

## Rebuilding a Research Ethics Committee

**John SG Biggs**

Australian National University  
Canberra Hospital

**August Marchesi**

Canberra Hospital

**Abstract:** *The principal ethics committee in Australia's Capital, Canberra, underwent a major revision in the last three years based on changes debated in the literature. Committee or Board structure varies widely; regulations determining minimum size and membership differ between countries. Issues such as the effectiveness of committee management, consumption of paper, timelines for review, and causes of delay were key issues for improvement. Several new practices were adopted, the first being a subcommittee to manage the review of low or minimal risk projects, successfully relieving the workload of the main committee. Adoption of electronic processes and documentation resulted in less paper, more streamlined review and sharing of applications. Effective time management for meeting schedules, electronic coordination of meeting agenda items and protocol distribution for review successfully reduced delays in reviews. Assigning lead members for all ethical reviews strengthened committee function by sharing out agenda items, allowing committee members to focus on specific protocols. Ready communication with researchers is an intrinsic and highly successful part of committee practice. There appears to be advantage in central allocation of projects for review, but the local input from boards or committees brings great value. The rebuilding of the ACT committee has improved both process efficiency and relationships with researchers.*

Keywords: *ethical review; human research; ethics committees; institutional review*

### Introduction

The ethical review of research protocols is an essential aspect of research administration. It is undertaken in many countries by committees, under the guise of Institutional Review Boards (IRBs) in the USA, Research Ethics Boards (REBs) in Canada, Research Ethics Committees (RECs) in Britain and most of Europe, and Human Research Ethics Committees (HRECs) in Australia. In the interests of maintaining research standards and protecting research participants, government regulations overriding the review process, such as required committees, supporting infrastructure and methods of administration exist in many countries (National Bioethics Advisory Commission (2001), Department of Health UK (2011), Australian Government (2012).

There is remarkable growth in the number of oversight committees. Catania et al (2008) reported an increase in U.S. IRBs of 685% (491 to 3853) from 1993 to 2008. At the same time there is unease and dissatisfaction in the research community about restrictions, added

burdens and delay coming from IRBs and ethics committees. This is evident through publications such as: *Communication difficulties in research and monitoring by ethics committees*, (Karunaratne, Myles, Ago and Komesaroff, 2006); *Current research ethics forms are an over-reaction that will stifle research* (Oliver, 2006); *Research and survival in the IRB iron cage* (Bledsoe et al, 2007); *Counteracting IRB mission creep* (Gunsalus et al, 2007); *Grinding to a halt: the effects of the increasing regulatory burden on research and improvement efforts* (Infectious Diseases Society of America, 2009); *In the lion's den?*, (Fistein and Quilligan, 2011); *The ethics police?*, (Klitzman, 2011).

Human research ethics in Australia is regulated by the Australian Health Ethics Committee (AHEC), and is under the direction of the National Health and Medical Research Council (NHMRC), (NHMRC, 2012). There are 228 HRECs registered with AHEC, or a round figure of one committee to 100,000 of the general population, fewer than the U.S. figure of one to 79,000. Australian committees operate under the guidance of the National Statement on Ethical Conduct in Human Research (the National Statement), developed jointly by NHMRC, the Australian Research Council and the Australian Vice-Chancellors' Committee (Australian Government, 2007). The National Statement prescribes the structure and responsibilities of committees and the process of ethical review.

The Australian Capital Territory (ACT) Government in Canberra, Australia's capital, requires all medical research involving its citizens to receive ethical approval from the ACT Health HREC. The committee reports ultimately to the ACT Director-General of Health. This paper describes ethics review in the ACT and the rebuilding that occurred in the last three years. We believe rebuilding is an appropriate term as the committee was somewhat like an old house: still standing, still livable, but in desperate need of modernizing. Much work was done at the ground level to secure the foundation of the committee, its processes and standing within the research community, akin to reinforcing the foundations of an old home. The issues raised below include administrative processes that were not reassessed for more than ten years such as its leadership needs and its reputation within the local research community.

There were two main prompts for the changes in ethics administration. An organizational shift in reporting structure meant that in 2009 the committee came under the ACT Health Research Office. The Director of Research was determined to have the committee certified by NHMRC for the impending Harmonization of Multicentre Ethical Review (HoMER) process. The same year also saw the appointment of a new chairman and new HREC administrator. Together these three led the drive for the necessary changes in HREC administration/management. The steps taken to determine the issues and initiate change may be familiar to many research administrators, but we believe there are still lessons to be learned.

## **Low or Minimal Risk Research**

One of the first observations of the new administration was the length of HREC (henceforth, *The Committee*) agendas, and a decision was taken to pass all appropriate items to a newly established low-risk subcommittee. The Australian National Statement endorses expedited

review processes for low-risk research including the role of specialized subcommittees. The National Statement defines research as low-risk where ...*the only foreseeable risk is one of discomfort. Where the risk, even if unlikely, is more serious than discomfort, the research is not low risk.* (Australian Government, 2007). In the U.S., expedited ethical review is available for research of no more than minimal risk (U.S. Department of Health and Human Services, 2009). The review may be undertaken by the IRB chairperson or nominee. The term minimal risk is defined as where ...*the probability and magnitude of harm or discomfort anticipated in the research are not greater in and of themselves than those ordinarily encountered in daily life or during the performance of routine physical or psychological examinations or tests.* (U.S. Department of Health and Human Services, 2009).

A review of ethical and policy issues in human research by the U.S. National Bioethics Advisory Commission (2001) recommended (Recommendation 2.5) that research ethics review should be ...*commensurate with the nature and level of risk involved.* The principle was taken further in a paper entitled *Pruning the regulatory tree* (Kim, Ubel and De Vries, 2009), where it was proposed that minimal risk research be no longer subject to IRB review. Instead, the protocol would require a brief application containing research procedures, risks and burdens to participants. Review of the protocol would be done by a person designated by the researcher's institution, a system almost identical with the minimal risk procedure, though not connecting with an IRB. The plan was rejected in a subsequent paper *Pruning or poisoning the regulatory tree?*, in which the value of IRB consideration of minimal risk research was substantiated (Ananth and Scheessele, 2012).

The inconsistent response to minimal or low-risk submissions by different committees continues to worry researchers. Dyrbye et al, (2007) tell of sending an educational research project that involved medical students to six IRBs at different institutions. One institution approved the project at once; two different institutions said it wasn't minimal-risk; those not initially approving the project requested an average of 13 pieces of additional information or changes, most of which related to participant information and consent forms. Eventual approval took between 6 and 164 days. The conclusion was drawn that IRBs are not familiar with education protocols. However, the range of responses from the boards could also suggest problems in their management or even capacity.

A low-risk subcommittee was a successful addition to the resources of the ACT ethics committee. The requirements for submission were specified and simplified application forms approved. The process is particularly helpful in quality assurance and student projects and others that present no foreseeable risk to participants. In the year 2010-2011, the low-risk subcommittee considered 185 projects. Of these, 172 were approved, and eight were referred to the main committee, as they were deemed to present greater than low risk. The establishment of the low-risk subcommittee meant that the work of the main ethics committee was significantly lightened and researchers submitting low-risk projects received answers much more quickly, usually within five days from the closing date for submissions.

## A Mass of Paper: the Digital Answer

The documentation involved in ethical review of research protocols troubles many. Lang, Cheah and White (2011) wrote: *Clinical research is being slowly strangled by bureaucracy because guidelines that were developed for product-registration trials are being applied rigidly to all types of clinical research.* Tully, Ninis, Booy and Viner (2000) described ethics applications by a single multicentre REC and 125 local ethics committees that consumed over 105,000 pages of paper. Humphries, Trafton and Wagner (2003) told that a multisite observational study caused exchange of 15,000 pages of documents between 9 sites in gaining ethical approval.

A review of Italian RECs by Porcu et al (2008) showed that all of the 134 committees required a cover letter, information and consent forms for subjects, and a protocol. Many required a copy of an investigators brochure, a list of participating centers, a protocol summary, researchers' CVs, a family doctor's letter, the predicted research costs, and the research center's credentials. A letter by Oliver (2006) was headed *Current research ethics forms are an over-reaction and will stifle research.* It seems that national or, as in Europe, supra-national, regulation requirements have greatly increased the paperwork and the committee process.

In April 2010, the papers for each member of the ACT committee weighed 24kg or 53 pounds. A special courier delivery was required and cloth bags were provided; some members used a suitcase or trolley to transport the papers. Handling the papers at a meeting was risible, each member having a large pile of documents and spilling them on the floor as items were cleared. Staff would spend hours after the meeting clearing the mass of paper into bins. The answer was simple: an immediate transfer to digital data. ACT members were offered the choice of papers or digital data; only one member requested the papers. The committee introduced USB based delivery of agenda papers to members in May 2010, which we believe was an innovation for HRECs in Australia. Within a month all documents were copied to computer and distributed to members on USB drives, with satisfaction all around.

The introduction of digital (email) submission to the committee from July 2010, later becoming mandatory in January 2011, was also innovative for Australian HRECs. Applicants were required to submit one signed paper copy for the record and one electronic copy, rather than the previous 12 to 20 paper copies. International companies not already doing so were asked to provide electronic documents. Local researchers, clinical trial coordinators, pharmaceutical companies and clinical research organizations were somewhat taken aback by the move. For well over 12 months the administrative staff received phone calls and emails querying digital submissions, asking if paper copies were to follow and expressing disbelief, then gratitude, that HREC no longer required multiple paper copies of each submission.

All requests for further information and notifications of approval are done electronically though signed, printed copies for the records are still required. The saving in paper and trees has is in the order of 3.2 tons per year. Further, the time saved by digital operation has freed significant staff hours and increased efficiency in other areas of HREC administration. As of

March 2013, administrative staff still receive phone calls from those who cannot believe an ethics committee does not require, indeed does not accept, paper submissions. The conversion is regarded as a singular success.

### **Committee or Board Membership and Lead Reviewers**

A review of committees in ten European Community states by Hernandez et al (2009) showed a wide heterogeneity in their composition. In some, membership is precisely defined. For example, Austria requires a clinician, pharmacologist, nurse, lawyer, pharmacist, patient representative, representative of a disabled-persons organization, biometrician, and a person with ethical experience such as a priest or minister. In others the membership requirements are more general, as in the UK where a committee may have up to 18 members. Its diversity must include a third of lay people and *...should allow for a sufficiently broad range of experience and expertise so that the rationale, aims, objectives and design of the research protocols that it reviews can be effectively reconciled with the dignity, rights, safety and well-being of the people who are likely to take part.* RECs are expected to reflect current ethical norms in society as well as their own ethical judgement. (NHS Governance arrangements for research ethics committees, 2012).

In Australia, an HREC must have at least eight members with a third from outside the parent institution. There must be a chairperson; two lay people; a person with counselling experience; a pastoral care person, such as a minister of religion; a lawyer; and two people with current research experience (Australian Government, 2007). The ACT Committee membership was increased to provide expertise in the areas of pharmacy, midwifery and research in Indigenous Peoples. Senior clinician members are sometimes unable to attend a meeting. In order to maintain a quorum, past members are invited to substitute as needed.

Standard operating procedures for RECs in the United Kingdom encourage the appointment of one or more members as lead reviewers for each ethics application, a role that may continue after a meeting (National Research Ethics Service, 2010).

The HREC at the Alfred Hospital in Melbourne, Australia insists that each project is assigned to two members for a detailed review (Alfred Hospital, 2011). Based on experience from many past committee members, the ACT Committee Chair was persuaded of the value of lead reviewers and adoption of the practice was an early part of rebuilding the committee. The role was readily accepted by members, who felt they now had ownership of committee procedure. The lead reviewer is responsible for a research protocol through all stages of review.

Prior to the introduction of lead reviewers, each HREC member assumed responsibility for every new submission and agenda item in order to be prepared for full discussion. There was no prior allocation of responsibility and members had no way of knowing if they would be called on during the meeting. This level of responsibility placed significant burden on members and detracted from their ability to provide a comprehensive review. Appointment of lead reviewers reduced the burden on all members, giving each member confidence to concentrate on their assigned items.

Following the introduction of lead reviewers, a standard procedure was developed to guide members in their reviews. The process contains seven prompts, under the four criteria listed in the National Statement: Beneficence, Research Merit and Integrity, Justice, and Respect (Australian Government, 2007). Under *Beneficence*, committee members determine if the research asks a worthwhile question and whether the need is adequately justified; under *Research merit and integrity*, the researcher's methods are evaluated and his or her ability to answer the research question, as well as the budget for accuracy and completion; under *Justice*, whether the cost of intervention is adequately justified, and the recruitment methods fair and equitable; and under *Respect*, are the risks to recruits detailed fully and accurately, and are they acceptable. The process concludes with one of three actions: a recommendation for approval, a need for change or further information, or rejection. It provides the committee with a basis for debate in a way not previously possible.

Members now have focus for their reviews and a basis for comment that extends beyond their own individual understanding of what may or may not be considered ethical. Assigning lead reviewers and following a standard review procedure increased members' knowledge and skill levels and thus has increased the quality of HREC review. Debate is now focused on the ethical acceptability of proposals rather than bogged down with side issues such as spelling, grammar, and formatting of documents.

While the lead reviewer process may not be an innovation for HRECs or for committees and boards in general, it was certainly an innovation for the ACT committee and was an important step in its rebuilding. Almost all agenda items are assigned to a lead reviewer, providing members with a sense of ownership and purpose over their work on the committee.

### **The Time to Deliver an Ethics Opinion**

Reducing delay in ethical approval is important for institutions and pharmaceutical companies seeking approval from multiple committees, as shown in a pharmaceutical release (McDonald, 2010), reporting on a paper entitled: *Do IRBs protect human research participants?* (Grady, 2010). Delay is especially important to research teams or workers holding time-limited grants or fellowships. For example, a researcher in Australia lost eight months of a non-renewable grant in gaining approval from nine centers (Roberts, Homer and Brown, 2004).

The European Commission Enterprise Director-General (2011) Clinical Trials Directive declares that *The Ethics Committee shall have a maximum of 60 days from the date of receipt of a valid application to give its reasoned opinion to the applicant and the competent authority in the Member State concerned.* The clock is said to stop when a committee asks for additional information. An international conference on harmonization of technological requirements for registration of pharmaceuticals for human use (2011) said that committees *...should review a proposed clinical trial within a reasonable time.* The Australian National Statement says only that ethical consideration by a committee should be "timely" and notification of decisions "prompt" (Australian Government, 2007).

The Queensland, Australia, Clinical Trials Network (2010) says that *A standard timeframe from submission to final approval is 12-16 weeks*. Rickert (2009) reported that some EU countries have more demanding time limits: “Austria (35 days), Belgium (28), Bulgaria (30), France (35), and Latvia (30)”. The time from submission to approval in the multicentre study of Porcu et al (2008), described above, was from 3 to 893 days with a median time of 72 days. A multisite observational study of physicians’ styles of learning, conducted in 43 US Veterans’ Affairs medical centres, showed the time from IRB submission to receipt of approval as 45 to 964 days with a median of 248 days (Green, Lowery, Kowalski and Wyszewianski, 2006). Reducing the time taken for ethics review has been a goal of most boards and committees. Tamberlane (2009), of the Centre for Clinical Investigation at Yale University, said: *We spent about a year evaluating the review process. If there was a step that didn’t add value in terms of the safety of our study volunteers or scientific improvement, we decided it wasn’t needed and could be eliminated.*

In April 2010, ABC (Australia) television program, *The 7.30 Report*, aired a story on clinical trials in Australia. Funder (2010) spoke about the slow ethical approval rates in Australian institutions:

*Ethics committee meetings in the most active institutions are 11 a year. The ... medium time, in one very good institution, widely regarded as having an excellent system, is 4-6 months between lodging it and approval. It’s a glacial pace for something that is in ethics terms, really, pretty simple.*

The 2009 release of the Pharmaceutical Industry Strategy Group (PISG) final report stated that delays in ethical approval were having a negative impact on Australia’s competitiveness in the clinical trials market (Department of Innovation, Industry, Science and Research, 2011). The report suggested improvements in Australia’s ethical review processes. The Australian Government supported the PISG and, through its March 2011 Clinical Trials Action Group report, delivered the recommendation that ethics processes be improved with a goal of bringing the average approval time to a maximum of 60 days.

Rebuilding of the ACT ethics committee included reduction in length of time for review as a key objective. A first step was coordination of meeting times of subcommittees that examine key elements of clinical trials and surveys, ensuring their recommendations were available for the following full committee. This one step immediately reduced potential review time by 28 days. Next, the decisions of the full committee were made available for signing by the chairman and electronic dispatch within 48 hours of the meeting. The result has given the capacity to meet a time frame, from closure of applications to electronic sending of decisions of 28 days; the average for 2012 was 23.5 days, half the time of 4 years ago.

## **Problems of process and possible solutions**

Variations in the process of ethics boards and committees led to much criticism. A Canadian review of 22 REB responses to a minimal risk project was viewed by the authors as having *debatable discrepancies of outcome*. (Racine, Bell, and Deslauriers, 2010). A study of responses

on an observational study in Veterans' Affairs medical centers in the U.S. by Green et al (2006), quoted above, found a very wide range of responses. For example, although an expedited review was anticipated, 31 IRBs demanded full review and one rejected the study; 23 called for "inapplicable" additions to the consent form; 33 required resubmission; one IRB reviewed the paper twice, once approving it as minimal risk and once requiring resubmission.

Some have decried the quality of applications; others have criticized the ethics committees or boards, and an author with 20 years on RECs said: *it was a rare pleasure to receive a submission from an investigator who knows his or her subject and how to design a trial* (Racine, Bell and Deslauriers, 2010). RECs performance in the UK and their *ridiculous lack of discretion and common sense* has been likened to post 9/11 airport security checks; Masterton (2006) was especially critical of *the time-consuming delays and red tape that can undermine research*.

A report from London, by Wilson (2011), told of most participant information forms needing significant changes. Surveys of research participants at Melbourne's Alfred Hospital showed that some research participants did not remember receiving the forms or found them too long and complicated to read (Alfred Hospital, 2011). These problems may be solved in local applications by requiring shorter, and more easily read information. The participant information forms in pharmaceutical company trials are often longer than 20 pages, and sometimes difficult for reviewers, let alone potential participants, to follow.

A major part of the rebuilding of the ACT committee was that the chair and the administrator would readily answer telephone or email requests for help in designing research projects or in meeting the committee's requests for revision. The chair and members are encouraged to phone applicants to seek amplification of items in a project, in preparation for a committee meeting. Open and welcome communications between HREC and researchers was and is a significant change. The research community of the ACT previously regarded ethical review as an onerous, burdensome process. It was a job that had to be done, it was not relished, and by some it was feared. For many years the HREC was located away from the main hospital campus, creating a physical barrier to communications. Further, the administrative processes did not encourage communications between HREC and the research community; in fact, previous administrators had believed such communications to be unethical.

In addition to the administrative/service improvements, opening the door to ethics by making the chairman, administrator, and committee accessible to the research community has fostered positive, collegial relationships. Researchers no longer report fear and frustration at dealing with the committee; instead they report meeting with HREC staff and members as informative, educational and an overall valuable experience.

Overcoming problems like these bring education of researchers and IRB or ethics committee members to mind. The U.S. National Bioethics Advisory Commission (2001) recommended that education in ethics should be provided to researchers, IRB members and staff, while a review of ethics committee practice in ten European countries believed formal training of members was important for ethical cohesion across jurisdictions (Hernandez et al, 2009).



An important part of rebuilding of the ACT committee is education. Availability of courses is included in every agenda; committee members are asked to present outlines of ethics topics during a training session at each meeting; copies of *The Journal of Medical Ethics* are distributed to members for comment. An ethics teaching session for medical students is planned for the next year.

## **Conclusion**

Rebuilding the ACT HREC required a paradigm shift in the approach of staff, members, and the institution, which resulted in a significant change in process and demand upon the members, as well as a major challenge for the administrator. The effectiveness of the rebuilding is seen in a more efficient and effective handling of research applications, an enthusiasm of members, and appreciation by research teams. In tune with technological advances and lessons learned, we moved to digital transfer of data, new low-risk ethical review, lead reviewers, heightened efficiency, and shorter time scales. An emphasis on ready communication and outreach to the research and general community has given renewed effectiveness of ethical review of human research.

## **Authors' Note**

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### **John SG Biggs MA MD FRCOG FRANZCOG DHMSA**

Chairman, Australian Capital Territory Health Directorate Human Research Ethics Committee  
Visiting Fellow, Australian National University.

ACT Health Human Research Ethics Committee, Building 10 Level 6,  
Canberra Hospital, Garran ACT 2605, Australia

Tel: +61 2 6161 6643

Email: [jsgb@homemail.com.au](mailto:jsgb@homemail.com.au)

### **August Marchesi BA**

Ethics Administrator, ACT Government Health Directorate.

ACT Health Human Research Ethics Committee, Building 10 Level 6,  
Canberra Hospital, Garran ACT 2605, Australia

Tel: +61 2 6174 7968

Email: [August.Marchesi@act.gov.au](mailto:August.Marchesi@act.gov.au)

## References

- Alfred Hospital (2011). Ethics committee review and approval process. Retrieved from: <http://www.alfredresearch.org/ethics/ethapprov.htm>
- Ananth, M., Scheessele, M.R. (2012). Exempting all minimal-risk research from review: pruning or poisoning the regulatory tree. *IRB: Ethics & Human Research* 34, 9-14.
- Australian Government (2007). *National Health and Medical Research Council: National Statement on Ethical Conduct in Human Research*, Updated 2009.
- Australian Government (2012). *National Health and Medical Research Council*. Retrieved from: <http://australia.gov.au/directories/australia/nhrmc>
- Bledsoe, C.H., Sherin, B., Galinsky, A.G., Headley, N.M., Heimer, C.A., Kjeldgaard, E., Lindgren, J., Miller, J.D., Roloff, M.E. and Uttal, D.H. (2007). Regulating creativity: research and survival in the IRB iron cage. *Northwestern University Law Review*, 101, 593-626.
- Boyce M. (2002). Observational study of 353 applications to London multicentre research ethics committee 1997-2000. *BMJ*, 325: 1081.
- Catania, J.A., Lo, B., Wolf, L.E., Dolcini, M.M., Pollack, L.M., Barker, J.C., Wertlieb, S., Henne, J. (2008). Survey of U.S. Human Research Protection Organizations: Workload and Membership. *Journal of Empirical Research on Human Research Ethics*. 3, 57-69.
- Department of Health, UK (2011). *Governance arrangements for NHS Ethics Committees*. Retrieved from: [http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_4005727](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4005727)
- Department of Innovation, Industry, Science and Research (2011). *Clinically Competitive: Boosting the Business of Clinical Trials in Australia* (IS BN 978-0-642-72616-2) Canberra, ACT: Australia. Retrieved from: [http://www.innovation.gov.au/Industry/PharmaceuticalsandHealthTechnologies/ClinicalTrialsActionGroup/Documents/Clinical\\_Trials\\_Action\\_Group\\_Report.pdf](http://www.innovation.gov.au/Industry/PharmaceuticalsandHealthTechnologies/ClinicalTrialsActionGroup/Documents/Clinical_Trials_Action_Group_Report.pdf)
- Dyrbye, L.N., Thomas, M.R., Mechab, A.J., Eacker, A., Harper, W., Stanford Massie Jr, F., Power, D.V., and Shanafelt, T.D. (2007). Medical education research and IRB review: an analysis and comparison of the IRB review process at six institutions. *Academic Medicine*, 82, 654-660.

- European Commission Enterprise Directorate-General (2011). Detailed guidance on the application format and documentation to be submitted in an application for an Ethics Committee opinion on the clinical trial on medicinal products for human use, Revision 1, February 2006. Retrieved from: [http://ec.europa.eu/enterprise/pharmaceuticals/eudralex/vol-10/12\\_ec\\_guideline\\_20060216.pdf](http://ec.europa.eu/enterprise/pharmaceuticals/eudralex/vol-10/12_ec_guideline_20060216.pdf) (Accessed December 12, 2012)
- Fistein, E., Quilligan, S. (2012). In the lion's den? Experiences of interaction with research ethics committees. *Journal of Medical Ethics*, *38*, 224-227.
- Funder, J. (2010). *Medical trials in the spotlight/Interviewer: M Gearin* [Transcript]. ABC, The 7.30 Report. Retrieved from: <http://www.abc.net.au/7.30/content/2010/s2871898.htm>
- Grady, C. (2010). Do IRBs Protect Human Research Participants? *JAMA*, *304*, 1122-1123.
- Green, L.A, Lowery, J.C., Kowalski, P., Wyszewianski, L. (2006). Impact of institutional review board practice on observational health services research. *Health Services Research*, *41*, 214-230.
- Gunsalus, C.K., Bruner, E.M., Burbules, N.C., Dash, L., Finkin, M., Goldberg, J., Greenough, W., Miller, G. and Pratt, M.G. (2007). Improving the system for protecting human subjects: counteracting mission creep. *University of Illinois Law & Economics Research Paper No LE06016*. Retrieved from: <http://ssrn.com/abstract=902995>
- Hernandez, R., Cooney, M., Dualé, C., Gálvez, M., Gaynor, S., Kardos, G., Kubiak, C., Mihaylov, S., Pleiner, J., Ruberto, G., Sanz, N., Skoog, M., Sourì, P., Stiller, C.O., Strenge-Hesse, A., Vas, A., Winter, D. and Carné, X. (2009). Harmonisation of ethics committees' practice in 10 European countries. *Journal of Medical Ethics*, *35*, 696-700.
- Humphreys, K., Trafton, J., Wagner, T.H. (2003). The cost of institutional review board procedures in multicenter observational research. *Annals of Internal Medicine*, *139*, 77.
- Infectious Diseases Society of America (2009). Grinding to a halt: the effects of the increasing regulatory burden on research and improvement efforts. *Clinical Infectious Diseases*, *49*, 328-335.
- International Conference on Harmonisation of Technological Requirements for Registration of Pharmaceuticals for Human Use (2011). Retrieved from: <http://ichgcp.net/3-institutional-review-board-independent-ethics-committee-irbiec>
- Karunaratne, A.S., Myles, P.S., Ago, M.J., Komesaroff, P.A., (2006). Communication deficiencies in research and monitoring by ethics committees. *Internal Medicine Journal*, *36*, 86-91.

- Kim, S., Ubel, P., De Vries, R. (2009). Pruning the regulatory tree. *Nature*, 457, 534-5.
- Klitzman, R. The ethics police? IRB's views concerning their power. Retrieved from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3236766/?tool=pubmed>
- Lang, T., Cheah, P.Y., White, N.J. (2011). Clinical research: time for sensible global guidelines. *Lancet*, 377, 1553-1555.
- Macdonald G. (2010). IRB delays a frustration for investigators. Retrieved from: <http://www.outsourcing-pharma.com/Clinical-Development/IRB-delays-a-frustration-for-investigators>
- Masterton, G. Two decades on an ethics committee (2006). *BMJ*, 332, 615.
- National Bioethics Advisory Commission (2001). *Ethical and policy issues in research involving human participants*. Retrieved from: <http://bioethics.georgetown.edu/nbac/human/oversumm.html>
- National Health and Medical Research Council, Australian Health Ethics Committee (2012). Retrieved from: <http://www.nhmrc.gov.au/health-ethics/australian-health-ethics-committee-ahec>
- National Research Ethics Service (2010). Standard Operating Procedures for Research Ethics Committees v4.1. National Patient Safety Agency. Retrieved from: <http://www.nres.npsa.nhs.uk/news-and-publications/publications/standard-operating-procedures/>
- NHS Governance arrangements for research ethics committees 2012. Retrieved from: [http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_133993-4](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_133993-4)
- Oliver, D. (2006). Ethics committees: Current research ethics forms are an over-reaction that will stifle research. *BMJ*, 332, 730.
- Porcu, L., Poli, D., Torri, V., Rulli, E., Di Tullio, M.C., Cinquini, M., Bajetta, E., Labianca, R., Di Costanzo, F., Nitti, D. and Floriani, I. (2008). Impact of recent legislative bills regarding clinical research on Italian ethics committee activity. *Journal of Medical Ethics*, 34, 747-750.
- Queensland Clinical Trials Network (2010). Retrieved from: [http://www.qctn.com.au/ForSponsors/HowtostartatrialinAustralia/EthicsApproval/tabid/234/language/en-AU/Default.aspx#Ethics\\_approval\\_timelines](http://www.qctn.com.au/ForSponsors/HowtostartatrialinAustralia/EthicsApproval/tabid/234/language/en-AU/Default.aspx#Ethics_approval_timelines)

- Racine, E., Bell, E., Deslauriers, C. (2010). Canadian Research Ethics Boards and Multisite Research: Experiences from Two Minimal-Risk Studies. *IRB: Ethics & Human Research* 32: 12-18.
- Rickert, R. (2009) A Review of the Availability of Information on Ethics Committee Requirements for Clinical Trials in the EU. Master's thesis, University of Bonn. Retrieved from: [www.efgcp.be/Downloads/Library/Master-Thesis\\_RR\\_Final.pdf](http://www.efgcp.be/Downloads/Library/Master-Thesis_RR_Final.pdf)
- Roberts, L.B., Homer, C.S., Brown, M.A. (2004). Multicentre research: negotiating the ethics approval obstacle course. *Medical Journal of Australia*. 180, 139.
- Tully, J., Ninis, N., Booy, R., Viner, R. (2000). The new system of review by multicentre research ethics committees: prospective study. *BMJ*, 320, 1179.
- U.S. Department of Health and Human Services (2009). Code of Federal Regulations 46.110.
- Wilson, A. Research ethics and the 'iron cage' of bureaucratic rationality (2011). *Addiction Research and Theory*, 19: 391-393.
- Yale Centre for Clinical Investigation (2011). Office of Research Services significantly improves research timeline. Retrieved from: [http://ycci.yale.edu/news/ors\\_061109.aspx](http://ycci.yale.edu/news/ors_061109.aspx)