The legacy of the 2004 Asian tsunami

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Professor of Psychiatry
Director: South Asian Cochrane Network & Centre
Christian Medical College, Vellore, India

On behalf of the
Evidence Aid Working Group & Contributors;
The Cochrane Collaboration & Wiley-Blackwell
The calm before the storm
Goa: December 4 2004
EDITORIAL

Aftermath of the tsunami on Black Sunday (December 26th 2004)
Article No. 990115

Dr. Prathap Tharyan - MD. MRCPsych, Professor and Head Department of Psychiatry, Christian Medical College Vellore 632002 Tamil Nadu INDIA
The Asian tsunami of 2004

- The powerful, earthquake-triggered tsunami:
  - killed more than 280,000 people worldwide
  - displaced more than one million and
  - affected the lives of around five million more worldwide

Nagapattinam District

- 73 affected villages
- 1,96,184 population
- 36,860 homes
- 6053 human lives lost
- 5023 livestock perished
- 40 relief camps
- 36,664 people in camps
Evidence Aid symposium: 20 September 2014; Hyderabad, India
Two weeks after the tsunami

- Acute stress reactions were common
  - Insomnia
  - Images of towering waves
  - High pitched sound of the tsunami
  - Cries of the dead
  - Rumors of earthquakes and tsunamis
  - Acute grief reactions
Immediately following the Tsunami, Dr. Chandri, Regional Mental Health Advisor to the WHO, claimed ‘almost all the people affected by the Tsunami... will be suffering from some form of psychosocial trauma’”

“The successful treatment of PTSD in the West has resulted in this condition being over-diagnosed and its importance exaggerated
Cultural differences in grieving

• The process of grieving
  • *In India, grieving is a community affair and expressions of grief and mourning are loud and publicly demonstrated; funeral processions are as tumultuous as wedding processions*

• Rituals
  • *Rituals allow survivors to confront their grief, bring families and communities together and help punctuate, and eventually set limits to, the process of grieving*

• Spiritual beliefs
  • *The near universal belief in the karmic cycle of birth and re-birth could prevent some of the fears and concerns of those who believe in reward or retribution after death*

• Non-linear model of causality
  • *Beliefs in super-natural phenomena co-exist alongside tacit acceptance of modern scientific explanations*
Resilience
Do we provide counseling for all survivors? Would large numbers develop PTSD?

SHOULD PSYCHOLOGICAL INTERVENTIONS BE USED AFTER DISASTERS?
Psychological interventions- models

- The government plan was to provide *mass single session debriefing* to each village, then move on –comprehensive coverage

- Our intuitive approach was to identify only people who were at risk of developing long term problems- provide supportive care and arrange for follow up

- Give time for acute reactions to subside naturally in others with reliance on own coping mechanisms and with community support

- Tremendous media pressure
- Local administration's concerns
- Can evidence inform the decision?
Welcome to The Cochrane Library

The Cochrane Library contains high-quality, independent evidence to inform healthcare decision-making. It includes reliable evidence from Cochrane and other systematic reviews, clinical trials, and more. Cochrane reviews bring you the combined results of the world's best medical research studies, and are recognised as the gold standard for evidence-based health care.

What’s New in Issue 2, 2007?
97 new reviews, 41 updated reviews, 139 new protocols and 3 updated protocols, including:
- Whole grain cereals for coronary heart disease
- Routine abdominal drainage for uncomplicated open cholecystectomy
- Cancer genetic risk assessment for individuals at risk of familial breast cancer
- Screening for abdominal aortic aneurysm
- Effectiveness of brief alcohol interventions in primary care populations
- Steroids for acute sinusitis
- Interventions to improve hand hygiene compliance in patient care
- Electronic mosquito repellents for preventing mosquito bites and malaria infection

New Reviews | Updated Reviews | Press Room

Release Notes
18 April: Changes with Issue 2, 2007... More

About the CD-ROM

Access to The Cochrane Library
The Cochrane Library is available online through Wiley InterScience.

For Clinicians
As a clinician you are under constant pressure to have high-quality, up-to-date evidence at your fingertips. More

For Researchers
The internet has given us instant access to a huge amount of research, but the large volume of available information is a problem in itself. More

For Patients
Healthcare consumers and patients need high-quality evidence about the effectiveness of treatments. More

For Policy Makers
As a policy maker or healthcare manager you are a generalist in search of high-quality information across a broad range of issues. More

www.thecochranelibrary.com

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Test for heterogeneity chi-square=4.22 df=3 p=0.2388
Test for overall effect=0.19 p=0.9

No evidence from 6 trials that single session debriefing prevents PTSD in the short term compared to no debriefing.
Brief single session debriefing may increase odds of PTSD in longer term
The evidence against giving single session debriefing was incorporated into training workshops for trauma counsellors.

Evidence from *The Cochrane Library* for more sustained psychotherapeutic interventions in those who are vulnerable was provided.
Identifying vulnerable people: risk factors for PTSD/PGD

- **Grief-related**
  - those who lost a spouse;
  - those who lost a child under the age of 20 years;
  - those whose loved ones were reported as missing;
  - those with multiple deaths in the family;
  - those who lost their homes;
  - those with multiple losses (e.g. home and family member)

- **Trauma-related**
  - those directly involved and seriously injured in the tsunami

- **General**
  - older people, children, women
  - those with previous mental health disorders
  - those showing symptoms of excessive grief, post-traumatic stress or substance dependence
How the Cochrane Collaboration Is Responding to the Asian Tsunami

Prathap Tharyan*, Mike Clarke, Sally Green

Prathap Tharyan is Professor of Psychiatry at the Christian Medical College in Vellore, Tamil Nadu, India, and Coordinator of the South Asian Cochrane Network. Mike Clarke is Director of the UK Cochrane Centre in Oxford, United Kingdom. Sally Green is Director of the Australasian Cochrane Centre at Monash Institute of Health Services Research, Monash University, Clayton, Australia. The views expressed in this article are those of the authors and are not necessarily the views of the Cochrane Collaboration.

Competing Interests: Prathap Tharyan is an editor with the Cochrane Schizophrenia Group, a reviewer and co-reviewer with other Cochrane collaborative review groups, and Coordinator of the South Asian Cochrane Network. These are not paid posts, but he has received funding from the Cochrane Collaboration and from John Wiley and Sons to host a meeting of the South Asian Cochrane Network and from the Cochrane Collaboration to attend annual colloquia. Mike Clarke is employed as Director of the UK Cochrane Centre and to work on systematic reviews. This employment depends on the work placed on the work of the Cochrane Collaboration and systematic reviews. Sally Green is employed as Director of the Australasian Cochrane Centre and is a member of the Cochrane Collaboration Steering Committee.

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Abbreviation: PTSD, post-traumatic stress disorder


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Dealing with disasters

- Compile a comprehensive list, prioritized and organized, of the health and social consequences of disasters
- Identify updated evidence-based relevant interventions to be used in planning and dealing with such disasters
- Make these resources available to policy makers and people allocating resources and planning and providing care in affected regions
- Evaluate whether, and to which of the groups involved in disaster management, these resources would prove useful
The Cochrane Collaboration

The reliable source of evidence in health care

The Evidence Aid project: Resources for natural disasters and other healthcare emergencies

- Evidence Summaries - evidence to help people making decisions about health care in natural disasters and other healthcare emergencies
- The Evidence Aid project -
  1. Resources for health professionals
  2. The Cochrane Collaboration working party
  3. How you might help
  4. Leaflet on The Cochrane Collaboration's response to healthcare emergencies

Resources for health professionals

The Cochrane Collaboration is preparing evidence summaries for interventions relevant to health care in natural disasters and other healthcare emergencies, such as those following the 2004 tsunami, and more recent events in the USA and South Asia. These summaries are being included here, along with links to other sources of evidence if summaries are not yet available. It is hoped that Evidence Aid will help government and non-government agencies, other organisations and individuals in planning and making decisions about health care.

Evidence summaries are here. Details of the prioritisation process for topics are here: prioritisation process, list of topics for which up-to-date Cochrane reviews are available, and list of topics for which up-to-date Cochrane reviews are not currently available. Suggestions for changes and additions to the prioritised topics are welcome and should be sent to reviews@cochrane.org.

An article about the Evidence Aid project was published in the June 2005 issue of PLoS Medicine. To read, print or download it click here.

The Cochrane Collaboration working party
Cochrane Collaboration - Evidence Aid Category Index

This website highlights evidence relevant to the effects of interventions. Its aim is to help people making decisions about health care in natural disasters and other healthcare emergencies. The topics were originally identified as priorities by people in the regions affected by the 2004 tsunami, and relate to interventions that might be used or available. Where possible, a structured summary ('Evidence Update') or another summary has been prepared, based on one or more Cochrane reviews. If a summary is not available but a relevant Cochrane review exists, a link is given to the review in The Cochrane Library. If a suitable Cochrane review is not available, there are links to other sources of evidence, in particular to topics in the BMJ's Clinical Evidence. (The inclusion of links to material from outside The Cochrane Collaboration does not imply endorsement of that material by the Collaboration.) If you would like to comment or ask questions, please email reviews@cochrane.org.

Infectious diseases

Injuries and wounds

Rebuilding of communities and infrastructure

Mental health

Nutrition

Rehabilitation

Pregnancy and childbirth
Infectious diseases

This website has been designed to try and help people making decisions about health care in the aftermath of natural disasters and other emergencies. The topics have been identified as priorities by people in affected regions, and relate to treatments that might be used or available. Where possible a summary has been prepared, based on one or more Cochrane reviews. If such a summary is not yet ready, links are included to other sources of evidence, if these have been identified. If you would like to comment or ask questions, please email reviews@cochrane.org.

Cholera

Diarrhoea

Hepatitis

Leptospirosis

Malaria

Rehabilitation

Respiratory infections and influenza

Other infections
Malaria

Evidence summaries for topics of high priority in health care in affected regions.

Prevention of malaria

Does prophylaxis or intermittent treatment with antimalarial drugs benefit young children living in areas with malaria? (PDF document)

Drugs for preventing malaria-related illness in pregnant women and death in the newborn (PDF document 0.22 MB)

Insecticide-treated bed nets and curtains for preventing malaria (PDF document 0.25 MB)

Treatment of malaria

Amodiaquine for treating malaria (PDF document 0.40 MB)

Artemether-lumefantrine (six-dose regimen) for treating uncomplicated falciparum malaria (A summary for this topic is not currently available here.)

Artesunate plus mefloquine versus mefloquine for treating uncomplicated malaria (A summary for this topic is not currently available here.)

Atovaquone-proguanil for treating uncomplicated malaria (A summary for this topic is not currently available here.)

Chloroquine or amodiaquine combined with sulfadoxine-pyrimethamine for treating uncomplicated malaria (A summary for this topic is not currently available here.)

Chlorproguanil-dapsone for treating uncomplicated malaria (PDF document 0.18 MB)

Drugs for treating uncomplicated malaria in pregnant women (PDF document 0.12 MB)

High dose quinine regimen for treating severe malaria (PDF document 0.14 MB)
Evidence Aid symposium: 20 September 2014; Hyderabad, India
Psychological debriefing versus control: people with post-traumatic stress disorder diagnosed at follow up

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.
Lessons from the tsunami

The tsunami was a reminder that the divisions within and between nations, as well as attempts to close our eyes and borders to problems abroad, flounder in the face of the challenges posed by nature.
Lessons learned from the tsunami

• Well-meaning but misdirected and sometimes harmful interventions could be prevented if those making decisions about the nature of responses had access to reliable and up-to-date evidence of what works and what does not.

Lessons learned from the tsunami

• Good-quality systematic reviews form the basis on which interventions should be implemented and on which new interventions should be planned and evaluated

WAS EVIDENCE AID USED AFTER OTHER DISASTERS?
Colecções Cochrane na BVS

**The Cochrane Library**
Colecção de fontes de informação de boa evidência em atenção à saúde, em inglês. Inclui as Revisões Sistemáticas da Colaboração Cochrane, em texto completo, além de ensaios clínicos, estudos de avaliação económica em saúde, informes de avaliação de tecnologias de saúde e revisões sistemáticas resumidas criticamente.

**Biblioteca Cochrane Plus**
BCP é uma coleção adicional à Cochrane Library, produzida pela Rede Cochrane Ibero-Americana. Inclui as revisões sistemáticas Cochrane, com textos completos traduzidos ao espanhol e outras fontes exclusivas em espanhol: Bandolera, Gestión Clínica y Sanitaria, Resúmenes de la Fundación Kovacs, Evidencia en Atención Primaria de Argentina, entre outras.

Quinto Taller OPS - RCIB para Investigadores, Octubre 2010: Extensión fecha inscripción!!!

Joint Colloquium of the Cochrane & Campbell Collaborations, 18 - 22 October 2010 - Keystone Resort, Colorado, USA
COCHRANE EVIDENCE AID: RESOURCES FOR CHILE AND HAITI EARTHQUAKES

A selection of Cochrane Reviews and their conclusions for healthcare topics that have been identified as important in the aftermath of a major earthquake. These are signposts to systematic reviews that might be helpful to decision-makers. All countries in Latin America and the Caribbean can access The Cochrane Library for free via the Virtual Health Library BIREME interface (in English, Spanish or Portuguese).

This information is also available to download as a PDF in English, Spanish, and French.

Guidelines about making drug donations following disasters are available here from the World Health Organization (WHO), and details of the Interagency Emergency Medical Kit are available in English, French and Spanish from this webpage.

Contact: Mike Clarke and Harriet MacLehose (mclarke@cochrane.ac.uk; haclehose@cochrane.org) if you have questions or suggestions for other topics.

DIARRHOEA PREVENTION AND TREATMENT

Polymer-based oral rehydration solution for treating acute watery diarrhoea

Polymer-based ORS [oral rehydration solution] shows some advantages compared to ORS ≥ 310 [the original ORS was based on glucose and had an osmolality of ≥ 310 mOsm/L] for treating all-cause diarrhoea, and in diarrhoea caused by cholera. Comparisons favoured the polymer-based ORS over ORS ≤ 270 [the currently agreed best formula with ≤ 270 mOsm/L], but the analysis was underpowered. [Download PDF] [Resumen en español] [Evidence Update summary]

Oral versus intravenous rehydration for treating dehydration due to gastroenteritis in children

There were no important clinical differences between ORT and IVT for rehydration secondary to acute gastroenteritis in children. It seems reasonable that children presenting for medical care with mild to moderate dehydration secondary to acute gastroenteritis should initially be treated with ORT. Should treatment fail, then IVT may be used. In children who have persistent vomiting, ORT may be used, but the child must be closely observed for proof of successful treatment.

For every 25 children treated with ORT, one would fail and require IVT. Clinicians and families need to apply this evidence to individual situations in order to decide whether they are willing to accept this minimal risk. [Download PDF] [Resumen en español] [Evidence Update summary]
August 2010: Severe floods in Pakistan

WATER SAFETY & WATER-RELATED DISEASES

New! Cochrane Evidence Aid: Resources for Pakistan floods
Usage statistics of the Water borne diseases collection: Google analytics

This page was viewed 2,246 times

2,246 Pageviews

1,726 Unique Views
Free access to the Cochrane Library in Pakistan

Free access to The Cochrane Library for all people in Pakistan up to November 2010

As part of the Evidence Aid programme, John Wiley & Sons, Ltd., have granted all people in Pakistan access to all databases in The Cochrane Library, including the Cochrane Database of Systematic Reviews, up to November 2010.

Evidence Aid special collection: evidence summaries to help rehabilitation efforts in areas affected by floods

Water safety and water related diseases:

A collection of evidence summaries based on systematic reviews from The Cochrane Collaboration. Where available, a link is provided to Evidence Update summaries.

These include evidence summaries on the following themes:
# Usage of The Cochrane Library in Pakistan

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Access to the Cochrane library via the Emergency Access Initiative of the National Library of Medicine

The Emergency Access Initiative (EAI) is a partnership of the National Library of Medicine, the National Network of Libraries of Medicine, and the Professional/Scholarly Publishing Division of the Association of American Publishers and other publishers. EAI provides temporary free access to full text articles from major biomedical titles to healthcare professionals, librarians, and the public affected by disasters.

Access to biomedical literature through the Emergency Access Initiative is only available to those affected by the disaster and for those providing assistance to the affected population. Other users should contact their local medical library or the National Network of Libraries of Medicine by calling 1-800-338-7657 for biomedical literature.

Active Event: Pakistan floods
Free access period: September 9, 2010 - November 6, 2010

As of Oct 11, 2010
Visitors: 1,852
Visitors Who Visited Once: 1,471
Visitors Who Visited More Than Once: 381
Average Visits per Visitor: 2.14

Statistics provided by Maria Elizabeth Collins; NLM
Access to the Cochrane library via the EAI of the NLM

- Quote from a librarian at the WHO Country Office for Islamabad:
  (provided by Maria E. Collins, NLM)

  “I am overwhelmed while I am writing to you about how useful I found this EAI access for Pakistan. It was a very timely support which eased my task and enabled me to retrieve/collect and disseminate required information to the professionals, doctors and all others who are involved in the relief and rehabilitation work for the flood victims in Pakistan. Since the process is ongoing, they would need updated information on emergency and related topics from time to time.”
How is the evidence collection being used?

“I know that many of the individuals involved in making guidelines for local groups such as Infectious Disease Society of Pakistan found these very useful in preparing their own guidelines.”

Anita Zaidi
South Asian Cochrane Network
Aga Khan University, Karachi
Did we do the right thing in 2004, based on such limited evidence?

WHAT CONSTITUTES RELIABLE EVIDENCE IN DISASTERS?
Ideally, an up to date Systematic Review of RCTs

Psychological debriefing for preventing post traumatic stress disorder (PTSD)

Suzanna C Rose¹,*, Jonathan Bisson², Rachel Churchill³, Simon Wessely⁴

Editorial Group: Cochrane Depression, Anxiety and Neurosis Group

Published Online: 21 JAN 2009
Assessed as up-to-date: 2 DEC 2001

DOI: 10.1002/14651858.CD000560

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Review update: summary

• 15 trials fulfilled the inclusion criteria for the update

• Single session individual debriefing did not prevent the onset of post traumatic stress disorder (PTSD) nor reduce psychological distress, compared to no debriefing or to educational interventions

• At one year, one trial reported a significantly increased risk of PTSD in those receiving debriefing
  • OR 2.51; 95% CI 1.24 to 5.09

• Methodological quality was variable, but the majority of trials scored poorly

• Can we then trust these estimates?

• What else can we do?
Did we do the right thing after the 2004 tsunami?

Coping with the Asian tsunami: Perspectives from Tamil Nadu, India on the determinants of resilience in the face of adversity

Anto P. Rajkumar, Titus S. Premkumar, Prathap Tharyan

Department of Psychiatry, Christian Medical College, Vellore 632002, Tamil Nadu, India

Qualitative research: Sept 2005
9 months after the tsunami

- Four costal villages in Nagapattinam district
- Premise: immediate stress and grief reactions would have had time to settle and successful community coping strategies would be identifiable.
- 6 focus groups: fishermen (2), housewives (2), village leaders (1); Youth (1)

Evidence Aid symposium: 20 September 2014; Hyderabad, India
Psychological reactions to natural disasters are diverse and shaped by ethno-cultural variations—cultural sensitivity required in aid responses. Effect modifiers:

- **Collectivizing personal trauma,**
- **Re-con structing meaning following the disaster using a “fatalistic” perspective,**
- **Using a problem-focused coping style,**
- **Utilizing extended social supports,**
- **Displaying grief and mourning publicly,** and
- **Drawing on strongly rooted spiritual beliefs and practices**
2. Coping mechanisms exist at individual and community levels that enhance resilience in the face of adversity and enable normal functioning in the majority of those affected, without requiring professional intervention.

- **Disasters result in positive and negative transformations**
- **The social response to a disaster is not just collapse, but also results in growth, learning and resilience**
- **Disaster relief efforts should facilitate, and not impede or delay such transformations**
Lessons from the 2004 Asian tsunami: Epidemiological and nosological debates in the diagnosis of post-traumatic stress disorder in non-Western post-disaster communities

A. P. Rajkumar, 1,2 T. S. P. Mohan 3 and P. Tharyan 1

• We assessed Post Traumatic Stress Symptoms (PTSS) and grief symptoms in 643 survivors from five Indian villages struck by the Asian tsunami 9 months later using the Impact of Events Scale – Revised and the Complicated Grief Assessment Scale.

• We adopted a case control design (those with and without PTSS) and employed complex sample multiple logistic regression statistics to study the determinants of PTSS.
Results

1. Did many people develop PTSD?
   • The prevalence of PTSS was 15.1% (95% CI 12.3%–17.9%)
     • i.e.: 85% had no stress symptoms 9 months after the tsunami

2. How accurate were our predictive risk factors?
   • PTSS was significantly associated with
     • traumatic grief (adjusted OR 6.50, 95% CI 3.12–13.57; P = 0.002)
     • female gender (adjusted OR 1.90, 95% CI 1.06–3.39; P = 0.04)
     • physical injury in tsunami (adjusted OR 3.85, 95% CI 1.51–9.83; P = 0.02)
     • death of children (adjusted OR, 2.93, 95% CI 1.43–5.99; P = 0.01)
     • financial losses > INR 100,000 (OR 1.28, 95% CI 1.01–1.62; P = 0.03)
   • PTSS was significantly lower in those
     • received aid of value ≥/≤ INR 40,000 (OR 0.60, 95% CI 0.42–0.86; P = 0.03)
Results II

• PTSS not associated: (after adjusting for sex, education, & cluster effect)  
  - Illiteracy**
  - Being a fisherman
  - Monthly income < INR 1500
  - Being caught in tsunami waves
  - Loss of consciousness while caught in tsunami waves*
  - Witnessing death during tsunami
  - Experiencing horror, fear, helplessness
  - Experiencing fear of one’s own death*
  - Handling corpses during relief work*
  - Alcohol use (men- 291/643)
  - Death of a relative**
  - Death of spouse*

** P <0.05; ** P <0.01 in univariate analyses, but not significant after adjusting for cluster effect
Results III

• Inherent to diagnosis of Post Traumatic Stress Disorder as opposed to Post Traumatic Stress Symptoms is ‘avoidance’

• Participants scored significantly less on the avoidance subscale when compared to hyper-arousal (P < 0.001) and the intrusion subscale of Impact of Event Scale-Revised (P < 0.001)

• Those with PTSS and those without PTSS did not differ significantly on functional impairment, defined by their inability to return to their pre-disaster or equivalent occupation, following the tsunami (P = 0.91).

• Participants with PTSS and with traumatic grief scored higher on the hyper-arousal (P < 0.001), intrusion (P < 0.001) and avoidance (p < 0.001) subscales of IES-R, than those without grief symptoms.
Reflections

• We were probably right in not offering routine counseling to all tsunami survivors (qualitative study and quantitative data).

• Following natural disasters, psychological responses are best aimed at:
  • strengthening community coping for the majority; and
  • identifying and providing appropriate psychological services for those with persistent difficulties (the majority of whom can be readily identified)

• Evidence from systematic reviews of RCTs guided our initial response but we confirmed these predictions by operational research that was observational (qualitative and quantitative)
Investing in evidence:
Responsible leadership in healthcare

The Indian Council of Medical Research has renewed the country’s National Subscription to the Cochrane Library for three years. The original National Subscription has been in place since 2007, offering all users in India free access to the Cochrane Library’s resources. Usage has increased significantly since January 2007 as a result, and this trend is expected to continue.
Coordinated response
Engineering perspectives (shelters, toilets)
Occupational rehabilitation
Infra-structure strengthening
Mass casualties and dead bodies
Social change
Prevent corruption with regard to aid received
Timely Implementation, Monitoring and Evaluation of projects

UN-ANSWERED QUESTIONS
AT THE TIME
Adequate funding
Global partnerships
Volunteers to prepare and maintain systematic reviews of relevant interventions
Primary research to fill the gaps indicated by these reviews

THE LASTING LEGACY OF THE 2004 TSUNAMI?
Email: EvidenceAid@cochrane.org