Methods Symposium 2011

Complex Interventions:
Methodological implications for Cochrane Intervention Reviews

19th Cochrane Colloquium, Madrid 2011
Tuesday, 18 October 2011, 16:00–20:00
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METHODS SYMPOSIUM

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Tuesday, 18 October 2011, 16:00–20:00
Room ‘Aula Pittaluga’, Instituto de Salud Carlos III,
Campus Chamartin - Escuela National de Sanidad Building
Avda. Monforte de Lemos, 5 – 28029 Madrid

Part 1  Chair: Harriet MacLehose

16:00  Welcome and Symposium overview
Speaker: Jane Noyes

16:05  Setting the coordinates: Methodological issues and Cochrane Reviews of Complex Interventions
Speaker: Mark Petticrew

16:15  Definitions and dimensions of intervention complexity
Presenters: Simon Lewin and Claire Glenton. Discussant: Tammy Hoffman

16:40  Development of methods to synthesize complex interventions in meaningful ways:

16:40  Methods for synthesizing evidence of the effects of healthcare interventions in complex systematic reviews (including statistical approaches)
Presenter: Jo Mckenzie. Discussant: Julian Higgins

17:05  Synthesis of multiple forms of evidence
Presenter: Liz Waters. Discussant: Rebecca Armstrong

17:30  The role of qualitative evidence in complex intervention reviews
Presenter: Jane Noyes. Discussant: Sandy Oliver

18:00  Break

Part 2  Chair: Julian Higgins

18:30  Developing and using logic models in reviews of complex interventions
Presenters: Philip Baker and Daniel Francis. Discussant: Hugh Waddington

18:55  Panel discussion: What we know, what we need to know and how Cochrane will meet this challenge
Panel: All presenters and Jeremy Grimshaw

19:50  Closing Remarks
Speaker: Jeremy Grimshaw

20:00  Close
Programme details

Setting the coordinates: Methodological issues and Cochrane Reviews of Complex Interventions

Speaker: Mark Petticrew

Complex interventions present many challenges for systematic reviewers, from defining the intervention, and developing the review question, though to communicating the findings to users. This presentation will "set the co-ordinates" by noting the key methodological and other challenges. It will also briefly outline a pragmatic approach to dealing with complexity in systematic reviews, beginning, as for any review, with defining the research question(s). In particular it suggests that it will be helpful to start by identifying the sources of complexity in the intervention, before mapping the various aspects of complexity in the intervention onto the appropriate sources of evidence. This will facilitate the development of the inclusion and exclusion criteria. This general approach is also equally applicable to primary research which is aimed at evaluating the effects of complex interventions. It will draw on illustrative examples from healthcare and other sectors.

Mark is Professor of Public Health Evaluation in the Department of Social and Environmental Health Research in the Faculty of Public Health and Policy at London School of Hygiene and Tropical Medicine. His research has involved primary research on the health effects of housing, urban regeneration, transport and employment interventions. He has also worked on systematic reviews of the effects on health and health inequalities of employment, housing, transport and tobacco control policies. He is one of the convenors of the Cochrane/Campbell Health Equity Group, and is an editor of the Cochrane Public Health Review Group.

Definitions and dimensions of intervention complexity

Presenters: Simon Lewin and Claire Glenton; Discussant: Tammy Hoffman

Health care interventions can be considered as falling along a spectrum from more simple to highly complex. There are a number of aspects to this complexity: for example, such interventions may have complex explanatory pathways, either physiological or psychosocial, and there may be a degree of uncertainty regarding their mechanism of action and "active ingredient". Also, the intervention itself may consist of a number of elements that "may act both independently and inter-dependently" (MRC 2000 p2).

Assessing intervention complexity may be useful in several ways within systematic reviews of effects, including in grouping interventions for analysis and exploring the causes of heterogeneity in effect estimates. Assessing complexity may also inform judgments regarding how results on the effects of one category of interventions can be generalized to other similar interventions for which evidence is not available (i.e. judgments regarding the use of indirect evidence), and inform planning for the implementation of effective interventions.

In this presentation, we: (a) discuss a tool for grading health care interventions along the complex-simple continuum; and (b) outline an example of an adaptation of this tool that we are using to examine the complexity of interventions included in a guideline on ‘optimizing’ or ‘taskshifting’ to improve maternal and newborn health. We will reflect on the usefulness of these tools and outline where further methodological work may be needed.

Simon is a senior researcher at the Norwegian Knowledge Centre for the Health Services and the Medical Research Council of South Africa. His current work is largely within the field of implementation research, including systematic reviews of complex health interventions; the development and evaluation of strategies for changing professional and consumer behaviours and the organization of care; and methods for synthesizing the findings of qualitative studies. He is an editor for the Cochrane Consumers and Communication Review Group and the Cochrane Effective Practice and Organisation of Care Review Group.
Claire is a senior researcher at the Norwegian Knowledge Centre for the Health Services. Her research interests are largely within the field of implementation research, including systematic reviews of complex health intervention and methods for disseminating systematic review evidence to decision makers. She is currently involved in the development of systematic reviews of both quantitative and qualitative research evidence concerning the use of lay health workers for maternal and child health. Claire is director of the Nordic Cochrane Centre's Norwegian branch and an editor for the Cochrane Consumers and Communication Review Group.

Tammy is a Clinical Epidemiologist in the Centre for Research in Evidence-Based Practice at Bond University and an academic in the School of Health and Rehabilitation Sciences at the University of Queensland. Tammy’s main research interests are: 1) facilitators of evidence-based practice from clinicians’ perspective (including access to, quality and usability of research evidence); 2) shared decision making and communication of health information and evidence to patients; 3) patients’ understanding of health information, adherence and behaviour change, particularly in the area of chronic conditions.

Tammy is a member of the team that developed and manages OTseeker (www.otseeker.com) – a free online occupational therapy evidence database that contains bibliographic and critical appraisal details of systematic reviews and randomised controlled trials about occupational therapy interventions. Tammy is also the lead author of a book (Evidence-Based Practice across the Health Professions), which is aimed at helping clinicians from a range of health professions learn the knowledge and skills necessary for evidence-based practice.

DEVELOPMENT OF METHODS TO SYNTHESIZE COMPLEX INTERVENTIONS IN MEANINGFUL WAYS:

- **Methods for synthesizing evidence of the effects of healthcare interventions in complex systematic reviews (including statistical approaches)**

  Presenter: Jo Mckenzie; Discussant: Julian Higgins

Synthesis of results in complex reviews is often difficult because the interventions and settings are varied, there is often a multiplicity of outcomes, and the outcomes are disparate across studies. In complex reviews, there may be difficulties in applying meta-analytical methods; however, other synthesis methods are available (e.g. graphical representations, structured tabulation of the results). In the absence of appropriate synthesis methods, more ad hoc approaches may be employed. These approaches increase the likelihood of poor presentation of the available data and result in the privileging of some studies or findings above others without appropriate justification. This leads to difficulties interpreting the results of the review and contributes to biased interpretation of the available evidence. This presentation will explore some of the issues that arise in the synthesis of results from complex reviews, provide examples of possible synthesis methods, with discussion of the advantages and disadvantages of each.

Jo is a Senior Research Fellow at the School of Public Health and Preventive Medicine at Monash University, Australia. She holds a Master of Science degree from the University of Otago, New Zealand, and has recently completed a doctorate on methodological issues in meta-analysis of randomised controlled trials with continuous outcomes. She is the statistical investigator on several cluster randomised trials, set in primary and tertiary care, which aim to assess the effectiveness of interventions to improve clinicians’ concordance with evidence-based clinical practice guidelines. Her roles within the Cochrane Collaboration include an author, statistical editor of the Consumers and Communication Review Group, and a Co-convenor of the Statistical Methods Group.
Julian is a Senior Statistician at the UK Medical Research Council’s Biostatistics Unit in Cambridge UK, and Professor of Evidence Synthesis at the Centre for Review and Dissemination, University of York, UK. Before his 11 years in Cambridge he worked at Imperial College School of Medicine and the Royal Free and University College Medical School, both in London. Julian has a long-standing research interest in methods for systematic reviews and meta-analysis. He is co-editor of the Cochrane Handbook for Systematic Reviews of Interventions, and co-author with Borenstein, Hedges and Rothstein of the Wiley textbook Introduction to Meta-analysis. His extensive contributions to meta-analysis include methods for meta-analysis of individual participant data, new statistics for measuring the extent of heterogeneity, a new tool for assessing risk of bias in clinical trials, and methods for Bayesian meta-analysis.

Synthesis of multiple forms of evidence

Presenter: Liz Waters; Discussant: Rebecca Armstrong

Examining complex interventions requires a way of thinking that acknowledges the context within which they operate. This means exploring a range of evidence sources and presents challenges for the systematic reviewer in synthesising this information in an appropriate and meaningful way for the end-user. Due to the varied nature of the populations, interventions and outcomes, synthesis methods are also context-dependent. In this presentation, Liz will briefly discuss the range of evidence sources that should be considered and provide examples of the ways in which review authors can structure and organise their results, regardless of whether or not meta-analysis is possible. This includes consideration of process and implementation information since this is inextricably linked to effectiveness.

Liz is the Jack Brockhoff Chair of Child Public Health and Coordinating Editor of the Cochrane Public Health Group. She has 15 years of experience in teaching, doing, using and contributing evidence to systematic reviews of public health interventions, and is the director of a child health research program that aims to make a difference to child health inequalities through the implementation and evaluation of complex population health interventions.

Rebecca is a Senior Research Fellow in Knowledge Translation and Exchange. She is currently part of an international research team exploring the effectiveness of knowledge translation and exchange strategies. The intention of this work is to identify activities most likely to support evidence-informed public health decision-making. She also manages consultancy projects related to knowledge translation. Rebecca is also the Editorial and Methods Advisor with the Cochrane Public Health Group. In this role, Rebecca provides training and support for people conducting systematic reviews of complex public health interventions. She also coordinates the development of methods to support the conduct of these reviews and in doing so maintains strong relationships with international organisations that produce systematic review. Rebecca has a background in health promotion and public health and has worked in academic and community health contexts.

The role of qualitative evidence in complex intervention reviews

Presenter: Jane Noyes; Discussant: Sandy Oliver

Qualitative evidence is increasingly used to explore specific issues of complexity in health and social care research. Our bid to the Cochrane Methods Innovation Fund sets out two main areas of methodological research that may have potential benefit for the synthesis of evidence relating to complex interventions. The first methodological issue concerns the use of theory to inform thinking and to better understand the active intervention components at various levels of implementation. The second methodological issue concerns challenges in synthesising and integrating qualitative evidence to understand complexity. This presentation will highlight the main challenges, and provide opportunities to facilitate ongoing discussion and to share ideas to inform future development of the proposed methodological work.
Jane is an experienced researcher and nurse who specialises in health services research, and is based at Bangor University. Jane is Director of the Centre for Health-Related Research (CHeRR). She has a particular interest in children with complex needs for health and social care, and the determinants of health inequalities throughout childhood. Jane is a previous award holder of Smith and Nephew, Medical Research Council and Department of Health Fellowships. These prestigious Fellowships have enabled her to work within internationally renowned centres of excellence in health services research and the economics of health. In addition, she has held various research and teaching posts at the Universities of London, Salford, York and Manchester. Jane is Editor of the Journal of Advanced Nursing and lead convenor of the Cochrane Qualitative Research Methods Group, which is part of the international Cochrane Collaboration and produces systematic reviews of evidence to inform policy and clinical decision making. Jane has worked for the World Health Organization and various charities as a consultant, and undertaken projects in several countries including Oman and Senegal. She has contributed to national and regional working parties, supports a number of parents’ groups, and is research advisor to Whizzkiddz, the mobility charity for children.

Sandy is Professor of Public Policy and Deputy Director of the Evidence for Policy and Practice Information and Coordinating Centre (EPPI-Centre). She has extensive experience of systematic reviews that incorporate qualitative and quantitative research findings. She leads the EPPI-Centre’s support for systematic reviews about health systems and international development. She is an editor of the Cochrane Consumers and Communication Review Group, and a member of the WHO Expert Advisory Panel on Clinical Practice Guidelines and Research Methods and Ethics, and the international Task Force on Guidelines for Health Systems Strengthening Group. Her particular interest is the range of perspectives that policy makers, practitioners and the public bring to reviews and the implications this has for framing review questions and choosing review methods.

Developing and using logic models in reviews of complex interventions

Presenters: Philip Baker and Daniel Francis; Discussant: Hugh Waddington

For several decades, logic models have been used in the planning and evaluation of complex interventions. They provide a graphical illustration of how a program is designed to achieve its intended outcomes and show hypothesised links between determinants of health and health outcomes. The models describe a theory of change used to put in place the intervention components necessary to achieve the desired change. Logic models are often used to evaluate the implementation of program components as planned.

More recently, logic models have been identified as being useful to research synthesis and are now appearing in systematic reviews. Reviewers may find the process of developing a logic model useful in scoping the review, defining key concepts such as the inclusion criteria, and ensuring the relevance of a review to policy and practice. Further, readers may find a graphical representation of complex concepts easier to understand than purely text-based explanations. Developing a logic model does however present several challenges. The presenters will provide examples where logic models have been used in Cochrane Reviews. They will share their experience in the construction and application of a logic model in the recent review “Community-wide Interventions for Increasing Physical activity”.

Philip is Adjunct Professor, School of Public Health Queensland University of Technology and Director of Epidemiology, Central Regional Services, Queensland Health. He has a PhD in epidemiology from the University of Queensland, and extensive experience in epidemiology related to both clinical trials and public health settings. He is an author on four Cochrane reviews, and an editor for the Cochrane Public Health Group. His main interests are in Aboriginal health, health-technology assessment, evidence-based practice and public health epidemiology including leading the delivery of epidemiological services for both communicable and chronic diseases through public health units spread across a large geographic area in Queensland.
Daniel is Advanced Epidemiologist for Evidence-Based Practice for Central Regional Service, Division of the Chief Health Officer, Queensland Health. Daniel has a Master of Public Health in Epidemiology and BAppSc (Hons) in Human Movement, from the University of Queensland. He has worked nine years in field of epidemiology in Australia and Canada and is an author of several Cochrane reviews. Daniel has special interests in evidence-based practice, public health epidemiology and chronic disease prevention.

Hugh’s interests are in impact evaluation and systematic review of social and economic development interventions. He believes both primary impact studies and reviews of interventions in social and economic fields should be strongly rooted in theories of change to help explain why interventions work or not, and therefore foster policy relevance. Hugh is the co-editor of the new Campbell Collaboration International Development Coordinating Group (IDCG), and team leader for systematic reviews at the International Initiative for Impact Evaluation (3ie) where, together with their partners at DFID and AusAID, they have supported over 70 reviews in international development. Hugh previously worked in the Planning Unit of the Government of Rwanda’s Finance Ministry, and at the World Bank on an impact evaluation of a maternal and child health program in Bangladesh.

Panel discussion: What we know, what we need to know and how Cochrane will meet this challenge

Panel Lead: Jeremy Grimshaw

Jeremy received a MBChB (MD equivalent) from the University of Edinburgh, UK. He trained as a family physician prior to undertaking a PhD in health services research at the University of Aberdeen. He moved to Canada in 2002. His research focuses on the evaluation of interventions to disseminate and implement evidence-based practice. Jeremy is a Senior Scientist, Clinical Epidemiology Program, Ottawa Hospital Research Institute, a Full Professor in the Department of Medicine, University of Ottawa and a Tier 1 Canada Research Chair in Health Knowledge Transfer and Uptake. He is Director of Cochrane Canada and Co-ordinating Editor of the Cochrane Effective Practice and Organisation of Care group. He is also the Principal Investigator of Knowledge Translation Canada (KT CANADA), a CIHR and CFI funded interdisciplinary network of over 50 knowledge translation researchers from six academic health science centres in three provinces. He has over 350 peer reviewed publications.

Chairs: Harriet MacLehose, Cochrane Editorial Unit and Julian Higgins Cochrane Collaboration Steering Group

Harriet is Senior Editor at the Cochrane Editorial Unit. She works in the Cochrane Editorial Unit as part of the team that supports Cochrane Review Groups (CRGs) and other entities to ensure that The Cochrane Library continues to meet the varied needs of users, and appropriately reflects the commitment of CRG teams and authors. Harriet previously worked within The Cochrane Collaboration as the Deputy Co-ordinating Editor of the Cochrane Infectious Diseases Group at the Liverpool School of Tropical Medicine. Harriet has extensive editorial experience, including technical editing, preparation of the Cochrane Style Guide, and contributing to the Reviews for Africa Programme. Harriet has also worked with Wiley-Blackwell as a Journals Editor and completed an MA in Publishing at Oxford Brookes University, UK, in 2008.

See accompanying programme timetable and map below for directions
Venue details

Details are provided from the main conference venue Palacio De Congresos De Madrid to the Instituto de Salud Carlos III, Campus Chamartin, (Avda, Monforte de Lemos, 5) – 28029 Madrid

**Taxi** will take ten minutes from the conference centre to the venue.

**By subway no. 10** (see map below) takes about 22mins:

Walk to Santiago Bernabeu

Take subway 10 – Hospital Infanta Sofia-Puerta del Sur towards Tres Olivos (8mins 4 stops)

Begonia stop – walk to Av de Montforte de Lemos 5

Take exit Cdad. Sanitaria La Paz

Head south on Paseo de la Castellana toward Calle del Arzobispo Morcillo

Turn right at AV de Montforte de Lemos

At the round about take the 2nd exit onto Av de Montforte de Lemos

Go through 1 roundabout 64 m

Slight left to stay on Av de Monforte de Lemos 73 m

3. Sharp right to stay on Av de Monforte de Lemos 36 m

**By bus 147** (see map below) takes about 19mins: Palacio De Congresos De MadridPaseo Castellana, 99, 28046 Madrid, Spain - 913 378 100

Walk to Pº Castellana - Pza. de Lima. About 2 mins

Bus - 147 - Plaza del Callao - Barrio del Pilar towards Barrio del Pilar (14 mins, 9 stops)

Walk to Av de Monforte de Lemos, 5, 28029 Madrid, Spain

Detailed directions to the venue

Instituto de Salud Carlos III, at Avda. Monforte de Lemos 5, is a campus, and the building where the meeting will take place is called "Escuela Nacional de Sanidad". That building can be found on the attached map, number 7. At the reception you will be given a badge and be told where the actual room of the meeting is, which will be Aula Pittaluga.
Start Palacio De Congresos De Madrid
Paseo Castellana, 99, 28046 Madrid, Spain
913 378 100
End Av de Monforte de Lemos, 5, 28029 Madrid, Spain
When 10/5/11 after 12:51pm
Duration 19 mins total

http://maps.google.com/maps?saaddr=Paseo+Castellana,+99,+28046+Madrid,+Spain+... 05/10/2011