RESEARCH METHODS & REPORTING

The Ottawa Statement on the ethical design and conduct of cluster randomised trials: précis for researchers and research ethics committees

Cluster randomised trials have unique features that complicate the application of standard ethics guidelines for research. The Ottawa Statement on the ethical design and conduct of cluster randomised trials was developed to provide detailed guidance to researchers, research ethics committees, regulators, and sponsors as they seek to fulfil their respective roles. This article describes the development of the Ottawa Statement and outlines key implications for researchers and research ethics committees.

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Introduction

An increasing number of studies in health system, public health, and knowledge translation research are using randomised controlled designs.¹ Examples are studies of changes in healthcare policies across a region, mass media health promotion campaigns, and training of health professionals with the view to improving the quality of patient care. For these types of interventions, which are naturally administered at the group level, cluster randomisation may be the only feasible choice. In a cluster randomised trial, the unit of allocation is an intact social unit or group (for example, a medical practice, community, worksite, or school), whereas the unit of outcome measurement is individuals within the group (for example, a patient, citizen, employee, or student).^{2,3} Even if the intervention is to be administered at the individual level, such as vitamin supplementation or patient leaflets, cluster randomisation may nevertheless be selected for either scientific reasons, such as avoidance of experimental contamination, or practical reasons. Cluster randomised trials raise specific methodological and ethical issues. Although there is no shortage of guidance for

handling the methodological issues,⁴⁻⁶ little guidance exists for dealing with the ethical issues.⁷⁻¹⁰ Ethical issues arise because standard research ethics guidelines are not well attuned to the distinctive characteristics of cluster randomised trials. Most notably, cluster randomised trials may have differing units of allocation (for example, hospitals), intervention (for example, health professionals), and outcome measurement (for example, patients) within a single study. This complicates identification of those who ought to be considered as research participants and thus who are entitled to ethical and regulatory protections. Cluster level interventions and randomisation of clusters before identification of individual cluster members cause difficulties in seeking informed consent. Furthermore, cluster randomised trials often concern diverse social groups, communities, or organisations as the units of allocation, but the moral status of such groups, as well as the identification and authority of those who can morally speak on their behalf, are unclear. Because cluster randomised trials may have consequences for groups as well as for individuals, the assessments of benefits and harms are more challenging in such trials. In addition, protecting vulnerable participants in cluster randomised trials may require

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Characteristics of cluster randomised trials and examples of ethical issues they raise
Members of the Ottawa Ethics of Cluster Randomized Trials Consensus Group

special consideration as their presence within clusters may go unnoticed, whereas risks to them may be amplified as a result of cluster membership.

The supplementary file presents a summary of the characteristics of cluster randomised trials and examples of the ethical challenges they raise. The absence of specific ethics guidelines for cluster randomised trials has led to considerable variability in the conduct and review of such trials¹¹ and to serious shortcomings in their reporting.^{12 13}

Aims

The Ottawa Statement¹⁴ aims to provide guidance for researchers and research ethics committees primarily, and for policy makers, journal editors, and potential study participants, on the ethical design and conduct of cluster randomised trials in health research. It supplements national and international ethics guidelines to take into account the unique characteristics of cluster randomised trials. The statement should be interpreted in light of the laws and regulations of the country or countries in which the cluster randomised trial is conducted and other applicable international standards.

Development

The research team, comprising 15 investigators from Canada, the United Kingdom, and the United States (see supplementary file), was funded by the Canadian Institutes of Health Research in 2007. The goal of the project was to develop well grounded, international ethics guidelines for cluster randomised trials.¹⁵ It was designed as a mixed methods project consisting of parallel empirical and ethical streams culminating in a consensus process. A series of empirical studies was designed to identify ethical problems arising in cluster randomised trials, elicit the views and experiences of investigators conducting these types of trials, and study the ethical review process of cluster randomised trials.^{16 11} Based on the experience of the research team members and results of the empirical studies, the research team identified six ethical questions considered unique to cluster randomised trials.¹⁷ The team conducted an in-depth ethical analysis of the identified issues and published the results as a series of articles in an open access journal.¹⁸⁻²¹

In year 5 of the project, the research team convened a multidisciplinary expert panel consisting of six members of the team and 13 external members (ethicists, experienced cluster trial investigators, consumer representatives, research ethics committee members, policy makers, representatives from funding agencies, and journal editors). A consensus conference was held in Ottawa, Canada, during November 2011 (video available at www.rotman.uwo.ca/resources/video-audio/cluster-randomized-trials-international-consensus-conference/). A detailed description of the consensus process is provided elsewhere.¹² A writing group produced a first draft of the guidelines, which the group circulated to the expert panel and then edited in response to their comments. In February 2012, the writing group posted the revised document on the project's website for public comment. It then edited the document in response to the received comments. The final draft was approved by all members of the expert panel in June 2012 and the full length Ottawa Statement was published in November 2012.¹²

Implications

The Ottawa Statement sets out 15 recommendations, each with a detailed commentary. Recommendations address the justification of the cluster randomised trial design, research

ethics review, the identification of research participants, informed consent, the role and authority of gatekeepers, the evaluation of benefits and harms, and the protection of vulnerable participants. The table¹ presents the recommendations for each of these ethical issues in the form of a checklist that may be used by researchers when designing their studies and when applying to research ethics committees. Equally, research ethics committees may consider the recommendations as a tool to help them judge the attributes of cluster randomised trials submitted to them. We recommend that researchers include discussion of each of the main ethical issues in their study protocols. The table may then be appended to their ethics application to direct the attention of the research ethics committee to the guidance and how the ethical issues have been dealt with in the study protocol.

Here we outline key implications of the Ottawa Statement for researchers and research ethics committees.

Justifying the cluster randomised design

A cluster randomised trial is more complex to design and conduct and statistically inefficient than an individually randomised trial, and is vulnerable to multiple sources of biases. For these reasons, researchers should clearly justify their choice of cluster rather than individual randomisation (recommendation 1). Acceptable reasons include the evaluation of a cluster level intervention or group effects of an intervention; the need to avoid experimental contamination, reduce costs, enhance compliance, or secure cooperation of investigators; and administrative convenience. Researchers should not adopt this design in a veiled attempt to sidestep the requirements for informed consent.

Research ethics committee review

Research may be defined as a systematic investigation designed to produce generalisable knowledge.²² Most cluster randomised trials in health research, including those evaluating knowledge translation, quality improvement, and public health interventions, meet this definition.¹⁵ According to national and international research ethics guidelines, the trials must therefore be reviewed by a research ethics committee (recommendation 2). An expedited review may be appropriate if a cluster randomised trial poses a low risk to research participants and does not involve vulnerable participants.

Identifying research participants

Because cluster randomised trials may have differing units of allocation, intervention, and outcome measurement, determining which cluster members ought to be considered as research participants can be difficult. Yet appropriate identification of research participants is necessary for applying ethical and regulatory protections.¹⁷ Recommendation 3 provides a definition and criteria for identifying research participants. Any cluster member who is the recipient or the direct target of a study intervention (including the control condition), with whom researchers interact for study purposes or about whom identifiable private information is collected, is a research participant. Figure 1¹ summarises the identification of research participants in cluster randomised trials.

The Ottawa Statement has three main implications for the identification of research participants. Firstly, researchers should clearly identify the research participants in the study protocol and other documents submitted for review by the research ethics committee. Secondly, in the case of a cluster level intervention, cluster members who are directly targeted by the intervention

ought to be considered research participants. Thirdly, health professionals who are targeted by a knowledge translation intervention ought to be considered research participants; however, their patients are not research participants unless they are otherwise intervened upon or interacted with or their identifiable private information is collected for study purposes.

Obtaining informed consent

Informed consent procedures are complicated in cluster randomised trials for several reasons, including interventions administered at the cluster level, large cluster size, and randomisation of clusters before identification of individual research participants.¹⁸ Figure 2¹⁹ summarises the guidelines in the Ottawa Statement with respect to informed consent.

The Ottawa Statement has three main implications with respect to informed consent. Firstly, where possible, research participants (or their proxy decision makers) are required to provide informed consent, but not cluster members who are not research participants (recommendation 4). Secondly, as far as possible researchers should identify participants and seek their consent before cluster randomisation. If consent is not feasible before randomisation, it should be sought as soon as possible after cluster randomisation and before any study interventions or data collection procedures (recommendation 5). Researchers should be aware that post-randomisation consent can introduce selection biases and should consider adopting design strategies that minimise the risk of bias.²³ Thirdly, because of the challenges in seeking informed consent in cluster randomised trials, waivers and alterations of consent procedures are especially important in this design. Waivers or alterations of consent can be justified only when the study would not otherwise be feasible and when the risks involved are minimal (recommendations 6 and 7). Minimal risk refers to the incremental risks associated with study participation and requires that such risks be consistent with the risks of daily life.²⁴ A waiver of consent means that the research ethics committee removes the requirement to obtain informed consent, whereas an alteration of consent means that the committee permits changes to or removal of some of the standard elements of disclosure in the informed consent—for example, to maintain blinding in the case of a behavioural intervention.

Gatekeepers

Gatekeepers are individuals or bodies (such as a school principal or municipal council) who may be called on to protect the interests of organisations or communities that are the setting for a cluster randomised trial. Researchers have historically relied on “cluster gatekeepers” to perform a variety of roles, including providing permission for clusters to participate in a cluster randomised trial and providing consent on behalf of individuals in a cluster—for example, for a cluster level intervention.¹⁹

The Ottawa Statement has three main implications with respect to gatekeepers. Firstly, gatekeepers may not legitimately provide proxy consent on behalf of individuals in a cluster (recommendation 8). Legitimate proxy consent requires that the potential participants be incapable of making their own decisions and that the decision makers be well acquainted with the potential participants’ values and beliefs. Secondly, researchers should obtain permission from a gatekeeper to enrol a cluster or organisation in a cluster randomised trial when a trial poses important implications for group interests and a gatekeeper exists who has the legitimate authority to provide permission (recommendation 9). Thirdly, gatekeepers may help protect

group interests in a cluster randomised trial by facilitating consultation between researchers and cluster members about the study (recommendation 10). Modes of consultation may include communication with communities through various media channels, open public forums, or meetings with opinion leaders.

Assessing benefits and harms

In individually randomised trials of clinical interventions, the analysis of benefits and harms usually focuses on the potential effects on individual patients, with the trial being justified on the basis of clinical equipoise. In a cluster randomised trial, however, study interventions may affect not only individuals but also clusters, organisations, and communities.¹⁶ Moreover, cluster randomised trials may investigate the effectiveness of public health, health systems, and knowledge translation interventions. The justification of a cluster randomised trial must therefore take interests of a broader range of stakeholders into account.

The Ottawa Statement has three main implications when assessing benefits and harms in cluster randomised trials. Firstly, researchers must ensure that study interventions are consistent with competent practice in the specialty of study relevant to the cluster randomised trial, such as medical practice, public health, or health policy (recommendation 11). Random assignment is justified when the relevant community of experts (for example, public health practitioners, health policy researchers) is uncertain as to the better performing practice. Secondly, researchers must adequately justify the choice of the control condition; generally, at a minimum the control condition is usual care within the study context (recommendation 12). Researchers and research ethics committees may consider whether the control arm should receive a minimal level of intervention or “augmented” care, but they should be aware that this may bias the estimate of the intervention effect towards the null and may reduce generalisability. Thirdly, the risks associated with data collection procedures must be minimised and stand in reasonable relation to the knowledge to be gained (recommendation 13).

Protecting vulnerable participants

Vulnerable research participants include children, incapable adults (that is, those unable to provide informed consent), those at undue risk of harm as a result of study participation, and those in subordinate positions within social or organisational structures. Cluster randomised trials are commonly conducted in organisations, and research participants may include professionals, service staff, or employees whose position within the cluster makes them less able to express a free choice about trial participation.

The Ottawa Statement has two main implications with respect to vulnerable participants in cluster randomised trials. Firstly, special care must be taken to identify and protect vulnerable participants as their presence may not be apparent within clusters (recommendation 14). Secondly, discussions about informed consent with research participants in cluster randomised trials involving organisations should limit the potential for coercive influence from employers or cluster leaders, and such discussions should include career related risks, including risks from detection of negligence or incompetence (recommendation 15).

Discussion

The use of cluster randomisation in health research is increasing.¹ The substantial methodological differences between

cluster randomised trials and conventional randomised trials pose serious challenges to the current conceptual framework for research ethics. Researchers need direction on these ethical challenges to guide the optimal design and conduct of cluster randomised trials. Research ethics committees may be unfamiliar with this increasingly important study methodology and, in the absence of formal guidelines for cluster randomised trials, they may fail to consider all the relevant ethical issues generated by a study protocol, resulting in inadequate protection of participants. Variable interpretation of ethical requirements for cluster randomised trials may lead to problems initiating multijurisdictional trials and to unequal treatment of participants in different jurisdictions.

Until the publication of The Ottawa Statement on the ethical design and conduct of cluster randomised trials,¹² there were no comprehensive ethics guidelines specific to this type of study design. The aim of the Ottawa Statement is to address this shortcoming by providing researchers and research ethics committees with recommendations for cluster randomised trials that meet international ethical standards in health research. Written by scientists and ethicists, the Ottawa Statement rests on a strong foundation of empirical study and detailed ethical analysis; it is the result of a transparent and robust consensus process. Applications of cluster randomised trials are found in a wide variety of sectors, including education, criminology, and welfare. Although the development of the Ottawa Statement has focused on applications in health research, it provides a starting point for future extension to these sectors.

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Contributors: MT, CW, and JMG are co-principal investigators of the project. MPE is a co-investigator of the project and chaired the consensus process. CW led the ethical analysis. MT drafted this article and is the guarantor. All authors commented on drafts of this article and revised the article critically for important intellectual content. All authors approved the final version.

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- Bland MJ. Cluster randomised trials in the medical literature: two bibliometric surveys. *BMC Med Res Methodol* 2004;4:21. doi:10.1186/1471-2288-4-21.
- Donner A, Klar N. Design and analysis of cluster randomization trials in health research. Arnold, 2000.
- Eldridge S, Kerry S. A practical guide to cluster randomised trials in health services research. Chichester, Wiley, 2012.
- Campbell MK, Mollison J, Steen N, Grimshaw JM, Eccles M. Analysis of cluster randomized trials in primary care: a practical approach. *Fam Pract* 2000;17:192-6.
- Donner A, Klar N. Statistical considerations in the design and analysis of community intervention trials. *J Clin Epidemiol* 1996;49:435-9.
- Hayes RJ, Bennett S. Simple sample size calculation for cluster-randomized trials. *Int J Epidemiol* 1999;28:319-26.
- Edwards SJL, Braunholtz DA, Lilford RJ, Stevens AJ. Ethical issues in the design and conduct of cluster randomised controlled trials. *BMJ* 1999;318:1407-9.
- Hutton JL. Are distinctive ethical principles required for cluster randomized controlled trials? *Stat Med* 2001;20:473-88.
- Klar N, Donner A. Ethical challenges posed by cluster randomization. Wiley Encyclopedia of Clinical Trials. doi:10.1002/9780471462422.eoct050.
- Hayes RJ, Moulton LH. Cluster randomised trials. Chapman and Hall/CRC, 2009.
- Chaudhry SH, Brehaut JC, Grimshaw JM, Weijer C, Boruch R, Donner A, et al. Challenges in the research ethics review of cluster randomized trials: international survey of investigators. *Clin Trials* 2013;10:257-68.
- Taljaard M, McRae A, Weijer C, Bennett C, Dixon S, Taleban J, et al. Inadequate reporting of research ethics review and informed consent in cluster randomized trials: review of a representative sample of published trials. *BMJ* 2011;342:d2496.
- Campbell MK, Piaggio G, Elbourne DR, Altman DG, for the CONSORT Group. CONSORT 2010 statement: extension to cluster randomized trials. *BMJ* 2012;345:e5661.
- Weijer C, Grimshaw JM, Eccles MP, McRae AD, White A, Brehaut JC, et al. The Ottawa Statement on the ethical design and conduct of cluster randomized trials. *PloS Med* 2012;9:e1001346.
- Taljaard M, Weijer C, Grimshaw J, Belle Brown J, Binik A, Boruch R, et al. Study protocol: ethical and policy issues in cluster randomized trials: rationale and design of a mixed methods research study. *Trials* 2009;10:61.
- McRae AD, Bennett C, Brown JB, Weijer C, Boruch R, Brehaut J, et al. Researchers' perceptions of ethical challenges in cluster randomized trials: a qualitative analysis. *Trials* 2013;14:1.
- Weijer C, Grimshaw JM, Taljaard M, Binik A, Boruch R, Brehaut JC, et al. Ethical issues posed by cluster randomized trials in health research. *Trials* 2011;12:100.
- Binik A, Weijer C, McRae AD, Grimshaw JM, Boruch R, Brehaut JC, et al. Does clinical equipoise apply to cluster randomized trials in health research? *Trials* 2011;12:118.
- McRae AD, Weijer C, Binik A, White A, Grimshaw JM, Boruch R, et al. Who is the research subject in cluster randomized trials? *Trials* 2011;12:183.
- McRae AD, Weijer C, Binik A, Grimshaw JM, Boruch R, Brehaut JC, et al. When is informed consent required in cluster randomized trials in health research? *Trials* 2011;12:202.
- Gallo A, Weijer C, White A, Grimshaw JM, Boruch R, Brehaut JC, et al. What is the role and authority of gatekeepers in cluster randomized trials in health research? *Trials* 2012;13:116.
- Levine RJ. Ethics and regulation of clinical research. Yale University Press, 1988.
- Eldridge S, Kerry S, Torgerson DJ. Bias in identifying and recruiting participants in cluster randomised trials: what can be done? *BMJ* 2009;339:b4006.
- Weijer C, Miller PB. When are research risks reasonable in relation to anticipated benefits? *Nat Med* 2004;10:570-3.

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Summary points

Cluster randomised trials have many characteristics that complicate the application of standard research ethics guidelines; however, until recently there have been no comprehensive ethics guidelines specific to cluster randomised trials

The Ottawa Statement aims to provide researchers and research ethics committees with detailed guidance on the ethical design, conduct, and review of cluster randomised trials

The Ottawa Statement sets out 15 recommendations addressing the justification of the cluster randomised design, the need for ethics review, the identification of research participants, obtaining informed consent, the role of gatekeepers in protecting group interests, the assessment of benefits and harms, and the protection of vulnerable participants

Table

Table 1 | Ottawa Statement summary checklist for use in ethics applications, indicating page number in study protocol where an ethical issue is being addressed

	Ethical issue	Recommendation	Page No
1	Justifying the cluster randomised design	Researchers should provide a clear rationale for the use of the cluster randomised design and adopt statistical methods appropriate for this design	
2	Research ethics committee review	Researchers must submit a cluster randomised trial involving human research participants for approval by a research ethics committee before commencing	
3	Identifying research participants	Researchers should clearly identify the research participants in cluster randomised trials. A research participant can be identified as an individual whose interests may be affected as a result of study interventions or data collection procedures—that is, an individual who is the intended recipient of an experimental (or control) intervention; or who is the direct target of an experimental (or control) manipulation of his or her environment; or with whom an investigator interacts for the purpose of collecting data about that individual; or about whom an investigator obtains identifiable private information for the purpose of collecting data about that individual. Unless one or more of these criteria is met, an individual is not a research participant	
4	Obtaining informed consent	Researchers must obtain informed consent from human research participants in a cluster randomised trial, unless a waiver of consent is granted by a research ethics committee under specific circumstances	
5		When participants' informed consent is required, but recruitment of participants is not possible before randomisation of clusters, researchers must seek participants' consent for trial enrollment as soon as possible after cluster randomisation—that is, as soon as the potential participant has been identified, but before the participant has undergone any study interventions or data collection procedures	
6		A research ethics committee may approve a waiver or alteration of consent requirements when the research is not feasible without a waiver or alteration of consent, and the study interventions and data collection procedures pose no more than minimal risk	
7		Researchers must obtain informed consent from professionals or other service providers who are research participants unless conditions for a waiver or alteration of consent are met	
8	Gatekeepers	Gatekeepers should not provide proxy consent on behalf of individuals in their cluster	
9		When a cluster randomised trial may substantially affect cluster or organisational interests, and a gatekeeper possesses the legitimate authority to make decisions on the cluster or organisation's behalf, the researcher should obtain the gatekeeper's permission to enrol the cluster or organisation in the trial. Such permission does not replace the need for the informed consent of research participants	
10		When cluster randomised trial interventions may substantially affect cluster interests, researchers should seek to protect cluster interests through cluster consultation to inform study design, conduct, and reporting. Where relevant, gatekeepers can often facilitate such a consultation	
11	Assessing benefits and harms	The researcher must ensure that the study intervention is adequately justified. The benefits and harms of the study intervention must be consistent with competent practice in the field of study relevant to the cluster randomised trial	
12		Researchers must adequately justify the choice of the control condition. When the control arm is usual practice or no treatment, individuals in the control arm must not be deprived of effective care or programmes to which they would have access, were there no trial	
13		Researchers must ensure that data collection procedures are adequately justified. The risks of data collection procedures must be minimised consistent with sound design and stand in reasonable relation to the knowledge to be gained	
14	Protecting vulnerable participants	Clusters may contain vulnerable participants. In these circumstances, researchers and research ethics committees must consider whether additional protections are needed	
15		When individual informed consent is required, and there are individuals who may be less able to choose participation freely because of their position in a cluster or organisational hierarchy, research ethics committees should pay special attention to recruitment, privacy, and consent procedures for those participants	

Source: Weijer et al, 2012.¹⁴

Figures

Fig 1 Identification of research participants in cluster randomised trials

Fig 2 Informed consent procedures in cluster randomised trials