Facilitating medical student learning of evidence-based healthcare – using research to inform what we do

Evidence-based healthcare (EBHC) is recognised as key to the implementation of sound healthcare practice. Initiatives to promote EBHC internationally, and in Africa, are increasingly common and there is acceptance of the need to facilitate learning of EBHC among all healthcare professionals. So what is the best strategy to use and what evidence is there to support what we do?

Research in this area has generally focused on whether to teach EBHC or not. Our research therefore has looked at best practices in the teaching and learning of EBHC for medical students to enhance their EBHC knowledge, attitudes and skills. To start, we took stock of existing systematic reviews assessing the effects of teaching EBHC. This overview identified 16 reviews covering undergraduate, postgraduate and continuing professional development, and showed that clinically integrated, multifaceted strategies with assessment were more effective than single or no interventions for enhancing knowledge, attitudes and skills.

To learn more about the implementation of clinically integrated EBHC teaching and learning, we conducted interviews with programme coordinators from around the world. We found consensus that learning of EBHC should start in the preclinical years through the use of real clinical scenarios and be consolidated with application to real patient settings and assessment within the clinical years. Curriculum content should cover the full spectrum of EBHC and not focus only on specific aspects such as critical appraisal or searching.

We also found that the most common challenges were lack of space in the curriculum, EBHC misconceptions, staff resistance and lack of confidence of tutors, time and negative role modelling. Critical success factors identified were pragmatism and nimbleness in responding to opportunities for engagement and inclusion of EBHC learning in the curriculum, patience, and a critical mass of teachers with EBHC knowledge, attitudes and skills who are confident in facilitating learning.

In addition, role modelling within the clinical setting and the overall institutional context were important for success.

Bibliography


Taryn Young
Centre for Evidence-based Health Care, Stellenbosch University & Cochrane SA
Consumer summary of evidence

Interventions to improve water quality and prevent diarrhoea

This Cochrane Review summarises trials evaluating different interventions to improve water quality and prevent diarrhoea. After searching for relevant trials up to 11 November 2014, the authors included 55 studies enrolling over 84 000 participants. Most included studies were conducted in low- or middle-income countries (LMICs) (50 studies), with unimproved water sources (30 studies), and unimproved or unclear sanitation (34 studies).

What causes diarrhoea and what water quality interventions might prevent diarrhoea?

Diarrhoea is a major cause of death and disease, especially among young children in low-income countries where the most common causes are faecally contaminated water and food, or poor hygiene practices.

In remote and low-income settings, source-based water quality improvement may include providing protected groundwater (springs, wells and bore holes) or harvested rainwater as an alternative to surface sources (rivers and lakes). Alternatively water may be treated at the point-of-use in people’s homes by boiling, chlorination, flocculation, filtration or solar disinfection. These point-of-use interventions have the potential to overcome both contaminated sources and recontamination of safe water in the home.

What the research says

There is currently insufficient evidence to know if source-based improvements in water supplies, such as protected wells and communal tap stands or treatment of communal supplies, consistently reduce diarrhoea in low-income settings (very low-quality evidence). The authors found no trials evaluating reliable piped-in water supplies to people’s homes.

On average, distributing disinfection products for use in the home may reduce diarrhoea by around one quarter in the case of chlorine products (low-quality evidence), and around a third in the case of flocculation and disinfection sachets (moderate-quality evidence).

Water filtration at home probably reduces diarrhoea by around a half (moderate-quality evidence), and effects were consistently seen with ceramic filters (moderate-quality evidence), biosand systems (moderate-quality evidence) and LifeStraw® filters (low-quality evidence). Plumbed-in filtration has only been evaluated in high-income settings (low-quality evidence).

In low-income settings distributing plastic bottles with instructions to leave filled bottles in direct sunlight for at least six hours before drinking probably reduces diarrhoea by around a third (moderate-quality evidence).

Research assessing the effects of household connections and chlorination at the point of delivery will help improve our knowledge base. Evidence indicates that the more people use the various interventions for improving water quality the larger the effects, so research into practical approaches to increase coverage and help assure long-term use of them in poor groups will help improve impact.

Technical summary
Incentives and enablers to improve adherence in tuberculosis

Background
Effective treatment for both active and latent tuberculosis requires regular medication to be taken for six to 12 months, and adherence to this prolonged schedule is a common cause of treatment failure. Adherence may be particularly difficult for poor people, who may be unable to meet the costs of travelling to the clinics to attend appointments and collect treatment. Economic rewards (incentives) or support (enablers) for adherence may assist patients to complete tuberculosis treatment as prescribed.

Methods
The authors undertook a comprehensive search of the Cochrane Infectious Diseases Group Specialized Register, Cochrane Central Register of Controlled Trials (CENTRAL), MEDLINE, EMBASE, LILACS, Science Citation Index and reference lists of relevant publications up to 5 June 2015.

Randomised controlled trials that tested the use of an economic intervention among patients being tested or on treatment for active or latent tuberculosis were included. Interventions could be direct (such as cash or vouchers for stores), or indirect (that is, the free provision of a service for which the patient would otherwise have to pay, such as transport to the clinic). Control patients had to receive the local standard treatment for tuberculosis. Two or more review authors independently screened and selected studies for inclusion, extracted data, and assessed risk of bias. All studies reported only dichotomous data, so study results were expressed as the risk ratio with its 95% confidence interval for each outcome. Analyses were stratified according to the type of incentive/enabler and control intervention.

Results
Twelve eligible trials were identified. Ten were conducted in marginalised groups in a high-income country (the USA). The remaining two trials were conducted among general adult populations in low- and middle-income countries (Timor-Leste and South Africa).

The findings show that incentives and enablers have little or no effects in improving long-term adherence to treatment for active TB (RR 1.04, 95% CI 0.97 to 1.13, two trials, 4356 participants, low-quality evidence) or latent TB (three trials, results not pooled because of high heterogeneity, low-quality evidence). However, in specific sub-populations such as recently released prisoners, drug users and the homeless, trials show that incentives and enablers probably do improve once-off clinic re-attendance for initiation or continuation of anti-tuberculosis prophylaxis (three trials, 595 participants: RR 1.58, 95% CI 1.27 to 1.96, moderate quality evidence), and may increase the return rate for reading of tuberculin skin test results (two trials, 1371 participants: RR 2.16, 95% CI 1.41 to 3.29, low-quality evidence).

Single trials suggest that an immediate cash incentive may be more effective than delaying the incentive until completion of treatment (RR 1.11, 95% CI 0.98 to 1.24, one trial, 300 participants, low-quality evidence), cash incentives may be more effective than non-cash incentives (completion of TB prophylaxis: RR 1.26, 95% CI 1.02 to 1.56, one trial, 141 participants, low-quality evidence; return for skin test reading: RR 1.13, 95% CI 1.07 to 1.19, one trial, 652 participants, low-quality evidence); and higher cash incentives may be more effective than lower cash incentives (RR 1.08, 95% CI 1.01 to 1.16, one trial, 404 participants, low-quality evidence).

Implications for practice
Economic incentives and enablers may have some positive effects on adherence in the short term, particularly for marginal populations such as drug users, recently released prisoners, and the homeless, but there is currently insufficient evidence to know if they can improve long-term adherence to tuberculosis treatment.

Implications for research
Further high-quality studies are needed to explore the effects and costs of incentives and enablers to improve adherence to the long-term treatment of active TB. Future studies should specifically investigate the role of such factors as HIV infection and socioeconomic status in modifying the effects of incentives/enablers for tuberculosis treatment, as well as the possible adverse effects of incentives and enablers.


Elizabeth Lutge
Manager of the Epidemiology, Health Research and Knowledge Management Units, KwaZulu-Natal Department of Health, and Chair of the KwaZulu-Natal Provincial Health Research and Ethics Committee
I first heard the word ‘Cochrane’ during an interview to be part of an evidence synthesis group in 2011. This work was spearheaded by the KEMRI-Wellcome Trust Research Programme in collaboration with the Kenyan Ministry of Health.

“Tell us anything you know about the Cochrane Collaboration?” the lead interviewer asked.

“Eeeh, well, mmmmhh, come again………..” I replied, before I mastered enough courage to tell them that honestly I had never heard of such a thing! Here I was a Pharmacy Graduate who had worked for two years in a hospital setting. Despite this, I was selected for the job and my journey in evidence synthesis and, by extension Cochrane, began. Working with a great mentor, Newton Opiyo, I was inducted into the Cochrane world when in 2013 I presented a poster at the African Cochrane Indaba in Cape Town. Later on in the year I applied for and won the Aubrey Sheiham Scholarship to go to the UK to work on a review with the Infectious Diseases Group headed by Prof. Paul Garner.

During the Indaba, I met a great team from Cochrane South Africa (SA) WHO have since helped me to become an even better ‘Cochranite’.

As I worked on evidence synthesis work, I learnt that as a ‘Cochranite’, the ultimate ‘pilgrimage’ is to attend a Cochrane Colloquium. When the calls for abstracts came, I submitted an abstract which was accepted. However, there was the ‘small’ issue of how to get to Vienna to be part of those who would be ‘Filtering the information overload for better decisions’. Luckily, I applied for and received funding through the developing country stipend from Cochrane.

I did my rapid oral presentation, and true to the description, it was rapid fire - I had too much to say in four minutes! But with the theme, ‘Filtering the information overload for better decisions’ you had to be specific and filter out the clutter.

I had opportunities to meet with lots of individuals planning or undertaking work in knowledge translation and specifically guidelines development. I left Vienna with a take-home message of “Good bye sweet guideline” from the plenary presentation by Glyn Elwyn, which encouraged us to start re-thinking clinical guidelines development and usability to prevent overload.

Social opportunities
Of course, the colloquium was not all science and there were several social and networking events. First there was the welcome reception which was great. I met with several people whom I had only previously interacted with via email! Then there was a free afternoon for people to go sightseeing which did not disappoint. Keeping true to their mission, the Cochrane SA group led by Tamara Kredo organised a dinner for all the African contributors (South Africa, Uganda, Nigeria, Mozambique and Kenya were represented) in one of the nearby parks. The pork was sumptuous!

Feedback from Vienna
Exciting learning experience for a Colloquium first timer

Overall my impressions were great. Vienna was spectacular and the scientific meetings were very refreshing. More often than not, one was spoilt for choice on exactly what to attend at any given time. Luckily, the organisers arranged for the crucial workshops to be run more than once in the course of the colloquium so that everyone could attend them.

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Those of us who needed some adrenaline also went for a swing at a height of 90 metres! It was amazing to see Vienna from a bird’s eye view at night!

Finally our time in Vienna was coming to an end and we had a final gala to attend at the Vienna City Hall. It was lovely networking, ‘wining’ and, of course, dancing. I had a great time and made new friends while keeping the old ones. I am grateful to Cochrane and Cochrane SA for facilitating my travel. I hope to be back for subsequent colloquia!

Jamlick Karumbi
KEMRI - University of Oxford-Wellcome Trust Collaborative Programme
Establishing a Cochrane nutrition field

Cochrane South Africa and the Centre for Evidence-based Health Care at Stellenbosch University are jointly developing a proposal to establish a Cochrane Nutrition Field (CNF). A Cochrane Field is a Cochrane entity responsible for disseminating evidence related to the field’s topic area, building relationships with relevant stakeholders within and outside of Cochrane, coordinating methods research for conducting reviews, and supporting authors of relevant reviews, among other activities. The topic area of a field usually focuses on a cross-cutting dimension of healthcare that is not specific to a certain body system or healthcare condition.

Nutritional risk factors are increasingly recognised as important contributors to the global burden of disease, with the world facing a complex array of serious nutritional challenges related to undernutrition - not having enough to eat - and overnutrition - consuming more food energy than the body needs.1,2 Rigorous systematic reviews of the effects of interventions are a key component of evidence-informed decision-making for effective nutrition-related policies and practices aimed at addressing the nutrition burden.

Findings from recent research conducted by our team assessing the scope and quality of Cochrane nutrition reviews found that currently these reviews are produced by a large number of Cochrane Review Groups, without consistent guidance on how to deal with methodological and reporting challenges specific to nutrition reviews. Furthermore, the research indicates a gap in currently available Cochrane reviews addressing upstream public health nutrition problems. There is thus an opportunity for coordination of activities related to nutrition reviews within Cochrane. A Cochrane Nutrition Field could contribute to coordinating Cochrane activities to ensure that priority nutrition reviews are conducted with rigorous methodological approaches, and promote the use of evidence from nutrition systematic reviews to inform healthcare decision making.

Exploratory meeting
An exploratory meeting with interested stakeholders was held in Cape Town on 21 and 22 August 2015, where the draft proposal for the CNF was presented and relevant issues related to nutrition reviews and evidence were discussed. The meeting established that there is broad-based support for such a field from both Cochrane and external stakeholders.

The proposed CNF aims to play a leading role in coordinating nutrition activities within Cochrane, while drawing on ongoing relevant work being undertaken by institutions and individuals globally. We will continue to engage with relevant partners who have expressed interest in contributing to the proposed CNF. The aim now is to finalise the CNF proposal for submission to the Cochrane Steering Group in early 2016.

References

Solange Durão and Celeste Naude
Cochrane SA and Centre for Evidence-based Health Care, Stellenbosch University

Prof. Volmink delivers prestigious LSTM Leverhulme Lecture

Prof. Jimmy Volmink, Dean of the Faculty of Medicine and Health Sciences of Stellenbosch University and Director of Cochrane South Africa, delivered the prestigious Liverpool School of Tropical Medicine Leverhulme Lecture on 17 November 2015. Entitled ‘Ecstasies and agonies of evidence synthesis’ his lecture looked at how the likelihood of misusing resources on ineffective or harmful interventions can be reversed if decisions are consistently informed by reliable research, and how vested interests can impede decision making, so that research evidence may be ignored with detrimental consequences.

Prof. Volmink talked from 20 years’ experience of conducting and promoting systematic reviews in South Africa and drew on examples from TB, HIV and nutrition where review findings were embraced, rejected or ignored by decision makers. He also explained how the landscape has changed, with an increase in systematic reviews and moving beyond clinical trials to synthesis of observational, qualitative and animal studies.
Developing a roadmap for taking Cochrane to new heights in Africa

The Cochrane African Network leadership workshop in Cape Town, November 2015

There has been a huge increase in the number of Cochrane reviews from African contributors since the formation of the Cochrane African Network in 2007, however, Africa is still under-represented within Cochrane and this is something that African collaborators hope to change.

The Cochrane African Network (CAN) group met in Cape Town from 2 to 6 November to develop a more formalised approach for taking the network forward and for the participants to acquire or update their skills in facilitation, knowledge transfer, leadership and coaching, communications and fundraising. The meeting also offered an opportunity for networking with other strategic partners and potential funders from the region. The workshop was funded by the Swiss Commission for Research Partnerships with Developing Countries (KFPE) and the Cochrane Central Executive in partnership with Cochrane Switzerland.

The group, which included participants from five African countries (Malawi, Kenya, Cameroon, Nigeria and South Africa), spent time debating the aims and goals of the network; its specific and unique offering within Cochrane; and, outlining detailed plans for the way forward. The network was initially established in 2007 with a proposal to consolidate Cochrane activities in Africa. This led to the Cochrane Indaba in 2013. The network has been characterised by ongoing activity including a substantial increase in African-led reviews (over 500 contributors in the last ten years), mentoring and fellowships, but has never been formalised. The 2014 Cochrane Game Changers strategy offered an opportunity to formalise the network and has resulted in a detailed draft project proposal which was further enhanced and developed at the workshop.

Unique challenges and opportunities
What is clear is that Africa is not Europe or North America – it has its own health priorities and research and implementation challenges. The network needs to learn from experiences elsewhere in the collaboration and in other international groups – however, the learning should work both ways.

“This is frontier work,” said Mark Wilson, Cochrane CEO. “It should be fed back into the organisation.”

The network aims to build capacity both in doing and using reviews, ensuring that reviews are relevant to the needs of the region and that results can be implemented by policy makers and practitioners.

“We must build the absorption capacity of policy makers within the region or we will remain outside of the system,” pointed out Dr Sanni Babatunde of the World Health Organization South Africa office. “The gap is often not the absence of evidence but the ability of the people we are producing evidence for to absorb it.”

“The challenge will be to make such a network sustainable in terms of governance, funding and other practicalities,” said Richard Gordon of the Medical Research Council.

“It needs to be strategic, to learn from what has been done before, and not repeat mistakes,” he added.

Mark Wilson emphasised the importance of regional initiatives within Cochrane. “We want to put Cochrane at the heart of healthcare decision making worldwide,” he said. “We have the grandiose ambition of making Cochrane information accessible to everyone in the world.”

In line with this, he pointed to the new Cochrane membership scheme to be launched in 2016; the ongoing commitment to open access; the development of new platforms to transform the useability of Cochrane reviews; and, the fact that the Cochrane website will soon become available in five languages.

“Cochrane is changing fast,” he confirmed, “this is the right time to move forward with this initiative.”

“The Cochrane Africa Network would be of great benefit to African scientists,” said Thomas Nyirenda of the European & Developing Countries Clinical Trials Partnership. “The best money spend would be in training people to be better utilisers of evidence.”

Other issues discussed during the week included the need to tap into other health priority-setting initiatives on the continent; the need for priority-setting exercises to identify relevant review evidence; proactively examining stalled reviews and making plans to take them to completion; developing an advocacy and stakeholder engagement strategy for the network; understanding the capacity of the network and its ability to support and mentor in the region; and, considering the need for translation services for reviews which includes African languages.

Michelle Galloway
Cochrane SA
PACTR - an ever-growing resource

The Pan African Clinical Trials Registry (www.pactr.org) continues to assist regional efforts towards transparency and harmonisation of clinical trial research by promoting prospective clinical trial registration and providing a venue to register and search the database of African clinical trials. Recently, after recommendations from the World Health Organization (http://www.who.int/ictrp/results/reporting/en/), a flagging system was added to the database to allow trials to register retrospectively and be clearly marked as such. This increases the usefulness of the registry by ensuring that more trials populate the database.

PACTR developed from its initial inception as the AIDS, Tuberculosis and Malaria Registry in 2006. It recognised the need to include all conditions being researched and was renamed PACTR in 2009, and formally launched as a WHO-primary registry. Since then PACTR has increasingly become the registry of choice for African trials. The database has grown exponentially - of the total applications received, 37% were received in 2014-2015 (Figure 1).

On 20 October the number of registered trials reached 548. Four hundred and one are single-centered with sites in 31 countries. The 147 multi-centre trials have sites in 30 countries. Five of the multinational studies have sites in India, France, Belgium, Switzerland and the USA. Of the 587 principal investigators listed for the 548 trials, 498 are from Africa.

PACTR is also ensuring that African trial research is represented as comprehensively as possible in the global landscape through the WHO's central repository, the International Clinical Trials Registry Platform. PACTR continues to provide a valuable resource for researchers, clinicians, policy-makers and consumers.

Elizabeth Pienaar
Cochrane SA, PACTR Project Manager

Project SAGE Update

Project SAGE – the South African Guidelines Excellence Project - is a flagship project of the South African Medical Research Council, in collaboration with the Centre for Evidence-based Health Care, Stellenbosch University and the International Centre for Allied Health Evidence, University of South Australia. It is anticipated that the work done by SAGE will inform thinking on how guidelines are constructed particularly in low- and middle-income countries. SAGE has five goals, namely: South African guideline stakeholder and agenda mapping; primary healthcare guideline identification and appraisal; guidelines stakeholder requirement mapping; developing a toolkit for South African guidelines work; and, capacity building in guideline activities.

Stakeholder mapping
The project has completed interviews with 33 stakeholders involved in South African national guideline development for primary care including the National Department of Health; researchers and academics; professional societies; the pharmaceutical industry; the medical insurance sector; and, donor/partner organisations.

These interviews made it clear that national guideline developers have insight into the complexities of policy and guideline development but may not have full perspective into what happens on the ground. This will be explored further in current engagements with provincial-level stakeholders and healthcare providers.

However, emergent themes include lack of clarity in understanding terminology; different views on the role of guidelines; fragmentation and possible duplication; ad hoc methods and systems; and, human capacity challenges.

The project is currently applying for access to four provinces to conduct focus groups with healthcare providers to explore barriers to and solutions for the implementation of guidelines.

Guideline appraisal - variable quality
Results thus far of the primary care guideline critical quality evaluation have shown variable quality in 16 South African primary care guidelines and pinpointed methodological issues to be addressed to make them of internationally accepted standard. SAGE has produced a conceptual guideline framework to produce methodologically sound, locally acceptable and implementable guidelines (Figure 1).

Capacity building
The search for systematic reviews of guideline learning approaches has revealed no relevant studies and has therefore been extended to grey literature and contacting experts. However, relevant data have been extracted from national and international guideline training programmes; a one-day training programme has been piloted; full-course content has been developed; and, there are plans to pilot the Clinical Guidelines Module early in 2016, as an accredited short course at Stellenbosch University (mclinepi@sun.ac.za).

Michelle Galloway and Tamara Kredo
Cochrane SA
Recognising African researchers – the Aubrey Sheiham Award

Dr Jael Apondi Obiero has been announced as the 2015 winner of the Aubrey Sheiham Leadership Award by Cochrane. The award is named after the dental epidemiologist who was inspired and encouraged by Archie Cochrane to question many of the practices in medicine and dentistry.

The award is managed by Cochrane South Africa (SA) and is offered annually to an individual from Africa to support the conduct of a Cochrane Review focusing on a priority topic that impacts on the health of people living in lower- and middle-income countries. In addition to conducting a Review, the winner mentors a novice author from Africa during the review process and, in so doing, develops capacity in research synthesis in the region.

Dr Obiero, who is based at the Institute for Primate Research in Nairobi, Kenya and holds a PhD in Medical Microbiology, will use the award to conduct her Cochrane Review entitled *Nifuratel-Nystatin combination for the treatment of trichomonal vaginitis, vulvovaginal candidiasis and bacterial vaginosis.*

Dr Obiero’s mentee is Dr Stephen Rulisa, an Obstetrician and Gynaecologist based in Rwanda who will work with Dr Obiero on the review.

It is with deep sadness that we announce the recent passing of Prof. Aubrey Sheiham - he has been a longstanding friend of Cochrane. Our deepest sympathies go to his wife, family and colleagues.

New Staff

**Cochrane announces appointment of Deputy Editor in Chief**

Karla Soares Weiser has been appointed as Cochrane’s Deputy Editor in Chief. This newly created post will combine leadership roles within the Cochrane Editorial Unit and Cochrane Innovations by leading the editorial development of new business products and services for Cochrane.

Karla has been an active part of the Cochrane community for many years. She has worked with 12 Cochrane Review Groups and been an editor for diagnostic test accuracy reviews within the Schizophrenia Group. She is an author on more than 20 Cochrane Reviews, and has contributed to Cochrane in many other ways, including most recently as one of the leadership team of the Targeted Updates project. She also brings entrepreneurial skills gained through building and developing her own business.

**Communications Officer for Cochrane SA**

Michelle Galloway formally joined the Cochrane South Africa staff as a part-time Communications Officer in August 2015 but has been involved with Cochrane SA since February on a services-rendered basis.

She is a freelance writer, editor, proofreader and media and communications consultant and, in addition to Cochrane, her current contracts include acting as Media Officer for the Stellenbosch Institute for Advanced Study (STIAS).

Michelle completed her M Phil (Journalism) at Stellenbosch University with the thesis title: *Telling the story of the century - how are journalists coping with reporting on HIV/AIDS in South Africa?*

Michelle had a long-time previous involvement with the Medical Research Council in which highlights included being the Managing Editor and one of the founders of the AIDS Bulletin and the Communications Manager for the South African AIDS Vaccine Initiative at the challenging time of the start of early vaccine trials in South Africa. Her interest in HIV/AIDS stretches to the beginning of the epidemic in South Africa and includes working on the daily newspapers at a number of international AIDS conferences.

After leaving the MRC in 2008 she worked for a health consultancy - SEAD. She has been freelancing since 2014.

When not grinding away at her laptop, Michelle enjoys ‘treading the boards’ in various theatre productions in Cape Town.

Conferences

**SAGE Guidelines Summit 2016**

24 February 2016, Cape Town
For information email SAGE@mrc.ac.za

**Evidence Live 2016**

22 – 24 June 2016, University of Oxford
http://evidencelive.org/

**AIDS 2016**

21st International AIDS Conference
17 – 22 July 2016, Durban, South Africa
http://www.aids2016.org/

**Teaching Evidence Assimilation for Collaborative Health Care**

3 – 5 August 2016, New York Academy of Medicine, New York
http://www.ebmny.org/

**G-I-N Conference**

20 – 30 September 2016, Philadelphia, USA

**Cochrane Colloquium 2016**

23 - 27 October 2016, Seoul, South Korea

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Cochrane South Africa is an intramural research unit of the South African Medical Research Council.