Health Research Policy and Systems

REVIEW

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A transformative solution to build effective, transparent, and resilient "fit-for-purpose" national health research ethics systems

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Abstract

The current research ethics review systems are composed of isolated institutional Research Ethics Committees (RECs) that develop their own standard operating procedures (SOPs), templates and so on, with low adoption of digital solutions to manage submission and review processes. This poses several challenges, such as delays, higher costs, and hindering multi-site research. We propose an online national research ethics platform that all RECs can use, with common review processes and documentation requirements following national policy. The system will scale up adoption of digital solutions to all RECs. It will reduce administrative burden and harmonize review procedures. It will also obviate the need for separate and isolated interventions such as national REC registries or clinical trial registries, as these can be generated as transactional outputs of the system. The harmonized procedures and possibility of single submission will facilitate multi-site research. Sharing of resources and expertise among RECs on the platform will enhance resilience. An e-EC system developed in India and a Regional Health research portal developed by the WHO South-East Asia office offer proof of concepts to demonstrate the feasibility of developing and using such systems. The proposed solution is ambitious but feasible. Developing the proposed system will be a vital cost-effective investment in national health infrastructure to strengthen the research ecosystem and accelerate delivery of improved healthcare innovations by reducing unnecessary delays in conducting research. To maximize benefits, concurrent efforts are needed to build researchers' capacity and enhance the quality and efficiency of human reviews of the research proposals by REC.

Keywords Research ethics, Ethical review/standards, Ethics committees, Research participants, Ethics review systems, Harmonization of research ethics review, Clinical trial register

Introduction

The research ethics review and approval systems, in the form of research ethics committees (RECs) developed over decades to protect the interest of human participants, have been criticized for causing unnecessary delays in conducting research, driving up research costs [1] and suboptimal effectiveness for the very purpose they have been set up for, namely, the protection of human research participants. The systems also failed to ensure high scientific rigour as high levels of research wastage continue [2].

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Given the exponential growth in research in most countries, the number of RECs and their responsibilities have gone up proportionally in a rather uncontrolled and uncoordinated manner without appropriate national policy guidance and support structures [3, 4]. Thus, RECs have been required to develop their own standard operating procedures, protocol templates, review standards and submission systems.

The current system is also suboptimal for providing oversight for multi-site or multi-agency research, which is becoming increasingly important, especially in the context of emerging infections and pandemics, where timeliness is critical [5, 6]. Overall, these factors slow down development of new drugs and other health innovations, and the ability of countries to deploy evidence-based context-specific improvements in their systems.

Many have suggested reforms or ways to improve the systems. These included licensure/accreditation of RECs as a measure of oversight of their performance, single/central committee for multi-site research, development of reviewers' checklists, training and capacity building and so on. [7]. However, problems continue or have even worsened with a substantial burden on researchers. For example, despite substantial literature pointing towards a lack of harmonization of review standards and processes across RECs, leading to considerable delays in the research and approval process [7–11], few have suggested how to fix this problem. As such, there is little progress in this area in most countries.

Most of the proposed solutions targeted individual RECs. Few suggested the use of digital technology to improve the efficiency, effectiveness and transparency of ethics review systems. In this paper, we propose a single national digitally enabled system for a transparent, accountable and resilient research ethics review and approval system. We propose that this national platform, as an integral part of national health research infrastructure, if designed and implemented well, will substantially improve the ethics review process. It will positively impact the ease of doing research and will eventually translate into enhanced protection for human research participants and accelerated development and delivery of new healthcare interventions.

The solution: national digital research ethics review system/platform

We propose a national or centralized digital research ethics review platform developed and maintained by designated national organizations (Fig. 1). This platform would be utilized by all RECs in the country to independently review research proposals submitted to them. Intervening at a national level that brings together all the RECs on a single platform will allow for a quick scale-up of any policy or other innovation.

Design and architecture

The proposed national, online system will facilitate the electronic submission of research proposals. The architecture and workflow of the system will be configured on the basis of the national ethical standards and review guidelines by consensus. The system will be access-controlled to ensure privacy, security and confidentiality. The RECs will register on the system and access committee-specific dashboards. Researchers will register on the

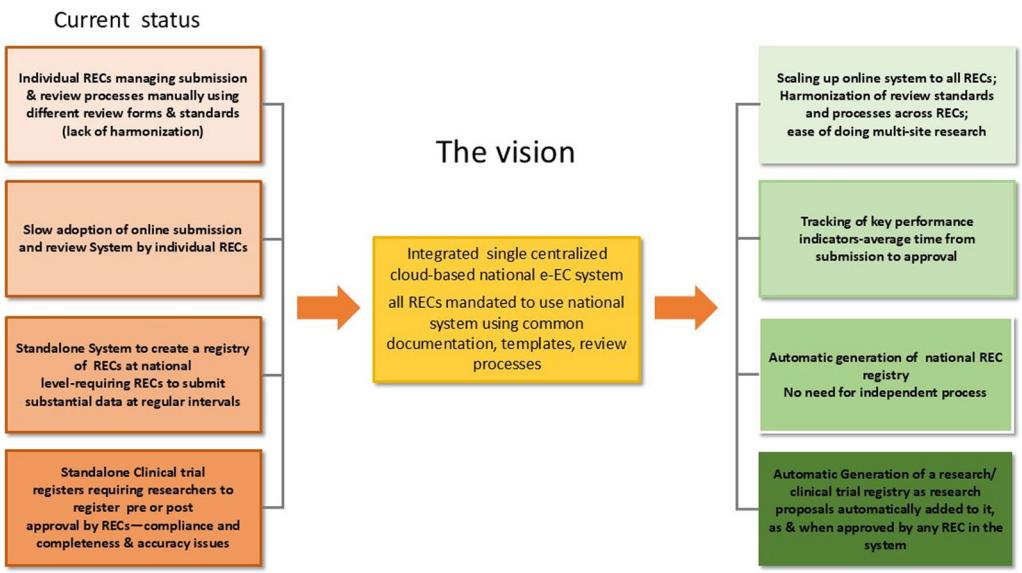

Fig. 1 Illustration for the proposed centralized cloud-based digital research ethics review systems

system, select their REC and submit the proposal. The proposal will be accessible by committee/s selected by the researcher. Furthermore, researchers will be able to select multiple RECs for multi-site research. On the basis of the national policy, the system will allow one of the selected committees to be designated as the lead committee.

The system will be configured in a manner that allows generation of a real-time publicly accessible national registry of research, researchers, research institutions and RECs as transactional by-products (Fig. 1). Approval of a proposal by any REC will trigger addition of relevant metadata of the protocol to the National Research Registry. There will be no need to develop and maintain stand-alone clinical trial registries.

How the solution will address current problems of research ethics review

Reduced administrative burden on RECs with rapid scale-up of use of online submission and review systems

Online submission and review systems as used by peer-reviewed journals substantially reduce administrative burden by keeping external and internal communication in one place, facilitating real-time tracking and archiving of documents [12]. Despite a substantial increase in the availability of off-the-shelf online submission and review systems, including some free software (e.g. ProEthos Tool developed by PAHO/WHO) [13], only a handful of RECs in developing countries are using these systems [14, 15]. There is little guidance/mandate or support from national oversight systems to facilitate adoption of these digital systems by RECs. Use of manual submission and revision processes are burdening both RECs and researchers. The proposed national platform, as part of national health research infrastructure that all RECs can use, will scale up the adoption of online systems to nearly 100% of RECs in a short time.

Harmonization of review and approval processes across RECs

While the system will support data isolation for each REC, the system will mandate use of common protocol templates, protocol submission checklists, review processes and standards as per national guidelines. When used by all the RECs, it will ensure harmonization across them. In the proposed system the researchers will be able to view, download and access standard protocol templates for their respective research type from single site as opposed to visiting the different REC websites and understanding their unique requirements.

Enabling multi-site research

The current systems are challenging and burdensome for conducting multi-site research, forcing researchers to seek approval from multiple RECs with different review and approval workflows as well as submission checklists [16–18]. The proposed system will allow researchers to submit their proposal to all the relevant RECs in one go, using common national submission checklists and protocol templates. Furthermore, the system may be configured to designate a lead or common REC as per the national policy [19] and automatic sharing of all the reviewer feedback from lead REC to all the relevant RECs.

No need for stand-alone national oversight systems in the form of REC registration

The digital system will obviate the need for stand-alone national interventions initiated in some of the countries for oversight of RECs. For example, India has two online REC registration systems managed by Department of Health Research (NAITIK Portal) and Central Drug and Standard Control Organization (CDSCO Portal), respectively [20, 21]. Nepal and Bangladesh require RECs to submit their annual reports to National Health/Medical Research Councils manually each year [15, 22]. This may burden the RECs, many of whom do not have dedicated secretariats. The proposed online national system can automatically generate a national registry of all RECs.

Integration of clinical trial registries with ethics review process

The registration of all intervention trials in a publicly accessible registry is considered a scientific, ethical and moral responsibility. Following the mandate from the International Committee of Medical Journal Editors (ICMJE) [23] and the Declaration of Helsinki [24], many member states have set up independent national clinical trial registries [25]. Researchers must register their research after approval by ethics review committee before the enrolment of first research participant. This independent registration step not only burdens the researchers, but compliance as well as completeness and accuracy of data in the registries remains an issue. In addition, many countries such as Thailand are facing resource issues in maintaining these stand-alone clinical trial registries [26].

Integration of clinical trial registration with ethics review process can enhance the accountability, transparency and ethics of human subject research [27]. The proposed national platform, when used by all the RECs, can automatically generate a publicly accessible national research registry, which will be updated in real-time as and when a research proposal is approved by any REC, ensuring 100% registration compliance as well as completeness and accuracy of data. The metadata that are needed for research registry may be obtained as part of

the submission of the research proposal for REC review. An online system developed by the WHO South-East Asia Regional Office provides a proof of concept for this [13].

Enabling the tracking of REC performance

Performance statistics such as average time-to-approval, average number of iterations requested and so on may provide important insight into functioning of RECs [13]. REC benchmarking tools or assessment tools try to manually collect these data, which is rather cumbersome and does not allow for real-time monitoring [28, 29]. The proposed system, if used by all RECs, will allow for real-time computation of these metrics, which can be compared across RECs, research types and different researchers, and can help to better understand the causes of delay and potential solutions, bringing much-needed transparency and accountability in the research ethics review and approval systems.

Doing away with current cumbersome accreditation/licensure/inspection practices

Many international agencies such as the Strategic Initiative for Developing Capacity in Ethical Review (SIDCER) – Forum for Ethical Review Committees in the Asian and Western Pacific Region (FERCAP), WHO/PAHO and Association for Accreditation of Human Research Protection Programs, Inc. (AAHRPP) developed accreditation tools for RECs, which burden the finances and human resources with unclear benefits [13, 28–32].

Use of an online national platform will automatically ensure compliance with many of the issues assessed during the accreditation process. For example, the system will be configured in a manner that it will not allow the registration of a committee if there are less than required members or if the committee members collectively do not have multi-disciplinary capacity in accordance with national policy [13]. Information on many other indicators can be easily extracted from the online system and some of the standards (e.g. documentation and archiving) will be automatically implemented due to the very nature of the online system. The proposed system will make monitoring of REC performance much easier in real-time by extracting critical information from the system, rather than establishing separate accreditation or licensure systems. The accreditation systems can then focus their limited resources in assessing the review quality itself rather than the structural aspects of REC.

Other potential benefits of the proposed system will include a single source of information for researchers and enhancement of protection of research participants, streamlining the fees levied for proposal review, and creating a networking platform for the registered RECs.

Proof of concept

To the best of our knowledge, only the United Kingdom and Ireland have introduced a national Integrated Research Application System with a single window to apply for all the approvals needed [33]. However, it does not currently show a publicly accessible research registry and other potentially beneficial by-products of the national system. In addition, a proof of concept exists in India, as described below.

The Electronic Ethics Committee (e-EC) is a software application launched by Forum of Ethics Review Committees in India and PATH in 2017 [34]. Clinical Development Services Agency at Translational Health Science and Technology Institute (CDSA, THSTI) and Medical Research Council Clinical Trials Unit at University College London contributed to subsequent enhancements and development [35]. In 2020, PATH handed over the e-EC to CDSA, THSTI – a national level autonomous institute of the Department of Biotechnology, Ministry of Science and Technology, Government of India.

The system has incorporated standardized common forms [36] for ethics review developed by the Indian Council of Medical Research, Department of Health Research (the national policy-setting body) to ensure harmonization of procedures across RECs.

Multiple RECs operational in the country can register on e-EC and use it to manage the review of research protocols. THSTI offers the system on a subscription basis to institutional ethics committees in India. Researchers can submit research proposals anytime, from anywhere, ensuring a seamless and transparent ethics review process by the RECs registered on the system, while maintaining the confidentiality and security of the data. The system allows for real-time tracking of applications, archiving of documents and assurance of data sanctity.

The workflows in the system have been designed following the National Ethical Guidelines for Biomedical and Health Research Involving Human Participants (ICMR, 2017) [37] and the New Drugs and Clinical Trial Rules (2019) [38], fostering harmonization across RECs and compliance with national guidelines. The use of common forms and standardized templates (for the letter of permission/approval and other decisions) allows for the storage of data in a searchable database that can facilitate future submissions by the researchers without the need for re-entering some common data fields [36].

However, in the absence of a government mandate/directive to use only the common ICMR forms, the system developers gave in to the pressure from individual RECs by providing an option to the RECs to use their own ethics review forms if they did not want to use the national common forms, negating the harmonization benefit that could have accrued from the system.

In addition, e-EC was planned as part of the CReATE suite [35], which was conceptualized to include four other novel IT tools, as shown in Fig. 2, which could have enhanced the capacity of both the researchers and reviewers. For example, CheckEthix, a software to assess the ethical soundness of protocol and informed consent document, can quickly do the preliminary screening and save substantial review time. However, as of now, only e-EC is available for use by RECs in India.

In 2023, 15 institutions including government institutes, teaching organizations, an NGO and research organizations were using e-EC on a subscription basis (3 months of usage offered on a trial basis to evaluate feasibility and usage followed by a maintenance fee of INR 5000+ taxes per month). Before the introduction of the subscription, 35 institutes were using the e-EC.

The current e-EC system does not have the feature to generate different registries, including the research registry, but it can be added easily on the basis of the current technology available, as has been done in the system developed by the WHO South-East Asia Regional Office [13].

The system has yet to demonstrate a meaningful impact on the national ethics review system and research outcomes at the national level, as a majority of RECs operational in the country are yet to join the platform; however, it does provide a proof of concept for feasibility of having such a centralized national cloud-based system that can be used by all RECs in the country.

Feasibility of the solution and the way forward

Though ambitious, developing and maintaining an online national REC system is achievable with current technological advances and near-universal access to high-speed internet. In addition, both developing and developed countries already have some experience in establishing national systems such as national clinical trial registers.

While the proposed system is designed to solve many of the persistent problems causing substantial hindrances to the conduct of research, it will not be a panacea for all the problems faced by the system, such as quality and timeliness of REC deliberations/reviews. The REC members will still require training in ethical issues in research, and some protected time for timely and quality review of the research protocols. However, review checklists in the online system can facilitate the review process to some extent.

The system's benefits will only accrue when all the RECs follow the national common guidelines, forms, templates, etc.

Further, many more tools, including declarative or predictive artificial-intelligence-based tools, may soon be available that may facilitate quick review of the proposals by reviewers and RECs. One such tool (CheckEthix) may be integrated into the proposed system [34]. A national platform will facilitate rapid scale-up of these emerging technologies to all RECs. It will replace the current isolated and fragmented system with a networked, transparent and accountable system.

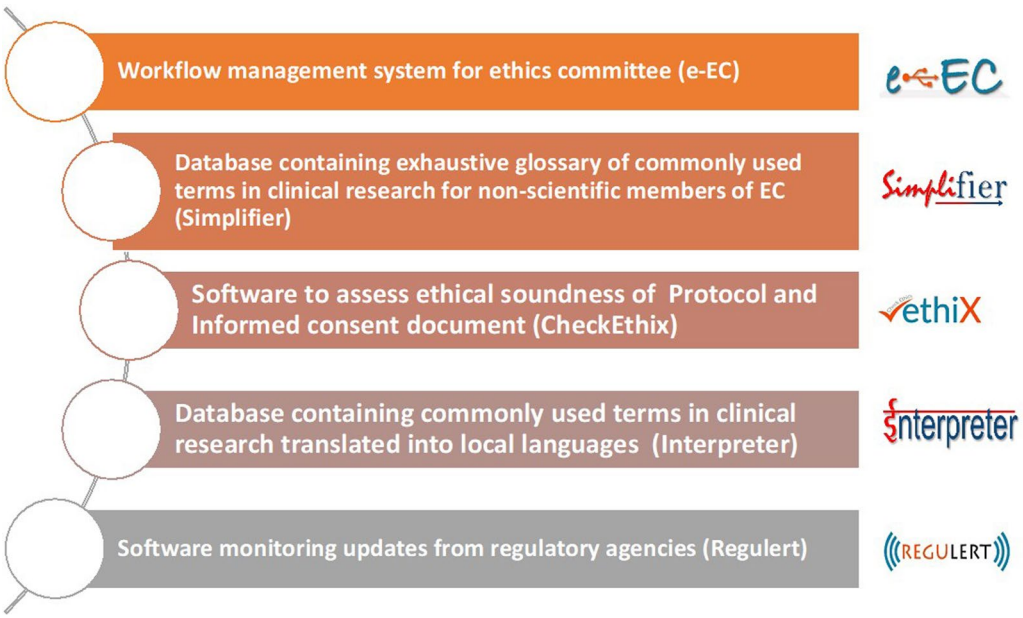

Fig. 2 CReaTE software (software suite of five novel IT tools) of e-EC system

The development of the system may require some upfront investments to create this necessary health research infrastructure, but much can be mobilized from other existing national-level programs such as the national clinical trial registries or national REC registries, as these will be automatically generated from the system. There will also be savings from funds spent on REC accreditation systems or monitoring of REC through field inspections, as most of the indicators assessed during these visits can be extracted directly from the system. This will be a critical investment in building national health research infrastructure. This is in line with growing momentum on national and global digital health initiatives. The benefits of developing and sustaining such a system will outweigh any costs involved.

It will provide much-needed supportive national infrastructure for effective, transparent and resilient fit-for-purpose national health research ethics systems. To make this vision a reality, all stakeholders – researchers, RECs, research funders and sponsors – need to engage in the highest level of policy advocacy.

Author contributions

M.R. wrote the main manuscript. N.C. and N.W. reviewed the paper and provided substantial inputs especially on the functioning of eEC system. R.M., T.J. and S.R. reviewed the first draft and provided input to improve the paper to its current form. P.D. supported with review and editing including the literature review informing the paper.

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Data availability

No datasets were generated or analysed during the current study.

Declarations

Competing interests

The authors declare no competing interests. The opinions presented in this paper are solely attributed to authors and not to the organizations they work for.

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