



## Independent Ethics Committee / Institutional Review Board

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### ABSTRACT

Ethics committee (EC) organization and standardization is a vital aspect of clinical research. There is a healthy trend worldwide to register and/or attribute research ECs reviewing clinical research. This article tries to specialize in the prevailing model of ECs worldwide. The article reviews literature, journals, websites, and studies conducted in 10 different countries and descriptions the working model of ECs in these countries. The challenges faced during the moral review, especially just in case of multicenter trials, are identified. A solution has been suggested to beat these challenges, and to make sure the general smooth functioning of clinical trials. The article proposes the event of national and regional central ECs to counter the present drawbacks within the ethical review mechanisms in India.

**Keywords:** Accreditation, central review, ethics committees, harmonization, registration.

### INTRODUCTION

The Independent ethics panel also mentioned as Institutional Review Board (IRB) in many countries, is an independent representative and competent body to review, evaluate and choose on the scientific and ethical merits of research proposals. The primary purpose of this committee is to guard the rights, safety and well being of human subjects who participate during a scientific research. The Ethics Committees are entrusted with the initial review of the proposed research protocols before initiation of the projects and even have an unbroken responsibility of normal monitoring of the approved programs till the same are completed. Such an ongoing review is in accordance with the Declaration of Helsinki and all the international guidelines for biomedical research<sup>1,2</sup>.

### DEFINITIONS

#### **Institutional Review Board (IRB) or Independent Ethics Committee (IEC)**

An independent body constituted of medical, scientific, and non-scientific members, whose responsibility is to form sure the protection of the rights, safety and well-being of human subjects involved during a trial by, among other things, reviewing, approving, and providing continuing review of trial protocol and amendments and of the methods and material to be utilized in obtaining and documenting consent of the trial subjects<sup>2</sup>.

#### **Composition of an Institutional Review Board (IRB)/ Independent Ethics Committee (IEC)**

Institutional Head constitutes an IEC and it is independent, competent and multidisciplinary unit. The number of persons is fairly small (8 – 12).

The IEC appoints from among its members a chairperson who should be from outside the Institution and not head of an equivalent Institution, and therefore the Member Secretary from an equivalent Institution who conducts the business of the committee. Members of IEC are:

1. Chairperson.
2. One to 2 persons from basic life science.
3. One to two clinicians from various Institutes.
4. One legal expert or retired judge.
5. One social scientist/ representative of non-governmental voluntary agency.
6. One philosopher/ ethicist/ theologian.
7. One lay person from the community.
8. Member Secretary.

The Quorum (i.e. the minimum number of individuals required to conduct a meeting) has 5 persons minimum. As per revised Schedule Y of medicine & Cosmetics Act, 1940 which is amended in 2005, they ought to be as:

1. One basic medical scientist (pharmacologist).
2. One clinician.
3. One legal expert or retired judge.
4. One social scientist/ representative of non-governmental organization/Philosopher/ ethicist/ theologian or an identical person.
5. One lay person from the community.

The members work to safeguard the interests and welfare of all sections of the community. If required, subject



experts might be invited to supply their views sort of a pediatrician for pediatric conditions, a cardiologist for cardiac disorders etc.

IEC has its own Standard Operating Procedures (SOPs) consistent with which it should be registered with CDISCO and DHR as per CT new rules 2019 it functions. These SOPs are updated periodically and these ensure smooth functioning also. Responsibilities of IEC are to safe guard the dignity, rights and well-being of the potential research participants, to make sure that universal ethical values and international scientific standards are expressed and to assist in the development and the education of a research community responsive to local health care requirements.<sup>3</sup>

### **Responsibilities of Institutional Review Boards (IRB)/ Independent Ethics Committees (IEC)**

Institutional Review Boards / Independent Ethics Committees play a crucial role in safeguard the rights, safety and well-being of all subjects participate during a clinical test. Each Institutional Review Board / Independent ethics panel has its own policies and written operating procedures to underscore its responsibilities. The Institutional Review Board / Independent ethics panel is responsible to review a proposed and on-going clinical test to make sure that they're compliant to international and native ethical standards as well as to the relevant regulatory requirements. It is also the responsibility of the Institutional Review Board / Independent ethics panel to make sure that each one subjects during a clinical test receive appropriate and adequate care, to protect the confidentiality of subjects and to make sure that compensation or payment is acceptable and not be so large to unduly encourage subjects to participate during a clinical test. Documents to be reviewed by the Institutional Review Board / Independent ethics panel include:

- Research Protocol/amendments (if any)
- Written informed consent form/consent form updates (if any)
- Subject recruitment procedure, e.g. advertisements
- Written information to be provided to subjects
- Investigator's brochure and any safety information available
- Subject reimbursement, payment or any compensation available to the subject
- Investigator's up-to-date curriculum vitae and/or other documentation proving qualification
- The IRB/IEC may request further information if in the judgment of the IRB/IEC, the additional information is crucial and significant in protecting the rights, safety and well-being of the subjects<sup>3</sup>

Upon reviewing the proposed clinical test, the members of the IRB/IEC will vote or provide opinion/advice associated with the proposed trial. Only members who are independent of the investigator/sponsor and people who

participate within the review and discussion should vote and deliberate on the proposed trial.

The IRB/IEC has the authority to approve a proposed trial by providing a written approval/favorable opinion after reviewing the proposed trial. However, in some instances, modification could also be required from the investigator/sponsor before the IRB/IEC can grant its approval/favorable opinion. IRB/IEC also has the proper to reject a proposed trial if it violates the moral and scientific principles of excellent clinical practice.

The Institutional Review Board / Independent ethics panel is liable for conducting continuous review of every on-going trial at an appropriate interval and should terminate or suspend an attempt in cases where unacceptable risk is posed to subjects during the clinical trial. The Institutional Review Board / Independent ethics panel should make sure that no deviations from, or changes of, the protocol are initiated without prior written IRB/IEC approval/favorable opinion of an appropriate amendment. The Institutional Review Board / Independent ethics panel has got to make sure that deviations, adverse events, new information or changes which will increase risk or affect the security of subjects are reported to the IRB/IEC.

The Institutional Review Board / Independent ethics panel should retain all relevant records like its membership lists, lists of occupations/affiliations of members, written operating procedures, submitted documents, minutes of meetings and correspondence for a period of a minimum of 5 years after completion of the trial and to form them available upon request from the regulatory agency (ies).

In accordance with the Good Clinical Practice Guideline, the investigator/sponsor shouldn't initiate the trial and enroll any subject to an attempt before obtaining a written approval/favorable opinion from relevant Institutional Review Boards / Independent Ethics Committees. The flow chart below illustrates the general process to attain an approval to conduct a clinical trial<sup>4</sup>.

### **BACKGROUND**

ECs for research first came into existence as early as the 1960s. In 1975, the first revision of Declaration of Helsinki (DOH)<sup>5</sup> recommended that: Any experiment involving human beings must be submitted to an independent committee for review, comment, and guidance. In 1979, the Belmont report<sup>6</sup> drafted in the US, once again emphasized on the need of review by ECs for all clinical trials. In 2002, Council for world organization of Medical Sciences (CIOMS) came up with international ethical guidelines for biomedical research involving human subjects<sup>7</sup>. DCGI has released new CT rules 2019 with effective changes.

In India, Indian Council of Medical Research (ICMR) released a 'Policy Statement on Ethical Considerations involved in Research on Human Subjects' in February 1980. This was the first policy statement giving official guidelines for establishment of ECs in all medical colleges and



research centers in India.<sup>8</sup> ICMR finalized 'Ethical Guidelines for Biomedical Research on Human Subjects' in the year 2000. The guidelines were revised in 2006. New

changes related to the registration of ECs in India were brought about by CDSCO in the amendment to Schedule Y, 2013<sup>9</sup>. Also released latest version in 2018.

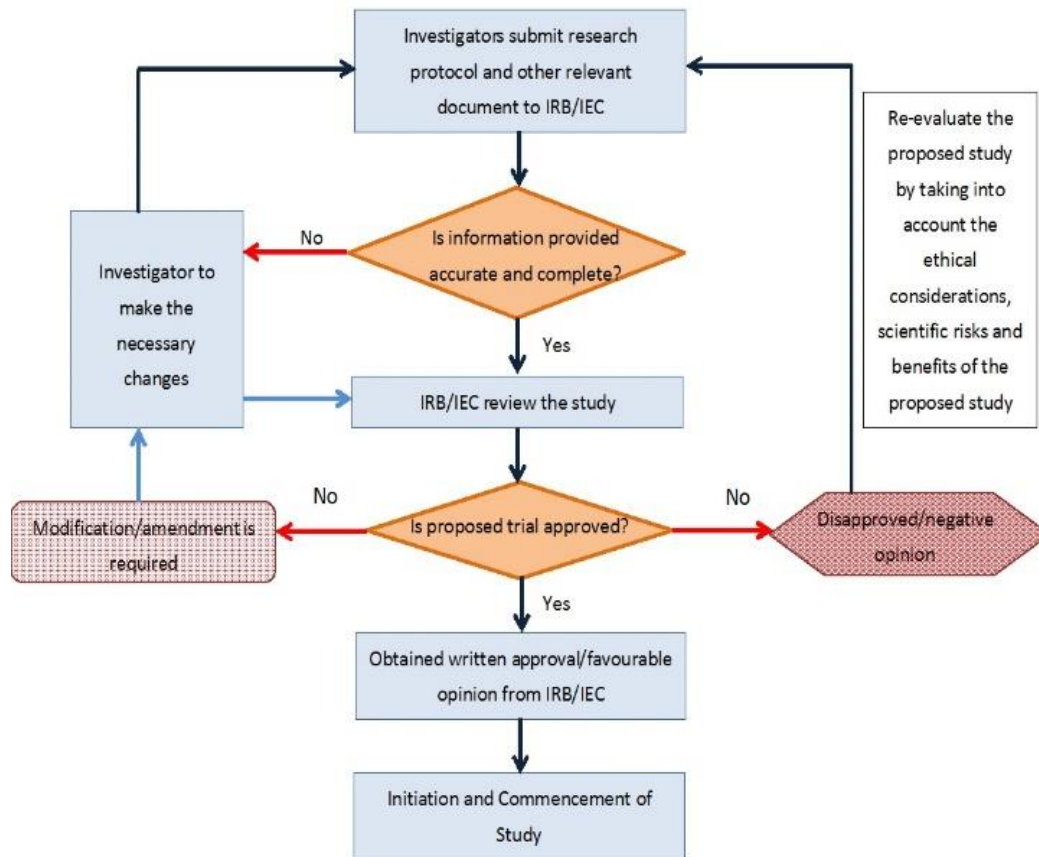


Figure-1<sup>5</sup>

## METHOD AND CONTENT

To understand the functioning of ECs globally, a literature search was undertaken and ECs of 10 countries actively involved in clinical research were studied.

The EC scenario in the different countries studied is as follows:

### United Kingdom

The United Kingdom has a hybrid system of Research Ethics Committees. Some are institution-based. Others are location or region-based; some are centralized, covering the entire country. Several different types of RECs exist. They can be split into two main categories of non-NHS RECs (e.g. institution-based higher education RECs) and NHS RECs.

The UK has 85 NHS Research Ethics Committees (as of April 2019): 65 in England, 11 in Scotland, 7 in Wales and a couple of RECs in Northern Ireland. NHS RECs, also known more formally as 'RECs within the united kingdom Health Departments' Research Ethics Service', are region-based ethics committees. Officially overseeing an area health area

within the NHS system, in practice they operate within a centrally administered system that permits them to review research applications and supply an ethics opinion on health research involving humans within the NHS happening anywhere within the UK. In addition to research involving participants identified from, or due to, their past or present use of the NHS, common categories of NHS REC review include: clinical test of an Investigational Medicinal Product (CTIMP), including NHS Phase 1 CTIMPs in healthy volunteers; research involving medical devices; social care research; biomedical research involving children; biomedical research involving prisoners; research involving adults lacking capacity; the establishment of research tissue banks/biobanks; and therefore the establishment of research databases.<sup>10</sup>

### Italy

The Italian National Bioethics Committee (NBC) was established by a Decree signed by the President of the Council of Ministers on 28 March 1990 with the task of expressing Opinions, and also for the aim of preparing legislative acts, to deal with the moral and legal problems which will arise as a result of the progress in research

project and technological applications on life. The NBC establishes and maintains relations at European and International levels.

Ethics Committees are set up in structures identified by the Regions. Each ethics panel is responsible of 1 or more provinces, so as to suits the quality of 1 Committee per million inhabitants, without prejudice to the likelihood of providing a further ethics panel, also competent to act in one or more scientific hospitalization and care institutions (Law 8 November 2012, n. 189, Art. 5). Where not included within the regional lists, the expertise of some Ethics Committees can also be recognized thanks to their national mandate. Among these are the Ethics Committees of the National Institute of Health (Istituto Superiore di Sanità, ISS) and therefore the "Celio" hospital (Decision of Lazio Region of June 12, 2013).<sup>11</sup>

### China

The Ministry of Health's National Biomedical Research ethics panel manages and oversees all biomedical research ethics in China. The interaction of the local ECs with the national committee is for professional guidance.<sup>12</sup> Most of the ECs existing in China are hospital ECs which have developed over a period of 10 years. IECs also exist in China. They have been established in compliance with World Health Organization (WHO), United Nations Educational, Scientific and Cultural Organization (UNESCO), and Good Clinical Practice (GCP) guidelines. For example, IEC at Shanghai Clinical Research Center is responsible for the review of clinical research conducted in Shanghai or other cities in China.<sup>13</sup>

### USA

All institutional review boards (IRBs) have to be registered with the Department of Health and Human Services. An IRB must be registered before it can be designated under an assurance approved for federal wide use by Office of Human Research Protection (OHRP). IRB registration becomes effective when reviewed and accepted by OHRP. The registration will be effective for 3 years. Each IRB must be registered electronically through <http://ohrp.cit.nih.gov/efile>. If an organization lacks the ability to register an IRB electronically, it may send its IRB registration information in writing to OHRP. An institution can designate a registered IRB operated by another institution, after establishing a written agreement with that institution.<sup>14</sup>

### Australia

The National Health and Medical Research Council (NHMRC) in Australia is implementing a national approach for single ethical review through the Harmonization of Multicenter Ethical Review (HoMER) Initiative. Researchers who are conducting multicenter trials in Australia are required to submit their research protocol to one certified human research ethics committee (HREC) for review. Tools have been constructed to support the single ethical review, including the National Certification Scheme, standardized

participant information and consent forms, HREC template letters, and information on the roles and responsibilities of key stakeholders in the new review system.<sup>15</sup>

Not all organizations that conduct research have their own HREC. Some organizations have established an HREC to provide the service of ethical review to researchers who do not have an HREC at their own organization. Ethics Committee Certification provides assurance that the policies, processes, and procedures of an institution and its HREC comply with an agreed set of national criteria for the conduct of an ethical review of research. Certification involves the institution carrying out a self-assessment of its ethical review processes and supporting structures against agreed national criteria. This is followed by a desktop assessment by the certifying body, and an on-site visit to verify institutional claims and practices.<sup>16</sup>

### New Zealand

New Zealand has a centralized Human Research Council Ethics Committee, (HREC) which is a multiregional committee. It approves the Health and Disability ethics panel (HDEC) and therefore the institutional/other ECs. The HDEC is funded by the New Zealand Department of Health. The Health Research Council accredits the local research committees. Accreditation involves a mixture of self-assessment and external reviews, that specialize in issues like committee membership, operating procedures, and therefore the documentation of meetings. The local ECs can review low risk health and disability research, but all other research is referred to the HDEC. A few examples of trials which need to be referred to HDEC include any research study which involves participants who are patients/clients of any organization providing health services, disability services, or institutionalized care, and: (a) The IEC lacks the clinical or other expertise to make an appropriate ethical judgment, and is unable to obtain the appropriate expertise for reviewing that research; or (b) the study poses risk of more than minimal harm to participants; or (c) there is a real or apparent conflict of interest which would prevent the IEC from providing independent review.<sup>17</sup>

### Japan

Japanese GCP mandates that a research EC must be established by every institution where clinical trials are conducted, unless that institution is too small to operate its own REC in which case the head of that institution can designate a REC established by another institution. Medical schools and therefore the majority of hospitals have established their EC voluntarily with none governmental regulation. The standardization in the composition of ECs all over Japan has been brought about by (a) Liaison Society for Ethics Committees of Medical Schools set up in 1988, and (b) because of the ethical guidelines issued by the government.<sup>18</sup> At medical schools and the majority of general hospitals, there are actually two types of ECs: An EC that reviews and monitors drug clinical trials called a clinical trial review committee, and an EC that reviews protocols from researchers affiliated with the institution (EC). Clinical



trial review committees are regulated by the Ministry of Health, Labor and Welfare and performance in accordance with the Pharmaceutical Law and therefore the Guidelines for GCP.

### Canada

In Canada most academic centers have their own research EC which is known as Research Ethics Board (REB). The National Council on Ethics in Human Research assists REBs in interpreting and implementing guidelines for ethics of research in humans and to establish ongoing mechanism to assess functions of REBs. For multi centric research, alternative ethical review models are acceptable. Individual IRBs may be authorized to accept review undertaken by an external Research Ethics Board following an official agreement between the institute and the IRB. External, specialized, or multi-institutional REBs may be established regionally, provincially/territorially, or nationally; as necessary. Two or more institutions may choose to create a single joint REB, or to appoint an external REB, to which they delegate research ethics review. This delegation of review may be based on geographical proximity or other considerations such as resources, volume of reviews, or shared expertise.<sup>19</sup> This is beneficial in case of multi centric trials as it saves time and resources.

### Korea

Korea's National Bioethics committee oversees the ethics in clinical research. Independent and IRBs exist in Korea. Both independent and academic IRBs have conflicts of interest inherent in their structure. Also review of multicenter trials by different IRBs causes delays and inconsistencies. As per a study published in the Korean Anesthesiology Journal, the central IRB model with facilitated review process has been suggested as a way to lessen the burden on local IRBs. Also a review of the scientific benefits of the trial is often beyond the scope of the local IRB. Accreditation of IRBs has been suggested as an effective approach to improving quality in human subject protection.<sup>20</sup>

### India

CDSCO has published the new clinical test Rules 2018 on 19 March 2019 after consultation with the Drugs Technical planning board. The ethics panel shall contain a minimum of one-half of its members who aren't affiliated with the institute or organization during which such committee is constituted. The ethics panel registration shall be granted in Form CT-02 with during a period of 45 working days.

The registration granted in Form CT-02 shall remain valid for a period of three years from the date of its issue, unless suspended or cancelled by the Central Licensing Authority.

On expiry of the validity period of registration an Ethics Committee may make an application for renewal of registration in Form CT-01 along with documents as specified in Table 1 of the Third Schedule 90 days before the date of the expiry of the registration.

Provided that if the appliance for renewal of registration is received by the Central Licensing Authority three months before the date of expiry, the registration shall still be in force until an order is gone by the said authority on the appliance, where a clinical test site doesn't have its own ethics panel, clinical test at that site could also be initiated after obtaining approval of the protocol from the Institutional ethics panel of another trial site;

or an independent ethics panel constituted in rule 7 Provided that the approving ethics panel shall in such case be liable for the study at the trial site or the centre, because the case could also be Provided further that, the approving ethics panel and therefore the clinical test site or the bioavailability and bioequivalence centre, because the case could also be, shall be located within an equivalent city or within a radius of fifty km of the clinical test site.<sup>21</sup>

### REGISTRATION OF ETHICS COMMITTEE

As per rule 122DD, all ethics committees have to be registered with Drug Controller General of India (DCGI) without which they cannot approve any clinical trial protocol and has come into effect from February 25, 2013.<sup>22</sup> For the purpose of registration, application has to be sent by the ethics committee to CDSCO as per the requirement specified in Appendix VIII of Schedule Y [Annexure I] along with a checklist available from CDSCO website<sup>23</sup> The information that is required to be submitted by the applicant for registration of the ethics committee are:

- Name of the ethics committee
- Authority under which the ethics panel has been constituted, membership requirements, the term of reference, conditions of appointment, and therefore the quorum required
- The procedure for resignation, replacement, or removal of members
- Address of the office of the ethics panel
- Name, address, qualification, organizational title, telephone number, fax number, E-mail, mailing profile of the chairman
- Name, address, qualification, organizational title, telephone number, fax number, E-mail, mailing profile of the members of the ethics committee. The information should also include member's specialty (primary, scientific, nonscientific), members affiliation with institution, and patient group representation if any
- Details of supporting staff
- Details of the type of clinical research reviewed by the existing committee (e.g., pharmaceuticals, devices, epidemiological, retrospective, herbals, etc.), documents reviewed for any clinical trial protocol, including informed Consent documents, information in respect of number of meetings of the committee and documentation of the minutes of meetings of these



committees concerning clinical trial, information regarding review of serious adverse events reported during conduct of clinical trial

- The SOPs to be followed by the committee in general
- The SOPs to be followed by the committee for vulnerable population
- Policy regarding training for new and existing members along with the SOPs
- Policy to watch or prevent the conflict of interest along side SOPs
- Details of any previous audit or inspection of the committee.

#### Conditions of permission for conduct of clinical trial

Status of enrolment of the trial subjects shall be submitted to the Central Licensing Authority on quarterly basis or as appropriate as per the duration of treatment in accordance with the approved clinical test protocol, whichever is earlier;

- just in case of termination of any clinical test the detailed reasons for such termination shall be communicated to the Central Licensing Authority within thirty working days of such termination;
- The Central Licensing Authority shall be told about the approval granted by the ethics panel within a period of 15 days of the grant of such approval. This could be told by site i.e. P.I or CRO or sponsor.
- Institute doesn't have ethics panel can get their trials approved from another ethics panel located within same city or within radius of fifty kms of the clinical test site

#### Validity period of permission to conduct clinical trial

The permission to conduct clinical test granted under rule 22 or automatic approval under rule 23 in Form CT-06 shall remain valid for a period of two years from the date of its issue, unless extended by the Central Licensing Authority

- Chairperson: The chairperson has to be outside the institute, and the principal/director of the institute cannot be chosen as the chairperson for the purpose of autonomy of the committee. The principal/director may the member secretary for operational feasibility. It also has to be kept in mind that a chairperson cannot serve the dual purpose of lay person/pharmacologist/legal expert or any other essential membership criteria of IEC and separate representation of that member category has to be there in the committee. In case the chairperson is absent for a particular meeting, the committee can choose any member who are present, to function as the chairperson for that meeting; but the person has to be from outside the institute
- The lay person in the committee: The idea behind inclusion of lay person is to have a person in the

committee who is representative of the study population; thus having a person from the creamy layer of the society undermines the very essence of the logic. CDSCO is strict that lay should come from the society and free of any conflict-of-interest. Appointing the secretary, account officer, librarian of the institution as the lay person is unacceptable

- Legal expert: A legal expert can be a practicing lawyer or a retired judge; not just anyone who has the degree of Bachelor of Legislative Law (LLB) and has never practiced law
- Authority under which committee is constituted: For the purpose of autonomy, it is desired that committee members (including the member secretary) are chosen by the chairperson and not by the principal/director/any other person belonging to the institute
- Conflict of interest: It should be mentioned in the SOP that all members having conflict of interest would refrain from the discussion on that particular proposal. At the end of the meeting, the members should sign the undertaking that they had no conflict of interest
- Research involving vulnerable population: The SOP must clarify how the ethics committee is going to handle the research involving vulnerable population or else it may spell out that it will be decided on case-to-case basis
- GCP training of members: It is mandatory that members of ethics committee are trained in GCP, and it is essential to submit their certificates of their training while applying for the registration.

#### CONCLUSION

Independent ethics committee/ institutional review body is an independent body that is constituted with medical and non-medical or clinical and non clinical members whose primary responsibility is protect the rights, safety and well-being of the trial subjects and also ensures the trial is being conducted as per regulations by reviewing and approving / providing favorable opinion on the protocol and other required documents. The above review article will give you the brief explanation about ethics committee in different countries. It also mentions about key changes in the new drug clinical trials.

As per the first revision of Declaration of Helsinki (DOH) recommended that: Any experiment involving human beings must be submitted to an independent committee for review, comment, and guidance. ICMR finalized 'Ethical Guidelines for Biomedical Research on Human Subjects' in the year 2000. The guidelines were revised in 2006. New changes related to the registration of ECs in India were brought about by CDSCO in the amendment to Schedule Y, 2013. Also released latest version in 2018.

To understand the functioning of ECs globally, a literature search was undertaken and ECs of 10 countries actively



involved in clinical research were studied. They are United Kingdom, Italy, China, USA, Australia, New Zealand, Japan, Canada, Korea and India.

Registration of ethics committee As per rule 122DD, all ethics committees have to be registered with Drug Controller General of India (DCGI) without which they cannot approve any clinical trial protocol and has come into effect from February 25, 2013.

The article also gives the information regarding conditions of permissions for conduct of clinical trial and validity period of permission to conduct clinical trials.

## REFERENCES

- Walanj AS, Research ethics committee: Need for harmonization at the national level, the global and Indian perspective, 2014 Apr-Jun, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3980546/>
- Oberoi S, Role of institutional review board in the regulation of ethical guidelines for clinical research in India, (28 Aug 2016) <http://www.iorg.co.in/2013/06/irb-institutional-review-board-or-independent-ethics-committee/>
- Kalpana P, Role Institutional Ethics Committee in clinical trials, (Nov 16 2011) [https://www.jli.edu.in/blog/role-of-institutional-ethics-committee-iec-in-clinical-trials/?gclid=Cj0KCOjwmpb0BRCBARIsAG7y4zavcC8rSVX-AaYU\\_b\\_uelyyLJB9pdGez9AwyDWpmXTaygdFG-oI23caArRNEALw\\_wcB](https://www.jli.edu.in/blog/role-of-institutional-ethics-committee-iec-in-clinical-trials/?gclid=Cj0KCOjwmpb0BRCBARIsAG7y4zavcC8rSVX-AaYU_b_uelyyLJB9pdGez9AwyDWpmXTaygdFG-oI23caArRNEALw_wcB)
- Institutional review board (IRB)/Independent Ethics Committee (IEC), MREC, Protecting Human Research Subjects. [https://www.crc.gov.my/wp-content/uploads/documents/intranet/GCP/04\\_IRB\\_Independent\\_Ethics\\_Committee\\_27102017.pdf](https://www.crc.gov.my/wp-content/uploads/documents/intranet/GCP/04_IRB_Independent_Ethics_Committee_27102017.pdf)
- Andaman medical.com, Institutional review Board/ Independent Ethics Committee (March 8,2016) <http://nih.gov.my/web/mrec/wp-content/uploads/2014/11/ICH-GCP-1996.pdf>
- Declaration of Helsinki (1975)/CSEP: Codes Repository. [Last accessed on 2013 Jul 17]. Available from: <http://www.ethics.iit.edu/ecodes/node/3931>.
- The Belmont Report: Ethical principles and guidelines for the protection of human subjects of research. US Department of Health and Human Services, 1979, 45 CFR 46. [Last accessed on 2013 Jul 17]. Available from: <http://www.hhs.gov/ohrp/humansubjects/guidance/belmont.html>.
- Moris K. Revising the Declaration of Helsinki. Lancet. 381, 2013, 1889. [PubMed] [Google Scholar]
- Sanmukhani J, Tripathi B. Ethics in clinical research: The Indian perspective. Indian J Pharm Sci. 73, 2011, 125–30. [PMC free article] [PubMed] [Google Scholar]
- EUREC, European network of research ethics committee, United Kingdom, (dirk lanzerath) <http://www.eurecnet.org/information/uk.html>
- EUREC, European network of research ethics committee, Italy, (dirk lanzerath) <http://www.eurecnet.org/information/italy.html>
- De Feo G, Chiabrando G, Cannovo N, Galluccio A, Tomino C. Harmonization of the practice of independent ethics committees in Italy: Project E-submission. PLoS One. 7, 2012, e48906. [PMC free article] [PubMed] [Google Scholar]
- Hennig W. Bioethics in China: Although national guidelines are in place their implementation is difficult. EMBO Rep. 7, 2006, 850–4. [PMC free article] [PubMed] [Google Scholar]
- Independent Ethics Committee. Shanghai Clinical Research Center. [Last accessed on 2013 Jul 30]. Available from: [http://www.scrnet.org/IEC\\_en.asp](http://www.scrnet.org/IEC_en.asp).
- IRBs and Assurances. HHS.gov. US Department of Health and Human Services. [Last accessed on 2013 Jul 12]. Available from: <http://www.hhs.gov/ohrp/assurances/index.html>.
- Human Research Ethics Portal. National Health and Medical Research Council. Australian Government. [Last accessed on 2013 Jul 12]. Available from: [http://www.hrep.nhmrc.gov.au/national\\_approach](http://www.hrep.nhmrc.gov.au/national_approach).
- Ethics and regulatory. Health Research Council of New Zealand. [Last accessed on 2013 Jul 30]. Available from: <http://www.hrc.govt.nz/ethics.and.regulatory>.
- Akabayashi A, Slingsby B, Nagao N, Kai I, Sato H. An eight-year follow-up national study of medical school and general hospital ethics committees in Japan. BMC Med Ethics. 8, 2007, 8. [PMC free article] [PubMed] [Google Scholar]
- TCPS 2. Tri-Council Policy Statement. 2010. 2013. Jul, [Last accessed on 2013 July 30]. Available from: [http://www.pre.ethics.gc.ca/pdf/eng/tcps2/TCPS\\_2\\_FINAL\\_Web.pdf](http://www.pre.ethics.gc.ca/pdf/eng/tcps2/TCPS_2_FINAL_Web.pdf).
- Kim WO. Institutional review board (IRB) and ethical issues in clinical research. Korean J Anesthesiol. 62, 2012, 3–12. [PMC free article] [PubMed] [Google Scholar]
- Ministry of Health GSR Notification #227 dated 19 March 2019].
- Mukherjee S. Compensation conundrum. Perspect Clin Res. 3, 2012, 4–7. [PMC free article] [PubMed] [Google Scholar]
- Amendment to the Drugs & Cosmetics Rules 1945, Gazette Notification [GSR 72 (E)];2013. Available from: [http://cdsco.nic.in/html/G.S.R.%2072\(E\)%20dated%2008.02.2013.pdf](http://cdsco.nic.in/html/G.S.R.%2072(E)%20dated%2008.02.2013.pdf).
- Key changes in new drug clinical trials.

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