

Title

HTMR Network Project N83 Improving the design and analysis of trials for efficacy and mechanisms evaluation

Applicants

- Dr Tom Palmer, Lancaster University
- Prof. Richard Emsley, Kings College London
- Prof. Ian White, MRC Clinical Trials Unit at University College London (UCL)
- Louise Brown, MRC Clinical Trials Unit at University College London (UCL)
- Carrol Gamble, University of Liverpool
- Jonathan Cook, Oxford Clinical Trials Research Unit

Summarise original objectives

The original objectives of the proposal were:

- To hold a scoping workshop about EME studies with possible involvement of the EME board.
- To hold a training day on methods for EME studies including hands on computer practical sessions.
- To prepare a journal article on methods for EME studies for "Clinical Trials" or similar journal.
- To develop a webpage for the days.
- Submission of an invited session on mechanisms evaluation to the joint International Clinical Trials Methodology/Society for Clinical Trials conference in 2017.
- Preparation of a grant application to the MRC Methodology Research Programme.

What was achieved

- We held the EME Scoping Workshop on 23rd May 2017 at the University of Manchester.
<https://www.eventbrite.co.uk/e/improving-the-quality-of-efficacy-and-mechanisms-evaluation-eme-studies-tickets-30548268694#>
 - There were 58 attendees, who were a mix of statisticians, trialists, and clinicians.
 - The programme of the day was:
 - Aims and objectives of the NIHR EME Programme – Louise Brown
 - Examples of EME studies – Jonathan Cook and Richard Emsley
 - Introduction to some helpful statistical modelling concepts – Tom Palmer
 - Design and analysis issues for EME studies – Sabine Landau and Richard Emsley
 - Group work: EME studies – 4 examples
 - Meet the experts: Are you planning to apply for funding for a study that requires EME expertise? Attendees can ask advice on EME aspects of their proposals.
 - Feedback from the day was very positive, and booking was oversubscribed.
 - A synthesis of the feedback is:
 - Participants felt that the most useful and interesting aspects of the day were: EME board insight, methodology on DAGS, confounders, and mediation, raising awareness of EME issues, discussion of real examples, and networking with other participants.
 - Participants suggested topics for future events, including: examples in other clinical areas, qualitative methods, selection bias, trial conduct, sample size

- and statistical power calculations for EME studies, additional hands on practical elements, adaptive designs, and including clinical viewpoints.
- We held the EME training day on 8th May 2018 at UCL.
<https://www.eventbrite.co.uk/e/improving-the-quality-of-efficacy-and-mechanisms-evaluation-eme-studies-a-training-day-for-tickets-45207118709#>
 - There were 31 attendees, who were mainly statisticians and trialists. There was a limited capacity due to the room size, and we had a waiting list for attendees.
 - There programme of the day was:
 - Introduction and setup – Tom Palmer
 - Instrumental variables: lecture and Stata practical – Tom Palmer
 - Non-compliance using inverse probability weighting (IPW): lecture and Stata practical – Ian White
 - Introduction to mediation: lecture and Stata practical – Richard Emsley
 - The feedback from the day was very positive. A summary of the feedback is:
 - Participants especially enjoyed the following aspects of the day: the mediation session, the Stata practicals, the Stata and R solutions being made available on DropBox so that participants can come back to them at their convenience.
 - Participants suggested the following points to cover on future days: distribute a pre-reading list or give access to the handouts on DropBox prior to the course, more examples of published trials, sensitivity analysis in mediation analysis, missing data in mediation analysis, mixed models, complex non-compliance scenarios, study design/analysis advice for their own trials, and advice on EME applications including wording.

Outputs and copies or links to these / Examples of impact (see below for the original outputs proposed in the application)

- Successful workshop and training days were held which engaged with the relevant stakeholder groups and met training and education needs.
- We have created a webpage summarising the two days, and material is available on request: <http://wp.lancs.ac.uk/eme-studies-workshop/>
- To publicise and create online discussion about our two days on Twitter we created the hashtag: #EMEworkshop. Some of the tweets can be seen by searching for the hashtag on Twitter: <https://twitter.com/search?q=%23EMEworkshop&src=typd>
- A journal article on the design and analysis of EME studies is in preparation for submission to Clinical Trials.

Next Steps (list any future plans)

- We have submitted a follow-up application to the recent call: "HTMR Network awards: impact application". We have recently heard that this has been successful. The main aim of this application is for funding to continue to run EME training days at least once a year.