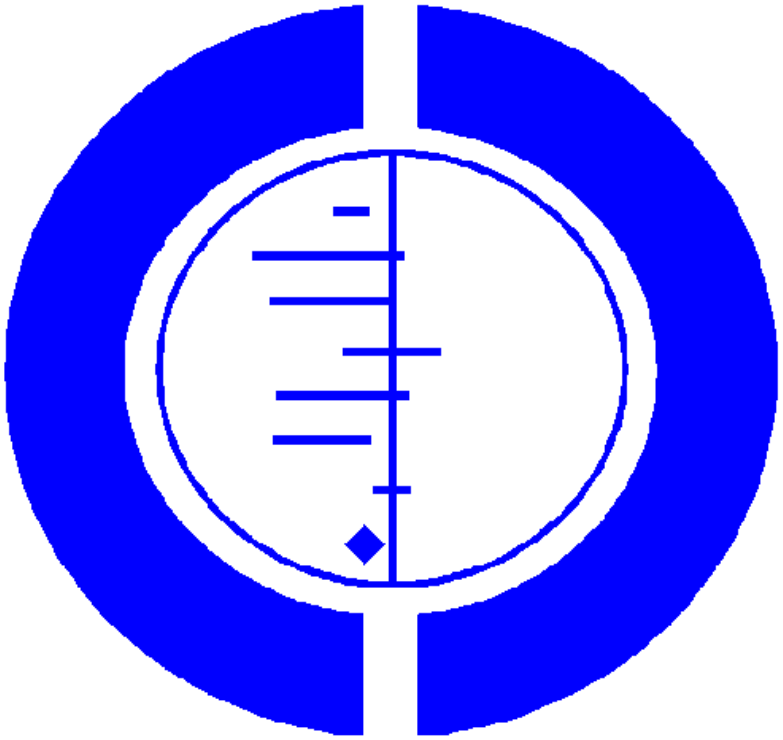
Provenance: Not commissioned; externally peer reviewed.

Cochrane reviews



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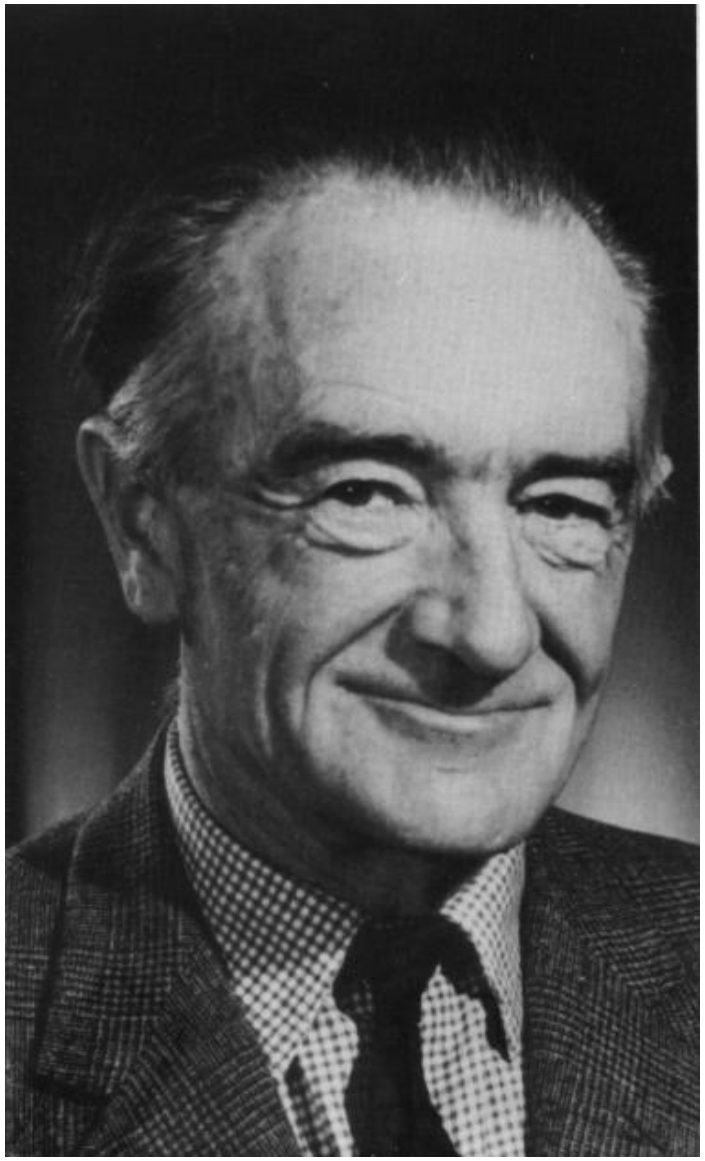

In the 1970s, Archie Cochrane, a British epidemiologist, criticised the medical profession for not having a system to bring together the results of relevant randomised trials.

A decade later, the potential offered by electronic publishing brought Cochrane's objective within reach.

A further decade later, the internet made electronic publishing widely accessible.

The Cochrane Collaboration

Principles

- Collaboration
- Building on the enthusiasm of individuals
- Avoiding duplication
- Minimising bias
- Keeping up to date
- Striving for relevance
- Promoting access
- Ensuring quality
- Continuity
- Enabling wide participation

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- Search strategy
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  - Effects of interventions
- Discussion
- Authors' conclusions
  - Implications for practice
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Rehabilitation of older people after hip (proximal femoral) fracture by David Stott & Helen Handoll

Proximal femoral, or 'hip', fracture is a major health problem in older age. It is a common condition, with a lifetime risk of around 17.5% for white women and 6% for white men. It occurs predominantly in older people, and is strongly associated with comorbidity, including under-nutrition, frailty, and impaired physical and cognitive function. The burden on society from hip fracture is huge and increasing ...

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Antifibrinolytic drugs for acute traumatic injury

Clinical Summary

Injuries cause many deaths worldwide every year. Loss of blood is responsible for many of these deaths, with about a third of in-hospital trauma deaths being due to bleeding. It can also contribute to deaths from multi-organ failure. Therefore, successful treatments for bleeding should help reduce the number of these premature deaths.

About 1.6 million people die as a result of intentional injury and the annual death toll from road traffic injuries is now over one million. More than 90% of trauma deaths occur in low-income and middle-income countries. Road traffic injuries are the ninth leading cause of death globally, and such injuries are predicted to become the third leading cause of death and disability by 2020.

Antifibrinolytic agents reduce blood loss in patients with both normal and exaggerated fibrinolytic responses to surgery, and do so without apparently increasing the risk of postoperative complications. A systematic review of randomised trials of antifibrinolytic agents in elective surgery showed that they reduced the need for blood transfusion by about one third. Because the haemostatic responses to surgery and trauma are similar, antifibrinolytic agents have the potential to reduce mortality due to bleeding in trauma patients.

Expand

Read the Paper

Abstract | References | Plain Language | Conclusions

Antifibrinolytic drugs for acute traumatic injury

Background: Uncontrolled bleeding is an important cause of death in trauma victims. Antifibrinolytic treatment has been shown to reduce blood loss following surgery and may also be effective in reducing blood loss following trauma.

Objectives: To quantify the effect of antifibrinolytic drugs in reducing blood loss, transfusion requirement and mortality after acute traumatic injury.

Search Strategy: We searched the Cochrane Injuries Group's Specialised Register, CENTRAL

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Antifibrinolytic drugs for acute traumatic injury

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Implications for Practice
Issues 2-12, 2010

	New and updated Cochrane reviews
	764
Intervention works	376 (49.2%)
Intervention doesn't work	65 (8.5%)
Uncertain	440 (57.6%)
Only use in research	24 (3.1%)
"Cannot be recommended"	62 (8.1%)

Implications for Practice
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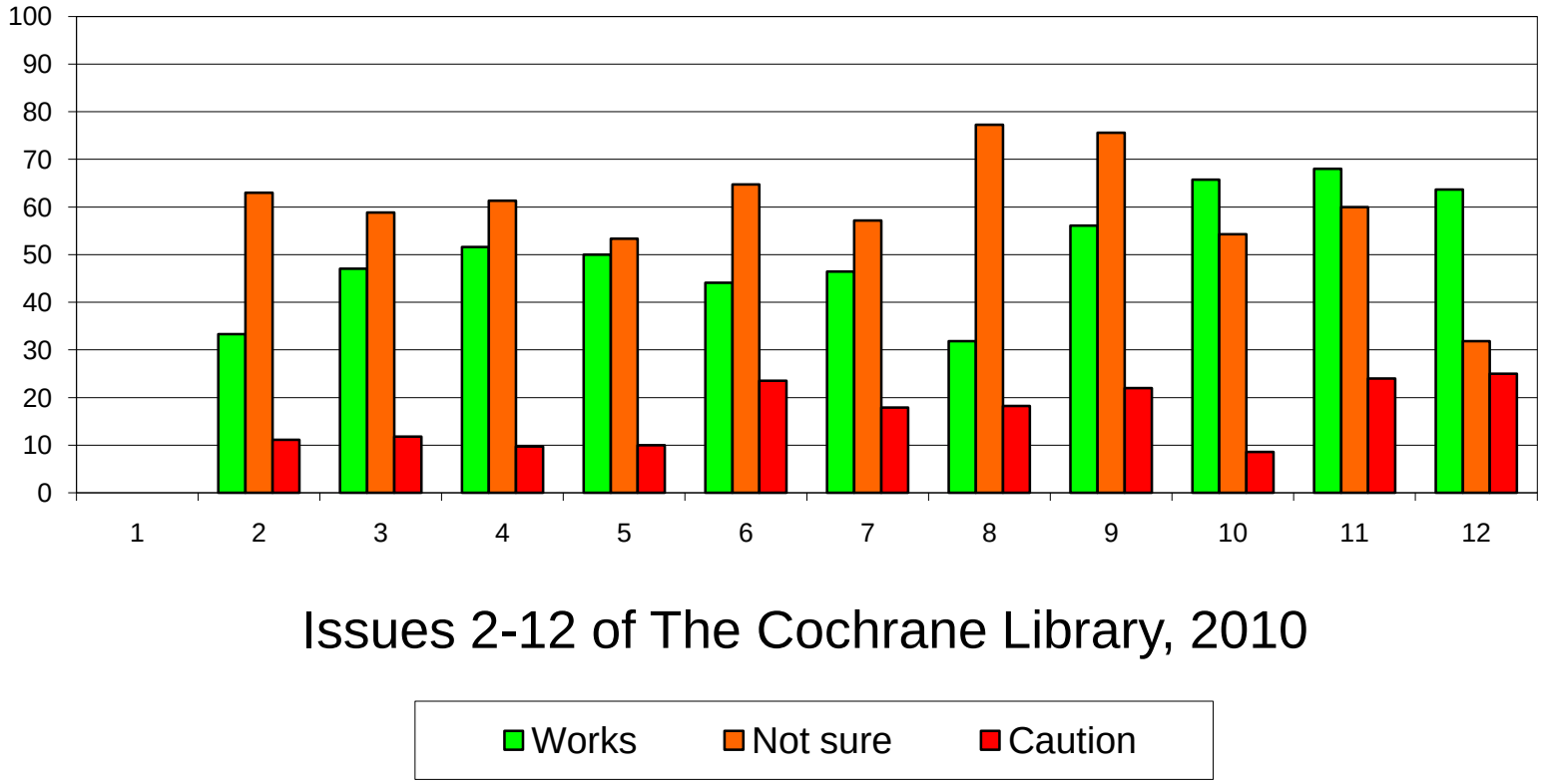
Interventions in new Cochrane reviews



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- Helping survivors to receive the best care, and recover as quickly as possible, by improving timely access to reliable information on the effects of relevant interventions
- Expanding beyond the work of The Cochrane Collaboration, and the effects of healthcare interventions, to include information on other areas, including shelter, communication, construction, education, security and support for displaced people

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- Cochrane Evidence Aid: Resources for earthquakes
- Cochrane Evidence Aid: Tranexamic acid in acute trauma
- Special collection on the treatment of burns
- Cochrane Evidence Aid: Resources for flooding and poor water sanitation

The Cochrane Collaboration's Evidence Aid project was established following the tsunami in the Indian Ocean in December 2004. It uses knowledge from Cochrane Reviews and other systematic reviews to provide reliable, up-to-date evidence on interventions that might be considered in the context of natural disasters and other major healthcare emergencies. Evidence Aid seeks to highlight which interventions work, which don't work, which need more research, and which, no matter how well meaning, might be harmful; and to provide this information to agencies and people planning for, or responding to, disasters.

COCHRANE EVIDENCE AID: RESOURCES FOR POST-TRAUMATIC STRESS DISORDER FOLLOWING NATURAL DISASTERS

As the people of Japan recover from yet another example of nature's fury, those involved in disaster planning will need to consider the psychological consequences of the series of traumatic incidents associated with the earthquakes, the tsunami, and threats of nuclear devastation.

One such psychological consequence is post-traumatic stress disorder (PTSD), and this special collection brings together the summary conclusions of the evidence from Cochrane systematic reviews on the effects of interventions aimed at preventing and treating PTSD, with links to the full reviews (see below).

PTSD develops in people who were exposed to traumatic events that involved an actual or perceived threat of death or serious injury to them, their loved ones or significant others. The symptoms develop usually within the first one to three months after the event. Sufferers from PTSD characteristically re-experience aspects of the traumatic event in the form of vivid experiences that the event is recurring (flashbacks), distressing and intrusive images of the event, or nightmares. Reminders of the traumatic event (people, situations or circumstances resembling or associated with the event) often arouse intense distress or physiological reactions. Attempts to avoid such reminders are another characteristic feature of PTSD. Many people develop symptoms of hyperarousal: being excessively vigilant, easily startled, irritable, or having difficulty concentrating and in sleeping. Many PTSD sufferers describe feeling detached from others, unable to experience feelings and losing interest in previously important activities. PTSD may be associated with depression, anxiety, or panic and may lead some to use harmful amounts of alcohol or other addictive substances.

Most survivors of catastrophic events will initially develop symptoms of PTSD of varying intensity, but the vast majority will recover within the following year, or years, without treatment, or with informal support from families and friends. However, up to a third may continue to have distressing symptoms many years after the event.

In partnership with Wiley-Blackwell and Evidence Aid, free one-click access to the whole contents of *The Cochrane Library* to everyone in Japan was made available on the day of the earthquake. A Japanese version of this collection has also been prepared by Kyoto University School of Public Health.

TREATMENT OF EARLY ACUTE TRAUMATIC STRESS SYNDROME

Early psychological interventions to treat acute traumatic stress symptoms

Individual trauma-focused cognitive behavioural interventions were effective, in the short-term, for individuals with acute traumatic stress symptoms compared to both waiting list and supportive counselling interventions; however, caution should be taken in interpreting these results because the quality of trials was variable, sample sizes were small and there was unexplained heterogeneity. The results of this review are in line with calls that have been made for a stepped- or stratified-care system whereby those with the most symptoms are offered more complex interventions.

and interventions commenced within three months of a traumatic event aimed at treating acute traumatic stress reactions. [Download PDF]

PREVENTION OF PTSD

Psychological debriefing for preventing post traumatic stress disorder

There is no evidence that single-session individual psychological debriefing is a useful treatment for the prevention of PTSD after traumatic incidents. Compulsory debriefing of victims of trauma should cease.

Over the past few decades, early psychological interventions, such as psychological 'debriefing', have been increasingly used following psychological trauma. While this intervention has become popular and its use has spread to several settings, empirical evidence for its efficacy is noticeably lacking. This review assesses the effectiveness of brief psychological debriefing for the management of psychological distress after trauma, and the prevention of PTSD. [Download PDF]

Multiple session early psychological interventions for the prevention of post-traumatic stress disorder

Multiple-session interventions aimed at all individuals exposed to traumatic events should not be used.

The prevention of long-term psychological distress following traumatic events is a major concern. Systematic reviews have suggested that individual psychological debriefing is not an effective intervention at preventing PTSD. Recently other forms of intervention have been developed with the aim of preventing PTSD. This review examines the efficacy of multiple-session early psychological interventions commenced within three months of a traumatic event aimed at preventing PTSD. This review did not investigate the efficacy of group-based psychological interventions. [Download PDF]

TREATMENT OF PTSD

Psychological and psychosocial interventions

Psychological treatment of chronic post-traumatic stress disorder

Some types of psychological treatment (individual trauma-focused cognitive behavioural therapy/exposure therapy [TFCBT], eye movement desensitisation and reprocessing [EMDR], stress management, and group TFCBT) were effective in the treatment of PTSD, and individual TFCBT and EMDR appeared to be superior to stress management at two to five months. Insufficient evidence was available to determine whether psychological treatment is harmful, but there was greater drop-out in active treatment groups. Caution is needed in interpreting these results because of considerable unexplained heterogeneity, and the potential impact of publication bias.

Psychological interventions are widely used in the treatment of PTSD, and this review assesses the evidence on their effects from randomised trials. [Download PDF]

Psychosocial interventions for prevention of psychological disorders in law enforcement officers

There is evidence only from individual small and low-quality trials with minimal data suggesting that police officers benefit from psychosocial interventions, in terms of physical symptoms and psychological symptoms such as anxiety, depression, sleep problems, cynicism, anger, PTSD, marital problems and distress. No data on adverse effects were available.

Psychosocial interventions are widely used for the prevention of psychological disorders in law enforcement officers. This review assesses the effectiveness and comparative effectiveness of psychosocial interventions for the prevention of psychological disorders in law enforcement officers. [Download PDF]

Pharmacological interventions

Pharmacotherapy for post-traumatic stress disorder

Medication treatments can be effective in treating PTSD, acting to reduce its core symptoms, as well as associated depression and disability. The findings of this review support the status of selective serotonin reuptake inhibitors as first-line agents in the pharmacotherapy of PTSD, as well as their value in long-term treatment. However, there remain important gaps in the evidence base, and a continued need for more effective agents in the management of PTSD.

Evidence that PTSD is characterised by specific psychobiological dysfunctions has contributed to a growing interest in the use of medication in its treatment. This review assesses the effects of medication for PTSD. [Download PDF]

Combined psychological and pharmacological interventions

Combined pharmacotherapy and psychological therapies for post-traumatic stress disorder

There is not enough evidence available to support or refute the effectiveness of combined psychological therapy and pharmacotherapy

Psychological debriefing for preventing post traumatic stress disorder (PTSD) (Review)

Rose SC, Bisson J, Churchill R, Wessely S

This is a reprint of a Cochrane review, prepared and maintained by The Cochrane Collaboration and published in *The Cochrane Library* 2009, Issue 1

http://www.thecochranelibrary.com

Evidence Update

Mental Health Series *January 2006*

Does brief psychological debriefing help manage psychological distress after trauma and prevent post traumatic stress disorder?

There is no evidence that single session individual psychological debriefing prevents post traumatic stress disorder after traumatic events.

Inclusion criteria

Studies:
Randomized or quasi-randomized trials.

Participants:
People aged 16 and over, exposed to a traumatic event no more than four weeks prior to the intervention.

Intervention:
Any single session psychological intervention that involves some recollection of the trauma and subsequent emotional reactions.

Outcomes:
Rates of post-traumatic stress disorder (PTSD); general psychological and psychiatric morbidity; depression; anxiety; dropout from treatment; general functioning.

Results

- Fifteen trials met the inclusion criteria; six trials had adequate allocation concealment.
- No difference was shown in PTSD between those counselled and those not at one year of follow up in one trial (n = 105); in a second trial, PTSD was worse in the counselled group (Peto odds ratio 2.51, 95% confidence interval 1.24 to 5.09; 1 trial, 105 participants).
- No difference in severity was demonstrated in one small trial with follow up to three years.
- No difference in depression was seen in early follow up, but it was more common in the intervention group after six months (standardised mean score difference 0.33, 95% CI 0.09 to 0.58; 3 trials, 265 participants).
- No difference in general psychiatric morbidity and general function was demonstrated in one trial (n = 106).
- One trial comparing immediate (< 10 hours) with delayed (> 48 hours) counselling suggests early intervention is associated with better outcomes (weighted mean difference -26.16, 95% CI -30.59 to -21.73; 1 trial, 77 participants).

DFID

Adapted from Rose S, Bisson J, Wessely S. Psychological debriefing for preventing post traumatic stress disorder (PTSD). *The Cochrane Database of Systematic Reviews* 2005, Issue 2. Art. No.: CD000560. DOI: 10.1002/14651858.CD000560.

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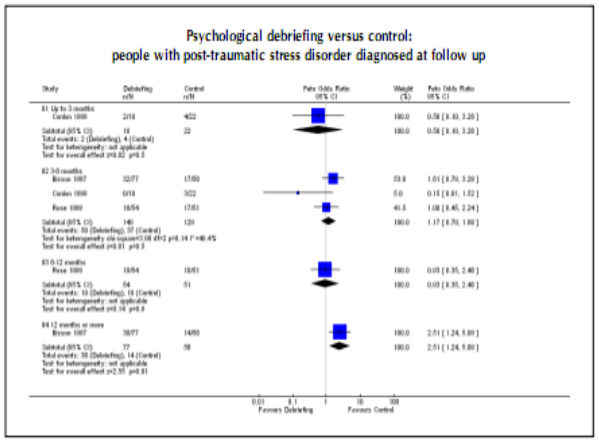


Authors' conclusions

Implications for practice:
There is no evidence of benefit of single session individual debriefing, and some evidence of possible harm. The practice of compulsory debriefing following trauma should cease pending further evidence.

Implications for research:
Large, well-designed trials are needed to evaluate the effects of psychological debriefing in emergency workers, children, and those with existing psychiatric conditions. Future trials should also evaluate the effects of group debriefing and debriefing after mass disasters. Trials should ensure that potential harms, as well as benefits, are assessed and reported.

The Cochrane Database of Systematic Reviews is available from www.wiley.com, and free for eligible countries through www.healthinternetwork.org.

The expansion and strengthening of Evidence Aid will help those responsible for making decisions relevant to natural disasters to choose effective strategies and avoid those that are ineffective. It will bring benefits in the aftermath of disasters, as well as helping people making decisions in resource poor settings more generally. It will save lives, reduce morbidity and enable communities to recover quicker and more efficiently.

Many challenges remain …

- Up-to-date systematic reviews are not available for many priorities
- Accessibility to the evidence has to be improved
- Not all reviews have conclusions that can guide practice
- Relevant research has not always been done, or done well enough
- Policy makers need to use the evidence

To meet the challenges, we need to

- Demand the use of reliable evidence to inform decision-making
- Produce this evidence
- Make this evidence accessible
- Keep it up-to-date

Better evidence

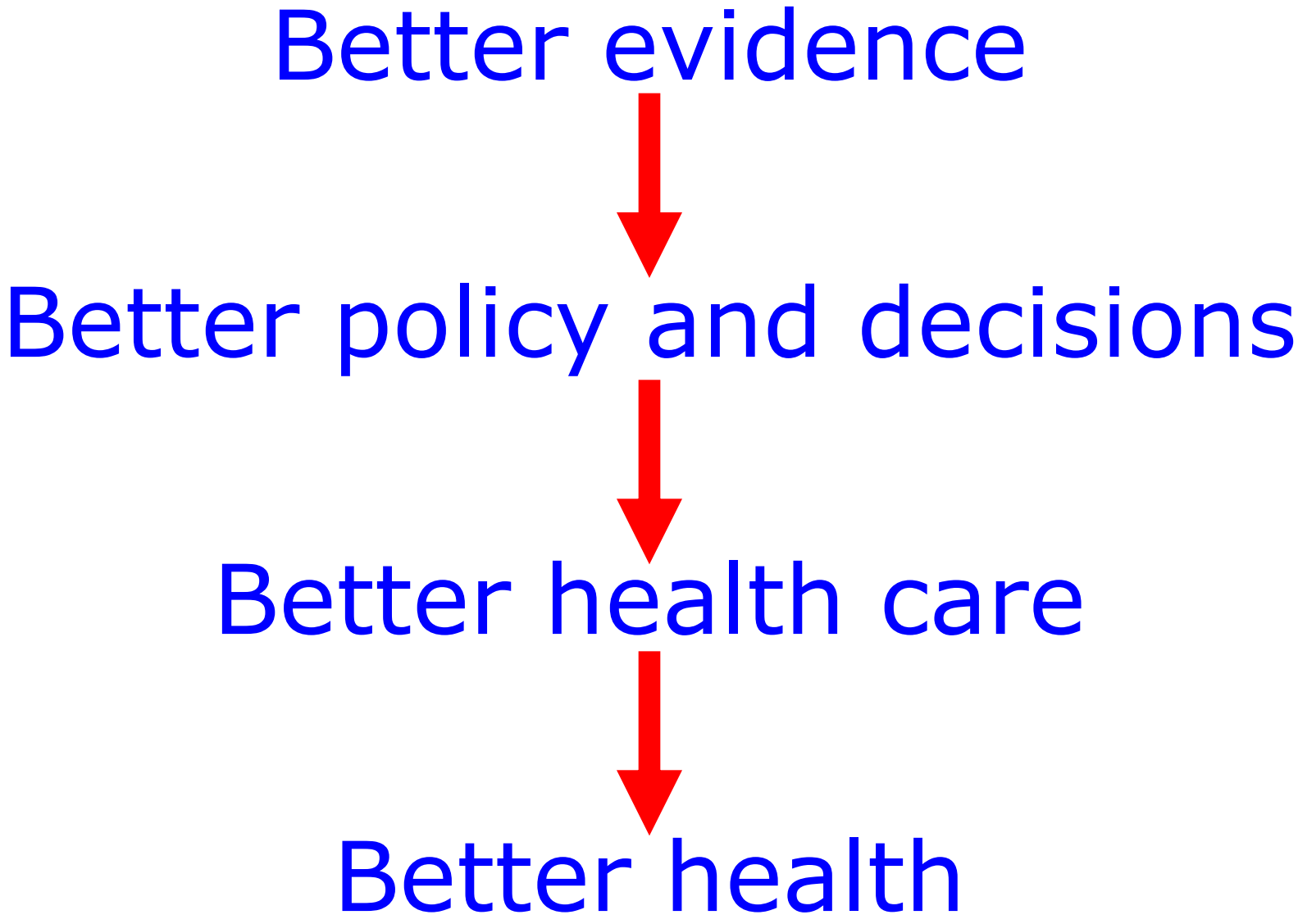
Better evidence

Better policy and decisions

Better evidence

Better policy and decisions

Better health care


Better evidence
Better policy and decisions
Better health care
Better health

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