Uttar Pradesh University of Medical Sciences, Saifai

Guidelines, SOPs & Proforma for Research Activities of UPUMS, Saifai

2023

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Uttar Pradesh University of Medical Sciences, Saifai

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RESPONSIBLE CONDUCT OF RESEARCH

1.0 The value and benefits of research are dependent on the integrity of the researchers. Scientists have a significant social responsibility to prevent research misconduct and misuse of research. Responsible researchers abide by the standards prescribed by their professions, disciplines and institutions and also by relevant laws. All members of a research team are expected to maintain high standards and to uphold the fundamental values of research. The responsible conduct of research (RCR) involves the following major components: values; policies; planning and conducting research; reviewing and reporting research; and responsible authorship and publication.

Institutions conducting research must establish a research office within their institution to facilitate research, manage grants, and oversee all aspects of RCR. The research office must work closely with the EC and with all stakeholders, including undergraduate and postgraduate students. SOPs should be in place to address all the major components of RCR as outlined in the following sections.

1.1 Values of research

RCR is guided by shared values including honesty, accuracy, efficiency, fairness, objectivity, reliability, accountability, transparency, personal integrity, and knowledge of current best practices, and these should be reflected in the policies related to RCR.

1.1.1 The scientist as a responsible member of society

Scientific research is vital to improving our understanding of various health related problems and their solutions. All research components depend on cooperation and shared expectations as part of inter-professional ethics. Unethical behavior in scientific research can destroy the public's trust in science and have a negative impact on the research team. Without trust between scientists and the public, or within research teams, meaningful research is compromised. Researchers should be aware that the resources of biomedical research are precious and to be used judiciously. Wherever possible they should also seek opportunities to plan translation of research findings into public health outcomes.

1.1.2 Contemporary ethical issues in biomedical and health research

Emerging new areas of research give rise to new ethical issues. Among the contemporary issues recently under debate are the use of underprivileged and vulnerable groups as participants, post-trial access of research benefits to participants and their communities, research on emerging technologies, etc. Continuing education is necessary to keep researchers apprised of contemporary issues.

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1.1.3 Sensitivity to societal and cultural impact of biomedical and health research

To understand the social and cultural impact of research, one must analyze how the health sector and general public engage with the results of biomedical and health research. It is essential that researchers bear this in mind while planning, conducting and evaluating research as it will improve public accountability and enhance public, private and political advocacy.

1.1.4 Mentoring

Mentoring is one of the primary means for one generation of scientists to pass on their knowledge, values and principles to succeeding generations. Mentors, through their experience, can guide researchers in ways above and beyond what can be gathered from reading textbooks. The relationship between mentors and trainees should enable trainees to become responsible researchers. Mentors should ensure their trainees conduct research honestly, do not interfere with the work of other researchers and use resources judiciously. A mentor should be knowledgeable, teach and lead by example and understand that trainees differ in their abilities. She/he should devote sufficient time and be available to discuss, debate and guide trainees ably. A mentor should encourage decision making by the trainees and the trainee should take an active role in communicating her/his needs.

1.2 Policies

1.2.1 The protection of human participants

Institutions must establish policies and mechanisms for the protection of human research participants. Such policies should assign responsibilities to the institution, the EC and the researchers. Additionally, there should be mechanisms and policies for monitoring research including data capture, management, conflicts of interest, reporting of scientific misconduct, and appropriate initial and continuing training of researchers and EC members. Policies can be made available on the websites of the institutes or organizations. Researchers should also follow their respective professional codes of conduct.

1.2.2 Animal experimentation

Those involved in experimentation on animals must follow all the existing regulations and guidelines including the Prevention of Cruelty to Animals Act, 1960, amended in 1982, the Breeding and Experimentation Rules, 1998, amended in 2001 and 2006, the Guidelines for Care and Use of Animals in Scientific Research (Indian National Science Academy, 1982, amended in 2000), ICMR Guidelines on Humane Care and Use of Laboratory Animals, 2006, Committee for the Purpose of Control and Supervision of Experiments on Animals (CPSCSEA) Guidelines for Laboratory Animal Facilities, 2003 and Guidelines for Rehabilitation of Animals used in Research, 2010.

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1.3 Planning and conducting research – Specific Issues

1.3.1 Conflict of interest issues

COI refers to a set of conditions whereby professional judgement concerning a primary interest, such as participant's welfare or the validity of research either is, or perceived to be unduly influenced by a secondary interest. The secondary interest may be financial or non-financial, personal, academic or political. This is not inherently wrong, but COI can influence the choice of research questions and methods, recruitment and retention of participants, interpretation and publication of data and the ethical review of research. It is, therefore, necessary to develop and implement policies and procedures to identify, mitigate and manage such COI which can be at the level of researcher, ethics committee or at the level of institution. Research institutions, researchers and research ECs must follow the steps given in Box 1.1.

Box 1.1 Identifying, mitigating and managing

The broad responsibilities of those involved in research, with respect to COI, are given below:

1. **Research institutions must:**
   - develop policies and SOPs to address COI issues that are dynamic, transparent and actively communicated;
   - implement policies and procedures to address COI and conflicts of commitment, and educate their staff about such policies;
   - monitor the research or check research results for accuracy and objectivity; and
   - not interfere in the functioning and decision making of the EC.
2. **Researchers must:**
   - ensure that documents submitted to the EC include disclosure of COI (financial or non-financial) that may affect their research;
   - guard against conflicts of commitment that may arise from situations that place competing demands on researchers' time and loyalties; and
   - prevent intellectual and personal conflicts by ensuring they do not serve as reviewers for grants and publications submitted by close colleagues, relatives and/or students.
3. **ECs must:**
   - evaluate each study in light of any disclosed COI and ensure appropriate action is taken to mitigate this; and
   - require their members to disclose their own COI and take appropriate measures to recuse themselves from reviewing or decision making on protocols related to their COI; and
   - make appropriate suggestions for management, if COI is detected at the institutional or researchers level.

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1.3.2 Data acquisition, management, sharing and ownership

- There is no single best way to collect data. Different collection techniques are needed for different types of research. Researchers should be sensitive to participants and use best practices for data collection.
- Data collection involves physical process of recording data in hard copy, soft or electronic copy, or other permanent forms. The physical formats for recording data vary considerably, from measurements or observations to photographs or interview recordings. To be valuable, research data must be properly recorded.
- Institutes receiving research funds have responsibilities for budgets, regulatory compliance and management of collected data with funded research. This means that researchers should obtain appropriate permissions/approvals to take their data and funding with them if they move to another institution.
- Ownership issues and responsibilities need to be carefully worked out well before data are collected and researchers should ensure clarity about data ownership, publication rights and obligations following data collection. MoUs vetted by the institution and/or EC should be in place.
- For biological samples, donors (participants) maintain the ownership of the sample. She/he could withdraw both the biological material and the related data unless the latter is required for outcome measurement and is so mentioned in the initial informed consent document.
- Institutes hosting/implementing the research are the custodians of the data/
- samples.
- Research must be conducted using appropriate and reliable methods to provide reliable data. The use of inappropriate methods in research compromises the integrity of research data and should be avoided.
- Quality research requires attention to detail at every step. Proper protocols need to be established and the results accurately recorded, interpreted and published. Implementation of poorly designed research wastes resources and should be avoided.

In some cases, authorization is needed prior to data collection. Researchers are responsible for knowing when permission is needed to collect or use specific data in their research.

See Box 1.2 for further details.

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Box 1.2 Research requiring authorization prior to data

Data for the following types of research cannot be collected without getting prior authorization:

1. human participants and animals in research;
2. information posted on some websites;
3. hazardous materials and biological agents;
4. biological sample storage and future testing;
5. information from some libraries, databases and archives;
6. published photographs and other published information; and
7. other copyrighted or patented processes or materials.

- Data protection and storage is important and once collected, data must be properly protected, as it may be needed at a later stage to confirm research findings, establish priority, or be re-analysed by other researchers. Responsible data handling begins with proper storage and protection from accidental damage, loss or theft. Care should be taken to reduce the risk of fire, flood and other catastrophic events. Computer files should be backed-up and the back-up data saved in a secure place at a site that is different from the original data storage site.
- Data sharing is important as research data is valuable and needs to be shared, but deciding when and with whom to share may raise difficult questions. Once a researcher has published the results of an experiment, it is generally expected that all the information about that experiment, including the final data, should be freely available for other researchers to check and use. Data should be shared or placed in a public domain in a de-identified/anonymized form, unless required otherwise, for which applicable permissions/re-consent should be sought unless obtained beforehand.

1.4 Reviewing and reporting research

The public's trust in published research is an essential component of ethical and responsible research.

1.4.1 The basic premise of all reviewers and editors evaluating research is that the work has been performed honestly, its reporting is transparent and truthful and the researchers' integrity is beyond doubt.

1.4.2 Transparency pertains to both the research site and the researcher(s). This would require disclosure of the location of the research as well as the collaborating sites/institutions and the authors of that research.

1.4.3 Research that is completed, irrespective of results, must be published, since it would be unethical to expose another set of participant/patients/volunteers to the same risks to obtain the same results.

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1.4.4 Researchers should provide results of study in the public database of the Clinical Trial Registry-India (CTRI).

1.5 Responsible authorship and publication

1.5.1 Authorship – The researchers should follow the guidance of International Committee of Medical Journal Editors (ICMJE) on authorship[23] which is largely accepted as a standard and is endorsed by the World Association of Medical Editors (WAME). See Box 1.3 for further details.

Box 1.3 Criteria for authorship (ICMJE)

According to the ICMJE, authorship entails the following criteria:

1. substantial contributions to the conception or design of the work, or the acquisition, analysis, or interpretation of data for the work;
2. drafting the work or revising it for important intellectual content;
3. final approval of the version to be published;
4. agreement to be accountable for all aspects of the work and ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

- Institutions and departments should have authorship policies. Editors of journals do not adjudicate on authorship disputes and would almost always refer these to the institution/researchers themselves to resolve.
- Authorship should never be gifted and 'ghost' authors are not acceptable. The Authorship of research should be considered at the time of its initiation.
- The primary author should be the person who has done most of the research work related to the manuscript being submitted for publication. Research performed as part of a mandatory requirement of a course/fellowship/training programme including student research should have the candidate as the primary author. All efforts must be made to provide the candidate with an opportunity to fulfil the second, third and fourth criteria of the ICMJE guidelines.

1.5.2 Peer review

Scientific disclosure and progress has been dependent largely on peers evaluating research and judging the quality and utility of conducting and publishing research.

- The present peer review system depends on fairness, honesty and transparency of all stakeholders – editors, reviewers and researchers. It can involve one or more reviewers and should be completed within a reasonable period of time.
- Researchers must avoid mentioning friends, well-wishers and mentors as reviewers and must decline to review research of close associates, friends and students.
- Funding agencies and journals must ask reviewers and researchers to inform them of COI, if any.
- Reviewers must maintain the confidentiality of manuscripts sent to them for review.

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- If reviewers feel they are not competent to review papers, then they should inform editors immediately and should not pass on the manuscripts to friends and colleagues without seeking the consent of the editors.
- Reviewers who are researchers must not misguide editors in an attempt to self evaluate their research (using another email ID and profile).

1.6 Research misconduct and policies for handling misconduct

Research misconduct involves fabrication, falsification and plagiarism of data, which are serious issues both nationally and internationally. See Box 1.4 for further details.

1.6.1 Institutions should develop policies to address scientific/research misconduct.

1.6.2 Research misconduct, if suspected, needs to be investigated. An institution must investigate all allegations of misconduct as present or future participants' lives may be endangered if facts are not presented accurately. Such investigations must be done in a timely, fair and transparent manner and the results should be made available in the public domain.

1.6.3 It is important to establish institutional mechanisms for protection of both the whistle-blower and the person accused of research misconduct. This information must be kept confidential until the enquiry is complete.

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Box 1.4 Types of research misconduct

Research misconduct includes the following:

- Fabrication is the intentional act of making-up data or results and recording or reporting them.
- Falsification is manipulating research materials, equipment or processes, or changing or omitting/suppressing data or results without scientific or statistical justification, such that the research is not accurately represented in the research record.
- Plagiarism is the "wrongful appropriation" and "stealing and publication" of another paper or another author's "language, thoughts, ideas, or expressions" and the representation of them as one's own original work or duplicating one's own publication (self plagiarism).

1.6.4 Simultaneous submission of the same grant application to different funding agencies or submitting papers/overlapping publications to journals is not acceptable, as this could lead to unnecessary duplication in review process or in meta analysis. .

1.7 Registration with Clinical Trials Registry–India

The Clinical Trials Registry–India, linked to WHO registry, was launched on 20 July 2007 by ICMR, as a free and online public record system for registration of clinical trials, PG thesis and other biomedical research being conducted in the country. Trial registration in the CTRI was made mandatory by CDSCO on 15 June 2009 for clinical trials that are registered under the Drugs and Cosmetics Act and its Rules. Registration with CTRI is voluntary for other biomedical and health research. In addition, editors of major biomedical journals of India declared that only trials on any of the public databases would be considered for publication in journals. According to 64th WMA General Assembly, held at Fortaleza, Brazil, in October 2013, the Declaration of Helsinki clearly states that "Every research study involving human subjects must be registered in a publicly accessible database before recruitment of the first subject." Under the aegis of WHO, a joint statement on public disclosure of results from all international trials was signed by ICMR and others in May 2017.

1.7.1 All clinical research involving human participants including any intervention such as drugs, surgical procedures, devices, biomedical, educational or behavioural research, public health intervention studies, observational studies, implementation research and preclinical studies of experimental therapeutics and preventives or AYUSH studies may be registered prospectively with the CTRI.

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1.7.2 Trial registration involves providing information regarding the study, investigators, sites, sponsor, ethics committees, regulatory clearances, disease/condition, types of study, methodologies, outcomes, etc.

1.7.3 Registration of research in CTRI ensures that more complete, authenticated, readily available data on research is available publicly. This improves transparency, accountability and accessibility.

1.8 Collaborative research

Researchers are increasingly collaborating with colleagues who have the expertise and/or for resources needed to carry out particular research. This could be inter-departmental/ inter-institutional or international and also multicentre involving public and/or private research centres and agencies. The main ethical issues surrounding collaborations pertain to sharing techniques, ownership of materials and data, IPRs, joint publications, managing research findings, managing COI and commercializing research outcomes. Researchers should familiarize themselves with all aspects including local, national and international requirements for research collaboration including necessary approvals, memorandums of understanding (MoUs) and material transfer agreements (MTA) and EC approval of collaborating institutes.

1.8.1 Ethical considerations in collaborative research

Collaborative studies should take into account the values/benefits expected from the research as compared to the risks involving the persons/population being studied.

- The participating centres should function as partners with the collaborator(s) and sponsor(s) in terms of ownership of samples and data, analysis, dissemination, publication and IPR as appropriate. There must be free flow of knowledge and capacity at bilateral/multilateral levels.
- Careful consideration should be given to protecting the dignity, rights, safety and well-being of the participants in cases where the social contexts of the proposed research can create foreseeable conditions for their exploitation or increase their vulnerability to harm.
- The nature, magnitude and probability of all foreseeable harm resulting from participation in a collaborative research programme should be specified in the research protocol and well explained to the participants.
- The benefits and burdens should be equally distributed amongst participants recruited by all collaborating institutions.
- All participants in collaborative research should have access to the best nationally available standard of care.

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- If there is exchange of biological material involved between collaborating sites, the EC may require appropriate MoU and/or MTA to safeguard the interests of participants and ensure compliance while addressing issues related to confidentiality, sharing of data, joint publications, benefit sharing, etc.

1.8.2 Responsibilities of ethics committees, researchers and institutions

The review, conduct and monitoring of collaborative research should be overseen and stakeholders must be aware of the requirements of various regulatory and funding agencies.

- An EC should review the protocols in the local social and cultural context and ensure respect for sensitivities and values of participants and communities at collaborative sites.
- A mechanism for communication between the ECs of different participating centres should be established. In case of any conflict, the decision of the local EC based on relevant facts/guidelines/law of the land shall prevail.
- An EC should examine whether the researcher has the required expertise and training in the area of collaboration.
- An EC should protect the interests and rights of the collaborating researcher(s) and ensure that they are not treated as mere collectors of samples or data.
- Participating researchers from collaborating sites should be adequately represented when designing the research proposal.
- Institutions are responsible for fair contract negotiation in collaborative research partnerships (including benefit sharing and avoiding unauthorized use of their expertise, biological samples and data) to safeguard the interests of participants, researchers and institutions.
- Institutions should provide opportunities for collaboration to build capacity and engage in research which is mutually beneficial.

1.8.3 International collaboration

The scope of international collaboration in biomedical and health research has gained such momentum in recent years that it could have potentially exploitative commercial and human dimensions. While on one hand collaboration in medical research could be seen as a humane interest in the health of civil society, on the other hand it could create the impression of exploitation by one country experimenting on the population of another

poorer one. Due to different levels of development in terms of infrastructure, expertise, social and cultural perceptions, laws relating to IPR, ethical review procedures, etc., an ethical framework based on equality and equity is required to guide such collaborations. The same is applicable to research undertaken with assistance and/or collaboration from international organizations (public or private). The collaboration may involve either implementation of multiple components of the research or even a single component like laboratory testing. To undertake a collaborative research in India, our country's ethical guidelines and relevant regulatory requirements should be followed and understood before the sponsor agency/country initiates collaboration.

- Indian participating centres should function as partners with the collaborator(s) and sponsor(s) in terms of ownership of samples and data, analysis, dissemination, publication and IPR related to research in India, as may be considered appropriate.
- There should be good communication between international participating centres and in case of any conflict, the decision of the EC of the Indian participating centre(s), based on relevant facts/guidelines/law of the land, shall prevail.
- The institution should protect against imposition of moral or ethical standards of the sponsoring country (ethical imperialism) which may not be in agreement with India's ethical and regulatory requirements.
- The institution/EC should not accept international proposals which cannot be conducted in the country of origin.
- Researchers and EC members should be trained to understand and recognize ethical perspectives that reflect India's best interests.

The types of international collaborations are mentioned in Box 1.5

Box 1.5 Types of international collaboration

International collaboration can include all or any of the following elements:

- funding by international agencies, such as UN Agencies, NIH, WHO, Wellcome Trust, World Bank and others;
- academic collaborations with foreign institutions, universities, organizations, foundations with or without external funding; and
- formal government inter-country bilateral/multilateral collaborative arrangements between Indian research bodies/institutions and similar bodies/institutions of other countries.

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- All biomedical and health research proposals involving foreign assistance and/or collaboration should be submitted to the Health Ministry's Screening Committee (HMSC) for consideration and approval before initiation.19 The secretariat for HMSC is located at the ICMR Headquarters, New Delhi. As per the requirements of HMSC, all research involving international collaboration – either technical, financial, laboratory or data management must be submitted to HMSC.
- The exchange of material envisaged as part of a collaborative research proposal must be routed through appropriate authorities. While ethical review and approvals are subject to the national regulatory framework, international collaborations are subject to appropriate considerations of universal ethical principles. The finer specifics recommended in the Indian context may vary from other countries and agencies with respect to socio-cultural norms and needs of the country.
- Export of all biological materials will be covered under the existing Government of India (GOI) guidelines for transfer of human biological materials. Research proposals requiring biological material transfer may be considered by the EC on a case-to-case basis. Collaborators should obtain applicable regulatory clearances as mandated by laws such as the Environmental Protection Act, 198620, the Biological Diversity Act, 200221, of Ministry of Environment and Forests, Drugs and Cosmetics Act, 1940, and Rules, 1945, and the relevant amendments. Such exchange of material from and to WHO Collaborating Centres/reference centres for specific purposes, and for individual cases of diagnosis or therapeutic purposes, may not require permission.
- Indian participating centre(s) must have appropriate regulatory approval and registration to receive foreign funds for research.[22]
- Any research involving exchange of biological material/specimens with collaborating institution(s) outside India must sign an MTA justifying the purpose and quantity of the sample being collected and addressing issues related to confidentiality, sharing of data, joint publication policy, IPR and benefit sharing, post analysis handling of the leftover biological materials, safety norms, etc.
- The guidelines, regulations and cultural sensitivities of all countries participating in collaborative research proposals should be respected by researchers in India and the sponsor country. An appropriate MoU should be in place to safeguard mutual interests and ensure compliance.

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INFORMED CONSENT PROCESS

2.0 The researcher must obtain voluntary written informed consent from the prospective participant for any biomedical and health research involving human participants. This requirement is based on the principle that competent individuals are entitled to choose freely whether or not to participate or continue to participate in the research. Informed consent is a continuous process involving three main components – providing relevant information to potential participants, ensuring competence of the individual, ensuring the information is easily comprehended by the participants and assuring voluntariness of participation. Informed voluntary consent protects the individual's freedom of choice and respects the individual's autonomy.

2.1 Requisites

2.1.1 The participant must have the capacity to understand the proposed research, be able to make an informed decision on whether or not to be enrolled and convey her/his decision to the researcher in order to give consent.

2.1.2 The consent should be given voluntarily and not be obtained under duress or coercion of any sort or by offering any undue inducements.

2.1.3 In the case of an individual who is not capable of giving voluntary informed consent, the consent of LAR must be obtained. See section 6 for further details.

2.1.4 It is mandatory for a researcher to administer consent before initiating any study related procedures involving the participant.

2.1.5 It is necessary to maintain privacy and confidentiality of participants at all stages.

2.2 Essential information for prospective research participants

2.2.1 Before requesting an individual's consent to participate in research, the researcher must provide the individual with detailed information and discuss her/his queries about the research in the language she/he is able to understand. The language should not only be scientifically accurate and simple, but should also be sensitive to the social and cultural context of the participant.

The ICD has two parts – patient/participant information sheet (PIS) and the informed consent form (ICF). Information on known facts about the research, which has relevance to participation, is included in the PIS. This is followed by the ICF in which the participant acknowledges that she/he has understood the information given in the PIS and is volunteering to be included in that research.

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Box 2.1 Essential and additional elements of an informed consent document

An informed consent form must include the following:	**In addition, the following elements may also be required, depending on the type of study:**
1. Statement mentioning that it is research 2. Purpose and methods of the research in simple language 3. Expected duration of the participation and frequency of contact with estimated number of participants to be enrolled, types of data collection and methods 4. Benefits to the participant, community or others that might reasonably be expected as an outcome of research 5. Any foreseeable risks, discomfort or inconvenience to the participant resulting from participation in the study 6. Extent to which confidentiality of records could be maintained, such as the limits to which the researcher would be able to safeguard confidentiality and the anticipated consequences of breach of confidentiality 7. Payment/reimbursement for participation and incidental expenses depending on the type of study 8. Free treatment and/or compensation of participants for research-related injury and/ or harm 9. Freedom of the individual to participate and/or withdraw from research at any time without penalty or loss of benefits to which the participant would otherwise be entitled 10. The identity of the research team and contact persons with addresses and phone numbers (for example, PI/Co PI for queries related to the research and Chairperson/Member Secretary/ or helpline for appeal against violations of ethical principles and human rights)	1. Any alternative procedures or courses of treatment that might be as advantageous to the participant as the ones to which she/he is going to be subjected 2. If there is a possibility that the research could lead to any stigmatizing condition, for example HIV and genetic disorders, provision for pre- test- and post-test counselling 3. Insurance coverage if any, for research-related or other adverse events. 4. Foreseeable extent of information on possible current and future uses of the biological material and of the data to be generated from the research. Other specifics are as follows: i. period of storage of the sample/data and probability of the material being used for secondary purposes. ii. whether material is to be shared with others, this should be clearly mentioned. iii. right to prevent use of her/his biological sample, such as DNA, cell-line, etc., and related data at any time during or after the conduct of the research. iv. risk of discovery of biologically sensitive information and provisions to safeguard confidentiality. v. post research plan/benefit sharing, if research on biological material and/or data leads to commercialization. vi. Publication plan, if any, including photographs and pedigree charts. See section 11 for further details.

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2.2.2 Adequate time should be given to the participant to read the consent form, if necessary discuss it with family and friends, and seek clarification of her/his doubts from the researchers/research team before deciding to enroll in the research.

2.2.3 Essential elements of an informed consent document are given in Box 2.1.

2.3 Responsibility of researchers

2.3.1 The researcher should only use the EC approved version of the consent form, including its local translations.

2.3.2 Adequate information necessary for informed consent should be communicated in a language and manner easily understood by prospective participants.

2.3.3 In case of differently abled participants, such as individuals with physical, neurological or mental disabilities, appropriate methods should be used to enhance the participants' understanding, for example, braille for the visually impaired.

2.3.4 There should be no restriction on the participant's right to ask questions related to the study or to discuss with family and friends or take time before coming to a decision.

2.3.5 The researcher should not give any unjustifiable assurances or influence or intimidate a prospective participant to enroll in the study.

2.3.6 The researcher must ensure that the participant is competent and has understood all aspects of the study and that the consent is given voluntarily. Where the participant and/or the LAR are illiterate, an impartial literate person, not connected to the research, should be present throughout the consent process as witness.

2.3.7 The researcher should administer a test of understanding whenever possible for sensitive studies. If need be, the test may be repeated until the participant has really understood the contents.

2.3.8 When a participant is willing to participate but not willing to sign or give a thumb impression or cannot do so, then verbal/oral consent may be taken on approval by the EC, in the presence of an impartial witness who should sign and date the consent document. This process can be documented through audio or video recording of the participant, the PI and the impartial witness, all of whom should be seen in the frame. However, verbal/oral consent should only be taken in exceptional circumstances and for specific, justifiable reasons with the approval of the EC. It should not to be practiced routinely.

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2.3.9 Reconsent or fresh informed consent of each participant must be taken under circumstances described in section 2.8.

2.3.10 The researcher must assure prospective participants that their decision whether or not to participate in the research will not affect their rights, the patient–clinician relationship or any other benefits to which they are entitled.

2.3.11 Reimbursement may be given for travel and incidental expenses/participation in research after approval by the EC.

2.3.12 The researcher should ensure free treatment for research related injury (disability, chronic life-threatening disease and congenital anomaly or birth defect) and if required, payment of compensation over and above medical management by the investigator and/institution and sponsor(s), as the case may be.

2.3.13 The researcher should ensure that the participant can continue to access routine care even in the event of withdrawal of the participant.

2.4 Documentation of informed consent process

Documentation of the informed consent process is an essential part of this exercise.

2.4.1 Each prospective participant should sign the informed consent form after going through the informed consent process of receiving information, understanding it and voluntarily agreeing to participate in the research.

2.4.2 In case the participant is incompetent (medically or legally) to give consent, the LAR's consent must be documented.

2.4.3 The process of consent for an illiterate participant/LAR should be witnessed by an impartial literate witness who is not a relative of the participant and is in no way connected to the conduct of research, such as other patients in the ward who are not in the study, staff from the social service department and counsellors. The witness should be a literate person who can read the participant information sheet and consent form and understand the language of the participant.

2.4.4 If the participant cannot sign then a thumb impression must be obtained.

2.4.5 The researcher who administers the consent must also sign and date the consent form.

2.4.6 In the case of institutionalized individuals, in addition to individual/LAR consent, permission for conducting the research should be obtained from the head of that institution.

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2.4.7 In some types of research, the partner/spouse may be required to give additional consent.

2.4.8 In genetic research, other member of a family may become involved as secondary participants if their details are recorded as a part of the family history. If information about the secondary participants is identifiable then their informed consent will also be required.

2.4.9 Online consent may be obtained, for example, in research involving sensitive data such as unsafe sex, high risk behaviour, use of contraceptives (condoms, oral pills), or emergency contraceptive pills among unmarried females in India etc. Investigators must ensure that privacy of the participant and confidentiality of related data is maintained.

2.5 Electronic consent

2.5.1 Electronic media can be used to provide information as in the written informed consent document, which can be administered and documented using electronic informed consent systems. These are electronic processes that use various, and possibly multiple, electronic formats such as text, graphics, audio, video, podcasts or interactive websites to explain information related to a study and to document informed assent/consent from a participant or LAR.

2.5.2 The process, electronic materials, method of documentation (including electronic/ digital signatures), methods used to maintain privacy of participants, confidentiality, and security of the information as well as data use policies at the research site must be reviewed and approved by the EC a priori.

2.5.3 The electronic consent must contain all elements of informed consent in a language understandable by the participant. See Box 2.1 for further details.

2.5.4 The PI or her/his designee must supervise the process.

2.5.5 In addition to electronic consent, if required a paper/soft copy of the document is needed for archiving and a paper/soft copy is also given to the participant.

2.5.6 Interactive formats, if used, should be simple to navigate.

2.5.7 Electronic methods should not be used if participants, for any reason, indicate a lack of comfort with electronic media.

2.5.8 Such tools may be reviewed and approved by EC before implementation.

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2.6 Specific issues in Clinical trials

2.6.1 There may be additional requirements for informed consent for clinical trials as specified by CDSCO.

2.7 Waiver of consent

The researcher can apply to the EC for a waiver of consent if the research involves less than minimal risk to participants and the waiver will not adversely affect the rights and welfare of the participants Box 2.2.

Box 2.2 Conditions for granting waiver of consent

The EC may grant consent waiver in the following situations:

- research cannot practically be carried out without the waiver and the waiver is scientifically justified;
- retrospective studies, where the participants are de-identified or cannot be contacted;
- research on anonymized biological samples/data;
- certain types of public health studies/surveillance programmes/programme evaluation studies;
- research on data available in the public domain; or
- research during humanitarian emergencies and disasters, when the participant may not be in a position to give consent. Attempt should be made to obtain the participant's consent at the earliest.

2.8 Re-consent or fresh consent:-

Re-consent is required in the following situations when:

- new information pertaining to the study becomes available which has implications for participant or which changes the benefit and risk ratio;
- a research participant who is unconscious regains consciousness or who had suffered loss of insight regains mental competence and is able to understand the implications of the research;
- a child becomes an adult during the course of the study;
- research requires a long-term follow-up or requires extension;
- there is a change in treatment modality, procedures, site visits, data collection methods or tenure of participation which may impact the participant's decision to continue in the research; and
- there is possibility of disclosure of identity through data presentation or photographs (this should be camouflaged adequately) in an upcoming publication.

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- the partner/spouse may also be required to give additional re-consent in some of the above cases.

3.9 Procedures after the consent process

3.9.1 After consent is obtained, the participant should be given a copy of the PIS and signed ICF unless the participant is unwilling to take these documents. Such reluctance should be recorded.

3.9.2 The researcher has an obligation to convey details of how confidentiality will be maintained to the participant.

3.9.3 The original PIS and ICF should be archived as per the requirements given in the guidelines and regulations.

3.10 Special situations

3.10.1 Gatekeepers

Permission of the gatekeepers, that is, the head/leader of the group or culturally appropriate authorities, may be obtained in writing or audio/video recorded on behalf of the group and should be witnessed.

3.10.2 Community consent

In certain populations, the community plays an important role in the consent process. Some participants may not participate in the research unless the community's consent is available. There may be situations when individual consent cannot be obtained as it will change the behaviour of the individual. In such situations community consent is required. When permission is obtained from an organization that represents the community, the quorum required for such a committee must be met. For example, in a village panchayat the number of members ordinarily required to conduct a meeting must be present while giving consent. Individual consent is important and required even if the community gives permission.

3.10.3 Consent from vulnerable groups

Vulnerable persons are those individuals who are relatively or absolutely incapable of protecting their own interests and providing valid informed consent. The list of vulnerable populations/communities.

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3.11 Consent for studies using deception

Some types of research studies require deception due to nature of research design. A true informed consent may lead to modification and may defeat the purpose of research. Such research may be carefully reviewed by the EC before implementation.

3.11.1 True informed consent in studies involving deception is difficult due to the nature of research. A two-step procedure may be required comprising an initial consent and a debriefing after participation.

3.11.2 The possibility of unjustified deception, undue influence and intimidation should be avoided at all costs. Although deception is not permissible, approval may be taken from the EC in circumstances where some information requires to be withheld for validation until the completion of the research.

3.11.3 In such instances, an attempt should be made to debrief the participants/communities after completion of the research.

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CLINICAL TRIALS OF DRUGS AND OTHER INTERVENTIONS

3.0 A clinical trial is any research/study that prospectively assigns human participants or groups of humans to one or more health-related intervention(s) to evaluate the effects on health outcomes. The intervention could be drugs, vaccines, biosimilars, biologics, phytopharmaceuticals, radiopharmaceuticals, diagnostic agents, public health interventions, socio-behavioural interventions, technologies, devices, surgical techniques or interventions involving traditional systems of medicine, etc.

Clinical trials are usually well-controlled studies. They use a design that allows comparison of participants treated with an investigational product (IP)/any intervention to a control population (receiving placebo or an active comparator), so that the effect of the IP/intervention can be determined and differentiated from effects of other influences, such as spontaneous change, placebo effect, concomitant treatment/intervention or observer expectations.

As per the amended Schedule Y (2005) of the Drugs and Cosmetics Rules, 1945, a clinical trial refers to a systematic study of new drugs on human subjects to generate data for discovering and/or verifying the clinical, pharmacological (including pharmaco dynamic and pharmacokinetic) and/or adverse effect with the objectives determining safety and/or efficacy of a new drug. The academic clinical trial as per GSR 313 (E) dated 16 March 201627 is a clinical trial intended for academic purposes in respect of approved drug formulations for any new indication or new route of administration or new dose or new dosage form. An EC has to approve such studies after due consideration of benefits and risks and all other ethical aspects and the licensing authority has to be informed as per the prescribed procedures.

3.1 General guidelines

3.1.1 All clinical trials must be planned, conducted and reported in a manner that ensures that the dignity, rights, safety and well-being of participants are protected.

3.1.2 Before a trial is initiated, foreseeable risks and inconveniences should be weighed against the anticipated benefit (direct or indirect) for the individual trial participant and/or society. A trial should be initiated and continued only if the anticipated benefits justify the risks.

3.1.3 All clinical trials must be conducted in accordance with the Indian GCP guidelines, the Declaration of Helsinki (2013 or later versions as applicable), National Guidelines for Biomedical and Health Research Involving Human Participants (2017), the Drugs and Cosmetics Act (1940), and Rules (1945), and applicable amendments (including Schedule Y), and other relevant regulations and guidelines, wherever applicable.

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3.1.4 A participant's right to agree or decline consent to take part in a clinical trial must be respected and her/his refusal should not affect routine care.

3.1.5 At all times, the privacy of a participant must be maintained and any information gathered from the participant be kept strictly confidential.

3.1.6 Therapeutic misconception in potential participants must be avoided (for example, by having a co-investigator who is not the primary treating physician administer the consent).

3.1.7 At least one member of the research team must have the qualifications and adequate research experience in the subject on which the trial is planned.

3.1.8 All clinical trials must be approved by an EC that is constituted and functions in accordance with these guidelines and applicable regulations.

3.1.9 Applicable regulatory approvals must be taken (if required).

3.1.10 All clinical trials must be registered with the Clinical Trial Registry -India (CTRI).

3.1.11 Written informed consent must be obtained from each participant before any research related procedure is performed.

3.1.12 If the trial is planned in a vulnerable population, it should be undertaken only with due justification and with all possible participant protections in place.

3.1.13 Procedures to assure the quality of every aspect of the trial should be implemented.

3.1.14 SAEs must be reported for all trials and if applicable timelines as specified by regulators to be followed (within 24 hours to the sponsor, EC and regulator, if applicable, followed by a due analysis report in 14 days).

3.1.15 Free medical management of AEs and SAEs, irrespective of relatedness to the clinical trial, should be given for as long as required or till such time as it is established that the injury is not related to the clinical trial, whichever is earlier.

3.1.16 In addition, compensation must be given if the SAE is proven to be related to the trial.

3.1.17 Ancillary care may be provided to clinical trial participants for non-study/trial related illnesses arising during the period of the trial. This could be in the form of medical care or reference to facilities, as may be appropriate.

3.1.18 Institutional mechanisms must be established to allow for insurance coverage of trial related or unrelated illnesses (ancillary care) and compensation wherever deemed necessary by the EC.

3.2 Clinical drug/vaccine development

3.2.1 The broad aim of the process of clinical development of a new drug or vaccine, (referred to as an IP) is to find out whether there is a dose range and schedule at which the drug can be shown to be simultaneously safe and effective, to the extent that the benefit–risk relationship is acceptable. Phases of drug development are given in Box 3.1

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Box 3.1 Phases of drug development

Phase 0

A Phase 0 study is an exploratory study, conducted to find out whether an investigational new drug (IND) can modulate its intended target in human beings, and to identify its distribution in the body, or describe its metabolism. This study involves very limited human exposure, and has no therapeutic or diagnostic intent. It is conducted early in the process of drug development and allows for human use of an IND with less preclinical data and in lower doses than is required for a conventional Phase I study. This is invariably part of a regulatory study.

Phase I

Phase I starts with the initial administration of an investigational new drug/vaccine into humans. These studies usually have non-therapeutic objectives. Phase I studies are conducted on healthy participants or patients, in the case of drugs with significant potential toxicity, such as cytotoxic drugs.

Studies conducted in Phase I typically involve:

a. estimation of initial safety and tolerability;
b. pharmacokinetics;
c. assessment of pharmacodynamics (biological effects for vaccines); or early measurement of drug activity (including immunogenicity in case of vaccines).

Phase II

Phase II starts with the initiation of studies in which the primary aim is to explore therapeutic efficacy (immunogenicity in case of vaccines) in patients/participants. Phase II studies are conducted on a group of patients or participants who are selected according to relatively narrow criteria, and are closely monitored. Early studies in Phase II are designed to estimate the dose response. Later studies are planned to confirm the dose response.

Phase III

Phase III begins with the initiation of studies in which the primary objective is to demonstrate or confirm therapeutic benefit or protection rate (in case of vaccines). Such studies are:

a. designed to confirm the evidence from Phase II studies about the safety and efficacy of a drug or vaccine for use in the intended indication and recipient population;
b. planned to provide an adequate basis for impact on clinical practice or for obtaining marketing approval, where applicable;
c. conducted to explore new uses of an already marketed drug for a new indication, dosage form, dosage regimen, or route of administration. If such studies are intended for ultimate commercial use of the drug, they require regulatory approval. Research on off label use comes under this category. See section 7.16.4 for further details; and
d. planned as bridging trials and pivotal trials.

Phase IV

Phase IV begins after product approval and is related to the use of the intervention for the approved indications. These studies are important for optimizing the use of the product. They may include:

a. post-marketing surveillance – the practice of monitoring the safety of a product after it has been released in the market;
b. Phase IV clinical trials – a study conducted to assess safety, tolerability and effectiveness of a marketed product when prescribed in the usual manner in accordance with the terms of the marketing authorization, such as the efficacy and safety in special populations.
c. outcomes research – which aim to study the effectiveness and efficiency of the intervention after its introduction for human use; and
d. registries – which propose to maintain data about patients with certain shared characteristics and who have received a particular intervention (for example a stent) that collects ongoing and supporting data over time on well-defined outcomes of interest.

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Ethical considerations

All clinical trials should be scientifically and ethically sound. The sponsor of the study, the researcher, institution, EC, and regulatory authority (if applicable) are responsible for ethical conduct of a study. Before any clinical trial is initiated, adequate data from preclinical investigations or previous clinical studies should be generated and be sufficient to indicate that the intervention is acceptably safe for the proposed investigation in humans.

The investigator should make an assessment to determine if a clinical trial is under the regulatory ambit and if so, to ensure that all requirements as specified by CDSCO must also be followed. If required, the EC may provide relevant guidance to the members in deciding the same.

- Phase I (for drugs and vaccines) studies
    - All Phase I trials require EC approval and applicable regulatory approvals.
    - A Phase I study is a non-therapeutic trial in which there is no anticipated direct clinical benefit to the participant. In general, therefore, it should be conducted in participants who can give voluntary informed consent themselves and who can sign and date the written informed consent forms themselves, unless the therapy under investigation is for diseases specific to those who cannot give consent, such as children, in which case consent of the LAR may be taken.
    - As Phase I studies are most often conducted in healthy volunteers, all safeguards to protect the participants must be established, especially recruitment methods, payment for participation, evidence of non-coercion and consent procedures.
    - When a Phase I study is conducted in participants with a disease such as cancer, due consideration should be given to the seriousness of the medical condition and the study procedures planned.
    - The study protocol should describe measures to minimize the risks of a Phase I clinical trial in healthy volunteers and patients. These include, but are not limited to, the measures given in Box 3.2

Box 3.2 Risks of Phase I clinical trials

The measures to be taken to minimize risks in a Phase I clinical trial include:

- exclusion of participants who may be at increased risk from the study;
- careful review of investigational procedures posing high risk of physical harm or serious discomfort;
- evaluation of available data to decide if the IP or procedures proposed in the protocol have been associated with SAEs and steps taken to prevent or minimize such risks; and
- careful monitoring of the condition of participants and intervention to manage adverse events.

    - A Phase I study unit must have robust resources and tested procedures for immediate resuscitation and maintenance of life support and onward transfer to an intensive care unit, if necessary.

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- A Phase I study with a high-risk IP, such as first-in-human, biologic shouldbe carried out in a hospital where experienced personnel and facilities are immediately available to manage medical emergencies.
- Medical pharmacologist/physicians trained in clinical pharmacology should be involved in Phase I studies.

- Phase II, III and IV studies
  - All Phase II and III studies require EC approval and applicable regulatory approvals.
  - In the case of Phase IV studies, the following are some examples of studies that require EC approval:
    1. Phase IV clinical trials
    2. Outcome research
    3. Registries
    4. Data that is used to answer any research question
    5. New use/route/dose/dosage form/combination/regimen of a marketed drug for non-commercial purpose such as academic research
  - In addition to EC approval, a Phase IV clinical trial on drugs with a market authorization of less than 4 years requires regulatory approval (CDSCO).
  - Routine post-marketing surveillance (PMS) may not require EC approval. See Box 3.1 for further details.
- **Vaccine studies**
  - Vaccines can be prophylactic and/or therapeutic in nature. The guidelines for conducting clinical trials on investigational vaccines are similar to those governing a drug trial. However, the phases of these trials differ from drug trials as given below:
  - Phase I is for the study of dose and route of administration for determining its safety and biological effects, including immunogenicity, and should involve low risk.
  - Bridging studies in vaccine trials are conducted to support clinical comparability of efficacy, safety and immunogenicity of new formulations when there is a change in vaccine composition with regard to adjuvant, preservative, or a change in manufacturing process, site or scale. These are performed either before or after product licensure.
  - Combination vaccines – The main goal in efficacy trial design of such vaccines is to evaluate the efficacy of each antigenic component. Non-inferiority trials should be conducted to demonstrate that the combination vaccine is not inferior in terms of immunogenicity or efficacy to vaccines with individual components.
  - Vaccines administered simultaneously with combination vaccines – Immunogenicity and safety data should be obtained in Phase III (pre-licensure) studies to support the simultaneous administration of a new vaccine with already licensed vaccines that would be given to the same target population using the same (or overlapping) schedule. Types of vaccines are listed in Box 3.3.

Box 3.3 Types of vaccines

- Live and attenuated vaccines (measles, mumps, rubella and chickenpox)
- Inactivated vaccine (flu vaccine)
- Toxoid vaccines (diphtheria and tetanus vaccines)
- DNA vaccines
- Recombinant vector vaccines

- Some vaccines that contain active or live (attenuated) micro-organisms can possibly possess a small risk of producing that particular infection. The participant to be vaccinated should be informed of this.
- The participants in control groups, or when subjected to ineffective vaccines, run a risk of contracting the disease. In such an event, provisions be made to provide free treatment for the disease.
- For recombinant DNA vaccines and products, applicable governmental guidelines and regulations should be followed.
- Post-trial, the control group should receive the complete dose of an effective vaccine (either one that is already available or the investigational vaccine).

3.3 Bioavailability/bioequivalence study

Bioavailability (BA) is the measurement of the proportion of the total administered dose of a therapeutically active drug that reaches the systemic circulation and is therefore available at the site of action.

Bioequivalence (BE) is a term used in pharmacokinetics when there are two or more medicinal products (proprietary preparations of a drug), containing the same active substance that need to be compared in vivo for biological equivalence. These comparative studies are used to assess if the new version (generic) produces the same concentration in the systemic circulation when given to human participants. If two products are said to be bioequivalent it means that they would be expected to be, for all intents and purposes, the same.

BE studies are used as surrogates for clinical effectiveness data for generic drugs where no clinical difference is anticipated between the two products.

3.3.1 Ethical issues

- All BA/BE studies should be scientifically sound and conducted in compliance with principles of ethical conduct described earlier for a Phase I study.
- Ethical conduct of BA/BE study requires evaluation of the benefit–risk profile of:
  a. the reference (comparator) and investigational (generic) product; and
  b. the study procedures such as indoor stay, fasting, screening, blood sampling.
- BA/BE studies are usually conducted in healthy volunteers. Hence, they have no direct benefit to the participant but may pose risks due to the adverse effects of the drug. Therefore, all safeguards to protect participants must be in place.
- The EC must carefully review the recruitment methods, payment for participation and consent procedures. Volunteers often regularly participate in such studies at the cost of their health and care should be taken that taking part in multiple trials is avoided by maintaining volunteer registries, biometry, follow up, etc. Care must be taken to maintain confidentiality of biometric data.
- The amount of blood drawn for a BA/BE study should be within physiological limits irrespective of study design and the EC should take specific note on the

amount of blood drawn depending on whether the individual is a healthy adult or a child or a patient.

3.4 Ethical implications of study designs

Clinical trials have a wide range of methodological approaches. ECs need to look into the details of the ethical concerns involved.

3.4.1 If a SAE occurs in a blinded study, and it is imperative, in the interest of managing the event to know what the patient was receiving, unblinding mechanisms should be available to the researcher.

3.4.2 When an available therapy is effective in preventing serious harm, such as death or irreversible morbidity in the clinical trial population, it is inappropriate to use a placebo control.

3.4.3 Placebo may be used as a comparator under the conditions given in Box 3.4

Box 3.4 Conditions where a placebo may be used

A placebo may be used when:

- there is no established effective therapy available;
- withholding an established effective therapy would not expose participants to serious harm, but may cause temporary discomfort or delay in relief of symptoms;
- if the disease is self-limited; or
- the use of an established effective therapy as a comparator would not yield scientifically reliable results and the use of placebo would not add any additional risk of serious or irreversible harm to the participants.

3.4.4 If a placebo must be used for scientific reasons, then certain precautions must be exercised. These should be reviewed and approved by the EC. See Box 3.5 for further details.

Box 3.5 Precautions to be taken when a placebo is used

1. The protocol must have added safeguards to protect participants from harm, such as but not restricted to having clear-cut withdrawal criteria, intensive monitoring and rescue medications.
2. Use an add-on trial design where the IP or placebo are added to standard of care.
3. Expose fewer patients to placebo groups, for example by having 2:1 randomization with 2 participants receiving IP against 1 getting placebo (unbalanced randomization).
4. An active comparator as an additional arm may also be included in such trials where randomization can be, for example, 2:2:1 (IP: active comparator: placebo).
5. Ensure transition to standard of care/active medicine for study participants after research is completed, including post-trial arrangements for implementing any positive trial results.

3.5 Multicentric trials

Multicentric trials are carried out with a primary aim of providing a sound basis for the subsequent generalization of its results.

3.5.1 ECs of all sites should follow all applicable regulatory guidelines, including registration with regulating bodies.

3.5.2 The ethical review procedure for common review of multicentric research is given in section 4.10. Not applicable for clinical trials under Drugs and Cosmetic Act.

3.6 Phytopharmaceutical drugs

The Drugs and Cosmetics Rules, 8th Amendment, 2015, defines a new class of drugs called phytopharmaceutical drug as "purified and standardized fraction with defined

minimum four bio-active or phyto-chemical compounds (qualitatively and quantitatively assessed) of an extract of a medicinal plant or its part, for internal or external use of human beings or animals for diagnosis, treatment, mitigation or prevention of any disease or disorder but does not include administration by parenteral route". All details described in 3.2 also apply to this group of drugs.

3.7 Device trials

3.7.1 A medical device is defined as a medical tool which does not achieve its primary intended action in or on the human body by pharmacological, immunological, or metabolic means but which may be assisted in its intended function by such means. It may be an instrument, apparatus, appliance, implant, material or other article, whether used alone or in combination, including a software or an accessory, intended by its manufacturer to be used specially for human beings or animals for one or more of the specific purposes of:

(i) detection, diagnosis, prevention, monitoring;
(ii) treatment or alleviation of any physiological condition or state of health, or illness;
(iii) replacement or modification or support of the anatomy or congenital deformity;
(iv) supporting or sustaining life;
(v) disinfection of medical devices; or
(vi) Control of conception.

- Clinical trials should be conducted in accordance with the ethical principles described in these guidelines, Indian GCP as well as applicable regulations for medical and medicated devices, that is, GSR 78 (E) dated 31.1.2017 or as per amendments/modifications issued from time-to-time.
- Safety data of the medical device in animals should be obtained and likely risks posed by the device should be considered in the same way as for a new drug under the Drugs and Cosmetics Rules, 1945.
- Apart from safety considerations of the device, the procedures to introduce the medical device in the patient should also be evaluated for safety.
- Devices should be provided free of cost or, if expensive, at feasible reduced rates.
- Avoid therapeutic misconceptions.
- Any AE/SAE should be reported within timelines as per the schedule for a new drug. Here user error could also be the cause of AE/SAE.
- If the participant wants to withdraw from a trial, it may not be possible to remove the internal device. This must be explained to the participant before enrolling her/him. The participant, however, should be allowed to opt out of continuing in the trial without prejudice to her/his ongoing treatment.
- If feasible, post-trial obligations should be emphasized with the sponsor.
- The duration of follow-up should be long enough to detect late onset adverse reactions, especially when the device is implanted within the body.

3.7.2 Devices could be used internally or externally for diagnosis, treatment, mitigation or prevention of disease or disorder. Depending upon risks involved, devices (other than in vitro diagnostic devices) are classified as given in Table 3.1:

Table 3.1 Classification of medical devices

Class	Level of risk	Device examples
A	Low	Thermometers/ bandages /tongue depressors
B	Low–moderate	Hypodermic needles /suction equipment
C	Moderate–high	Lung ventilator /bone fixation plate
D	High	Heart valves/implantable defibrillator

3.7.3 Devices used for in vitro diagnosis could be a reagent, calibrator, control material, kit, instrument, apparatus, equipment, system, or specimen receptacle, whether used alone or in combination with any other such devices, that is intended by its manufacturer to be used in vitro for examination of any specimen, including any blood or tissue donation derived from the human body solely or principally for the purpose of providing information. The information could be related to:

(i) a physiological or pathological state;
(ii) congenital deformity;
(iii) determining the safety and compatibility of any blood or tissue donation with a potential recipient thereof; or
(iv) Monitoring of therapeutic measures.

- Diagnostics devices can be notified and non-notified. Notified are in vitro diagnostic devices for testing HIV, HBsAg, HCV and blood grouping. Non-notified are those for testing malaria, TB, dengue, chikungunya, typhoid, syphilis, cancer markers, etc.

3.8 Biologicals and biosimilars

Biologics (biopharmaceutical drug) can be composed of sugars, proteins, nucleic acids or complex combinations of these substances, or may be living cells or tissues. This section applies to products that are produced by means of biological processes with or without recombinant DNA technology. All aspects that are described in section 3.1 are also applicable to biologics.

3.8.1 As these are biologic substances, special care must be taken to review all data generated. Special expertise may be sought for such reviews so that foreseeable risks are well identified.

3.8.2 A thorough benefit-risk assessment must be carried out with available data.

3.8.3 If the study involves biosimilars, the product quality (manufacturing and characterization), preclinical data and bioassay must demonstrate similarity with a reference biologic.

3.8.4 All applicable and current regulations must be followed.

3.9 Clinical trials with stem cells

In recent years, stem cell research has undergone rapid developments promising new leads in the treatment of several incurable diseases. According to the source and degree of expected risk to human participants, stem cell research is categorized into permissible (adult and cord blood), restricted (embryonic) and prohibited (reproductive cloning) areas of research. In India, only permissible and restricted

areas of research are permitted with appropriate approvals. It is necessary to ensure that donors are not exploited and commodified.

To address issues related to stem cell research, ICMR and DBT published Guidelines for Stem Cell Research and Therapy in 2007, 2013 and revised as National Guidelines for Stem Cell Research in 2017.

3.9.1 Except haemopoietic stem cell transplantation for haematological disorders, any other uses of stem cells are categorized as research and must be conducted as clinical trials, needing the approval of the EC, IC-SCR (permissible research), National Apex Committee for Stem Cell Research and Therapy (NAC-SCRT) (restricted research) and CDSCO (IND products and drugs) as the case may be. Use of stem cells outside the domain of a clinical trial for any purpose is considered unethical and hence not permissible.

3.9.2 Clinical trials must be carried out with clinical grade cells processed as per applicable national Good Laboratory Practices (GLP), Good Manufacturing Practices (GMP), and GCP guidelines.

3.9.3 Each institution should maintain a registry of researchers who are conducting stem cell research. Researcher must be kept updated in accordance with changes in guidelines and regulations regarding use of these cells. It is also the responsibility of the institution to ensure that all current standards are applied.

3.9.4 All clinical trials must be approved by IC-SCR, which in turn should be registered with NAC-SCRT. All such studies should also be registered with CTRI. The EC should give final approval before initiation of the clinical trial.

3.10 Surgical interventions

Surgical interventions that are being studied systematically must be considered as research and follow all general principles described in these guidelines.

3.10.1 In any protocol where an established surgical intervention is to be studied, the researcher must provide references for the procedure and describe the most likely complications in the protocol for the EC to review and perform benefit-risk assessment. The frequency of each complication should also be mentioned.

3.10.2 In trials where a modification of the established surgical intervention is to be tested, the protocol and ICD must specify the need for this modification and the expected complications, if any. It is preferable that a comparative study be conducted where the conventional method is compared to the test surgical intervention.

3.10.3 In trials where an entirely new surgical intervention is being tested, the EC may insist on some animal data/modeling data which establishes the efficacy and safety of the technique or case reports/case series that indicate benefits and describe risks.

3.10.4 During the conduct of a surgical interventional trial all adverse events must be reported to the EC and sponsor as applicable, within the specified timelines as described for drug trials.

3.10.5 Provision of free treatment and compensation for any study-related injury must be ensured for the trial participant. The EC must determine the compensation amount after the investigator has described the relatedness.

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3.10.6 Due to inherent ethical issues, sham surgery should not be included in the design of clinical trials, except in cases where there are strong scientific reasons. Under such circumstances, certain conditions must be met. See Box 3.6 for further details.

Box 3.6 Conditions for sham surgery

1. There has to be a clear description of the justifications to include a sham surgery group in the protocol, which must be assessed by the EC.
2. There should be no serious harm caused by the sham surgery.
3. The participant must get access to appropriate, relevant intervention at the end of the trial.

3.11 Community trials (public health interventions)

Community trials are studies involving whole communities and are conducted to evaluate preventive strategies like mass drug administration (MDA) trials, fortification of food, etc. Such studies typically involve the whole community. The study unit could be a group, area, institution, village, block, district, etc. and the whole population is expected to participate in the study. In such studies, different communities are randomized and allocated to different arms.

3.12 Clinical trials of interventions in HIV/AIDS

Clinical trials in HIV positive patients could be for the evaluation of new drugs, vaccines, other preventive measures and diagnostic tests. Apart from the general ethical principles that apply to all clinical trials, some special issues need to be addressed when clinical trials are planned in patients with HIV/AIDS. Social stigma, culturally embedded myths about HIV, marginalization, lack of legal status or criminalization of some communities that are susceptible to HIV or the disparity in standards of care in different parts of the world are examples of special issues.

3.12.1 Global studies in HIV/AIDS in specific communities should receive approval from the relevant national authority and any other relevant authority, such as the HMSC, where applicable, in addition to approval from the EC.

3.12.2 When testing for HIV is done, consent and pre-test- and post-test counselling should be done as per National AIDS Control Organization (NACO) guidelines.

3.12.3 Issues that may arise because of discordant couples should be addressed before initiating any study in people living with HIV/AIDS.

3.12.4 As HIV is a sexually transmitted disease and is potentially life-threatening, the right to life of the sexual partner must be respected over the right to privacy of the HIV positive individual.

3.12.5 Phase I studies are permissible in patients with HIV/AIDS if the drug under study cannot be tested in healthy participants due to expected toxicity of the IP.

3.12.6 A combined Phase I/II or Phase II study can be conducted in this population when other therapeutic options have been exhausted.

3.12.7 When a trial with a preventive HIV vaccine is conducted, it can result in positive serology. This does not indicate HIV infection but can create problems for travel and employment. Under such circumstances, the project investigator should issue a certificate stating that the person in question was a participant in a vaccine trial and provide clarification on the result.

3.12.8 Research that involves sexual minorities or IV drug users should have community engagement (community leaders) throughout the life of the project, until completion and dissemination of results.

3.12.9 The EC may also consider co-opting a member from this community, if relevant for initial and continuing review of proposals.

3.12.10 Where possible, for example, if the drug is found useful, standard of care is not available or regulatory permissions are in place, the EC should ensure post-trial access of the IP for the participants.

3.12.11 For HIV positive persons, any research may be misconstrued as research on anti-HIV treatment and make them willing to participate. Therefore, the full implications in simple terms should be explained to HIV positive participants about any other research being done on them, such as research on hepatitis B.

3.13 Clinical trials on traditional systems of medicine

Although traditional systems of medicine (termed complementary and alternate systems in the west) are known for their long history of safe and effective use, validation of safety and efficacy using scientific and evidence-based methodologies is needed for the purpose of universal acceptability, gaining confidence of practitioners and satisfaction of end users in the products. Government of India has recognized Ayurveda, Siddha, Unani, Yoga, Naturopathy and Homeopathy as traditional Indian systems of medicine. In 2012, Sowa Rigpa (Amchi or Tibetan medicine) was also added to the list. Ministry of AYUSH (Ayurveda, Unani, Siddha and Homeopathy) governs and regulates these systems. Drugs under these systems come under the Drugs and Cosmetics Act, 1940, as ASU and H drugs. Drugs/formulations under these systems of medicine are classified into two groups. See Box 3.7 for further details:

3.13.1 Research on AYUSH and ASU interventions of traditional medicines (TM) including external medicines/therapeutic procedures, folk medicines, and patent and proprietary medicines of TM involving human participants should be conducted in accordance with all the ethical principles described in these guidelines including SAE reporting and compensation, AYUSH GCP guidelines, as well as other applicable regulations of the country.

Box 3.7 Classification of drugs/formulation under AYUSH

1. Classical preparations/formulations are those that are to be clinically evaluated for the same indication for which it is being used or as has been described in classical authoritative texts. These classical drugs are manufactured and named in accordance with the formulations described in the authoritative texts.
2. Patent or proprietary products are formulations containing only such ingredients mentioned in the formulae described in the authoritative books of Ayurveda (or Yoga, Naturopathy, Unani, Siddha, Homoeopathy, SOWA–RIGPA systems, as the case may be), medicine specified in the first schedule, but differ to create a new combination, or use innovation or invention to manufacture products different from the classical medicine. However, this group does not include a medicine which is administered by parenteral route.

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3.13.2 If IPs/comparators of more than one traditional system of medicine are to be investigated, then investigator(s) from the respective systems should be included in the study as co-investigator(s).

3.13.3 The EC must co-opt a person with relevant expertise (an expert of that traditional system of medicine) to review the proposal, especially the benefits and risks of the intervention, eligibility criteria, doses of interventions, outcomes planned and traditional method of evaluation, if necessary.

3.13.4 When a folklore medicine/ethnomedicine is ready for commercialization after it has been scientifically found effective, benefit sharing should be ensured and the legitimate rights/share of the tribe or community from which the knowledge was gathered should be taken care of appropriately while applying for the IPRs and patents for the product.

3.13.5 While conducting trials using intervention(s) of traditional medicine, the investigator must ensure the quality of the interventional product.

3.14 Trials of diagnostic agents

A diagnostic agent refers to any pharmaceutical product used as part of a diagnostic test, together with the equipment and procedures that are needed to assess the test result, and that is either administered into or onto the human body. Diagnostic agents must be considered as new drugs and therefore clinical trials involving diagnostic agents should be conducted in accordance with all the ethical principles described in these guidelines, Indian GCP guidelines, as well as applicable regulations of the country.

3.14.1 Benefit-risk assessment involving diagnostic agents additionally includes the assessment of benefits, such as technical performance, diagnostic performance, impact on diagnostic thinking and impact on patient management/outcome, and the risks related to the agent itself, such as immunogenicity, allergic reactions, but also risks related to incorrect handling of test procedures or incorrect diagnosis induced by its use.

3.14.2 The EC must review the pharmacology, toxicology, pharmacokinetics and safety data (preclinical and clinical data as applicable) especially for diagnostic agents which come in contact with skin or mucosal surfaces in the human body (in vivo use). Special expertise may be co-opted in the EC for review of such products.

3.14.3 These trials are usually comparative, the comparator being the reference/gold standard test to diagnose the disease. Hence, the protocol must state clearly the choice of the reference with justification. Likewise, omission of a reference standard as comparator must also be justified.

3.14.4 A placebo may be used as comparator when the response to a diagnostic test is being assessed using subjective evaluation criteria, for example, skin changes in a skin prick test or for the assessment of tolerability. There have to be clear justifications in the protocol for the use of a placebo and no irreversible harm should occur to the participant. Post-trial access to the standard of care diagnostic test must be assured.

3.14.5 Safety follow-up of patients in these trials should not be limited to the duration of the diagnostic procedure but may be extended for a longer period according to the pharmacokinetic and pharmacodynamic properties of the diagnostic agent.

3.14.6 Long-term safety (when appropriate) should be assessed especially for agents accumulating in the body, such as deposits of gadolinium in bones and skin.

3.15 Radioactive materials and X-rays

Radioactive substances contain a radioactive isotope, and may be used for therapeutic or diagnostic purposes. If the radioactive substance is to be tested as a drug then all the ethical considerations described in previous sections will apply. However, if it is to be evaluated as a diagnostic agent then section 3.15 applies. The permissible radiation limits when radioactive materials and X-rays are being evaluated must comply with regulatory authority guidelines. In India, the agency that regulates radioactive materials is the Bhabha Atomic Research Centre (BARC), Mumbai. Additionally, the following considerations must be applied:

3.15.1 The investigating site should have a license from the competent authority to store, handle and dispense the radioactive substance.

3.15.2 The investigator and clinical trial team must be competent and should have received appropriate training in handling radioactive substances and X-rays.

3.15.3 The protocol and ICD should clearly state the potential radiation exposure to which participants are likely to be exposed in quantitative terms to the whole body or per organ. This exposure must be within acceptable limits.

3.15.4 The EC may co-opt relevant expertise to review such protocols.

3.15.5 When a trial involving radioactive substances is planned in healthy participants, they should preferably have completed their family and receive radiation in a dose as low as permitted.

3.15.6 Women of childbearing age, children, radiation workers or any individual who has received more than the permissible amount of radiation in the past 12 months should be excluded from trials involving radioactive materials or X-rays.

3.15.7 In the event of death of a participant with a radiological implant, due precautions must be taken as per the prescribed radiation guidelines so as to ensure that relatives or close co-habitants are not exposed to radiation.

3.15.8 The protocol should make adequate provisions for detecting pregnancies to avoid risks of exposure to the embryo. Information must be given to the participant in the ICD about possible genetic damage to the offspring.

3.16 Investigator initiated clinical trials

3.16.1 Academic institutions routinely carry out investigator initiated clinical trials.

3.16.2 In such trials, the investigator has the dual responsibility of being an investigator as well as the sponsor.

3.16.3 Financial arrangements must be made by the institution/investigator for the conduct of the study as well as to pay for free management of research-related injury and compensation, if applicable. Funds should be made available or appropriate mechanisms be established.

3.16.4 The institution must have or introduce policies that establish mechanisms to ensure quality of the data generated and safety of the intervention, such as monitoring, auditing, DSMB etc.

3.16.5 When academic clinical trials are planned for "off-label" use of a drug (when a drug that is marketed is being used for a new indication/new dose/formulation/route) for

purely academic purposes and not for commercial use, then such clinical trials designed by researchers/academicians may not currently require regulatory approval. However, an EC has to approve such studies after due consideration of benefits and risks and all other ethical aspects and the licensing authority has to be informed as per GSR 313(e) dated 16.3.2016 issued by CDSCO.

3.16.6 The trials must be registered in CTRI and there should be mechanism for appropriate methods for informed consent, conduct of trial and proper follow-up of patients.

3.16.7 For student conducting clinical trials as part of their academic thesis, the guide and the academic institution should take up the responsibilities of the sponsor.

3.17 Clinical trials on contraceptives

Several methods of contraception are available including, barrier methods, hormonal methods, emergency contraception, intra-uterine and surgical methods. Since these studies are conducted in healthy participants, all efforts to minimize risks must be in place and the proposed benefits must justify the foreseeable risks. The following issues must be addressed while undertaking research on contraceptives whether they be drugs, devices or surgeries:

1.17.1 All procedures for clinical trials will be applicable.

1.17.2 For a new contraceptive method, non-comparative studies can be accepted. However, a sufficient number of cycles should be studied to obtain the desired precision of the estimate of contraceptive efficacy.

1.17.3 The comparator should, whenever possible, be chosen from among marketed products with a similar mechanism of action and schedule of use.

1.17.4 In women where a non-biodegradable implant has been used, a proper follow-up for removal of the implant should be done after the trial is over or the participant has withdrawn from the trial.

1.17.5 The educational and socioeconomic level of women participants may be considered to judge whether they will be able to comprehend the use and risks associated with the particular contraceptive.

1.17.6 Participants should be clearly informed about the alternatives available for contraception.

1.17.7 Any pregnancies occurring during a contraceptive trial should be followed up for final outcome to mother and child.

1.17.8 Children born due to failure of contraceptives under study should be followed-up for any abnormalities if the woman does not opt for medical termination of pregnancy (MTP).

1.17.9 A compensation policy must be established at the beginning of the trial to provide a cover for this contingency or issues related to trial.

3.18 Pregnancy and clinical trials

Any clinical trial conducted in women of childbearing age raises ethical issues that need to be addressed. Similarly, studies conducted in women who are pregnant need to be evaluated with care and ethical issues addressed.

3.18.1 When clinical trials are conducted in women of childbearing age, they must be counselled to use effective contraceptive methods. These must be stated in the ICD

and it should be ensured that these methods are understood and followed by the woman participant.

3.18.2 In clinical trials that include women of reproductive age, there may be occasional inadvertent pregnancy. In such an instance the woman should be withdrawn from the study and efforts should be made to collect data on the drug effects as well as the outcome for both mother and foetus. This follow-up plan of pregnancy and care of foetus must be stated in the protocol and ICD.

3.18.3 EC to review the need if, during research participation, the female sexual partner of a male participant gets pregnant, the protocol and ICD must state a plan to document this and both pregnant partner and foetus must be followed for outcome and reported.

3.18.4 Pregnant women have the right to participate in clinical research relevant to their healthcare needs such as gestational diabetes, pregnancy induced hypertension and HIV.

3.18.5 Benefit–risk assessment must be done at all stages for both the mother and the foetus.

3.18.6 Research involving pregnant women and foetuses must only take place when the object of the research is to obtain new knowledge directly relevant to the foetus, the pregnancy or lactation. The criteria described in Box 3.8 must be fulfilled.

3.18.7 Women should not be encouraged to discontinue nursing for the sake of participation in research except in those studies where breast-feeding is harmful to the infant. In case a woman decides to cease breastfeeding, harm of cessation to the nursing child should be properly assessed. Supplementary food, such as milk formula should be considered in such instances.

Box 3.8 Criteria for research involving pregnant women and foetuses

1. Appropriate studies on animals and non-pregnant individuals should have been completed (if applicable).
2. The risk to the foetus must be the least possible risk for achieving the objectives of the trials, including when the purpose of the trial is to meet the health needs of the mother or the foetus, or the risk to the foetus is minimal.
3. Researchers should not participate in decision making regarding any termination of a pregnancy.
4. No procedural changes, which will cause greater than minimal risk to the woman or foetus, will be introduced into the procedure for terminating the pregnancy solely in the interest of the trial.

3.18.8 For the conduct of research related to termination of pregnancy only pregnant women who undergo MTP as per the Medical Termination of Pregnancy Act, 1971 can be included.

3.19 Clinical trials in oncology

There are several ethical issues when research is conducted in terminally ill patients for whom this may be a last hope for cure, or a way to get free treatment for their disease which may be otherwise beyond their reach. These need to be addressed during planning, conduct, oversight and publication of such trials. Three primary factors motivate participation in oncology clinical trials: hope for a cure; altruism that even if the patient does not benefit, it may ultimately help others; and trust that the physician would not recommend a treatment (the investigational drug) unless she/ he thought it might be helpful.

All criteria described in section 3.1 and stated in drug trials, biologics and radioactive substances, apply to oncology clinical trials. In addition, while reviewing oncology studies, the following should be kept in mind:

3.19.1 Phase I studies with oncology drugs are conducted in patients. However, there may or may not be any benefit and there may be a high degree of therapeutic misconception. Further, there will be foreseeable and unforeseeable risks that need to be considered before a protocol is approved.

3.19.2 The patient population may be vulnerable as they are often terminally ill. Economically disadvantaged populations may participate in the research to gain free access to an intervention. It is important to ensure that the participant has understood that this is research and the benefits expected may be small or they may not occur at all.

3.19.3 Participants must be made to understand that they may be randomized to a placebo group and therefore receive an inert drug, in case of a placebo-controlled study.

3.19.4 If the trial is a placebo- or active-controlled trial, all the groups must be given the current standard of care to which the IP, placebo or active control is added.

3.19.5 Perceptions of benefits and risks may be different for patients, healthcare workers and EC members. All these perspectives must be taken into consideration while reviewing the protocol.

3.19.6 Undue inducement must be avoided.

3.19.7 Patients should not be charged for any intervention including standard of care in the control arm. If the trial is an add-on design, the background standard of care may not be given free. The EC should review this carefully.

3.19.8 A post-trial access plan must be in place for patients who show benefit from an IP. In case it is a placebo controlled trial, those participants who have been in the placebo group may be offered post-trial access to the IP if found effective in other patients.

3.20 Clinical trials of products using any new technology

If any product using new technologies (such as nanotechnology) is developed for human use and is to be evaluated in human beings, the following ethical issues have to be taken into consideration in addition to all the general ethical guidelines for clinical trials as elaborated in the guidelines.

3.20.1 Compliance with GLP, GMP, and GCP norms should be observed in research using new technology products.

3.20.2 Before the use of a new technology product in a human being, preclinical studies should be carried out and all applicable regulatory requirements fulfilled.

3.20.3 The new technology-based products should be contained and released into the environment in a step-wise manner after clearance from the appropriate authority regarding environmental safety.

3.20.4 Differing process based technologies can result in similarly functioning biological products which can give rise to IPR issues.

3.20.5 The research on new technologies should have a well-established mechanism or system for assessing the risk, both in terms of severity and temporality. The unpredictable metabolic behaviour in a human system during clinical trial cannot

exclude long-term side effects which may manifest later, leading to compensation issues.

3.20.6 Training of all stakeholders should address issues regarding safe research, handling of products, environmental safety and community misconceptions.

3.21 Synthetic biology

Synthetic biology is the application of science, technology and engineering to "facilitate and accelerate the design, manufacture and/or modification of genetic material of living organisms".33 The ethical, legal and social issues pertain to the impact of this science on society, biosafety, biosecurity, IPRs, governance of such research, and socio- economics. Creation of organisms, molecular compounds and biological systems by manipulating biology through standardized engineering techniques has led to the rise of the biotechnology industry which includes genetically modified organisms, stem cells, cloning, artificial life forms like biofuels, bioweapons, vaccines, diagnostics, etc. Software and bioinformatics as design tools, along with constructional and diagnostic tools, play a major role in the synthesis. EC review, pre-market approval and registration should be aimed at protection of human beings and the environment.

3.21.1 Special considerations

- Precautionary principle: This applies to the prevention of harm to humans, environment and ecosystem because development of a new technology may emit hazardous elements like X-ray radiation, electro-magnetic currents and non-ionizing magnetic waves in the environment, which may manifest only later. Safety measures should be followed as per the Environmental Protection Act, 1986, Atomic Energy Act34, Biomedical Waste Management Rules35, and other relevant laws.
- Biosecurity: Sometimes, the product can have dual use, that is, one beneficial use for a particular purpose and the other for harmful use which could be unintentional or intentional, for example, use as a biological weapon. Therefore, to maintain security, the ICMR code of conduct for researchers involved in life sciences should be followed along with creation of a system for reporting and maintaining vigilance to prevent misuse. There should be effective partnership between researchers and policy makers to create a secure system.
- GLP, GMP and GCP should be observed when conducting clinical trials.
- Products should be contained and released into the environment in a step-wise manner after clearance from the appropriate authority regarding its safety.
- Training should be given for safe handling of the product and conduct of research and should address community misconceptions.
- Testing of biomaterials and biocompatibility should be as per relevant Indian regulatory standards or American Society for Testing and Materials (ASTM)36 international standards until Indian standards for biomaterials are in place. The testing of such standards shall be done in a laboratory certified by the National Accreditation Board for Testing and Calibration Laboratories (NABL).
- Appropriate training for safety of healthcare workers should be given and they should be provided periodic health check-ups due to exposure to occupational risks.

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PUBLIC HEALTH RESEARCH

4.0 Public health raises a complex relationship between the state, its policies and society involving individuals and organizations with a precautionary approach. Ethics in public health apply to both practice and research, both of which utilize epidemiology and methods of other disciplines to ensure better societal conditions for healthier lives. Therefore, public health protects both the individual and the population at large, since the benefits and risks are not limited to an individual, but influence communities, populations and the environment. It is important to realize that public health interventions have the potential to expose and perhaps exploit the vulnerabilities of communities and segments of the population. Public health research investigations and interventions should therefore be conducted through a process of ethical reflection, together with establishment of appropriate protections, oversight procedures and governance mechanisms.

Defining boundaries between public health practice and research remains a challenge in public health ethics as the purpose or intent of the investigation may overlap. Public health practice involves data collection through surveillance, vital statistics, disease reporting and registries; investigation of outbreaks including contact tracing, use of preventive interventions and health promotion; monitoring and programme evaluation; and enforcing of mandatory requirements, such as screening, treatment, immunization, notifying diseases and, sometimes, quarantine depending upon the situation. By using epidemiological designs, sampling techniques and analysis, some of these activities could create generalizable knowledge, which is the primary intent of research. Considering these difficulties in clear delineation of boundaries between practice and research, both requiring ethical oversight and governance of public health information, an EC may have to differentiate this to determine its role with more clarity. This section however, highlights the specific ethical issues pertaining to research on public health. The EC will determine if a particular protocol pertains to public health practice or research.

4.1 Principles of public health research ethics

- **Principle of respect for autonomy, rights and dignity** – In public health research, the principle of autonomy is relational, since the interests of an individual as part of a community are relational in nature. Therefore, sometimes individual autonomy may not be appropriate as a stand-alone for application at the community level. While respect for the rights and dignity of all participants need to be considered and ensured, the same should be observed about the community. This can be facilitated by engaging the community in discussion. The conventional method of informed consent from an individual may be replaced with alternative methods after approval by the EC on a case-by-case basis.
- **Principle of beneficence** – Public health research aims at achieving public good through societal benefit to the maximum possible level as against individual benefit.
- **Principle of non-maleficence** – Maximum efforts should be made to minimize harm done to individuals and others, such as the community, especially while collecting data and its subsequent disclosure. Harm could be in the form of

stigma, poverty, and discrimination that affect persons living with diseases like HIV, STD, TB, mental illnesses, etc. Safeguards to maintain confidentiality should be established as there could also be indirect harm to the individual/community/ relationships and loss of benefit.

The following principles may overlap with public health service and research.

(i) **Harm principle** – If liberty of an individual or group is rightfully restricted against the person's will to prevent harm to others, the decision to do so should be backed by strong ethical justification, for example in disease outbreaks.

(ii) **Principle of least infringement** – As far as possible the least restrictive means should be adopted when liberty is curtailed.

(iii) **Principle of proportionality** – This principle requires public health authorities to minimize risks and promote well-being of the public. Breach of autonomy and privacy of individuals should be balanced against probable public benefits and the necessity of such an intervention. It should justify burdens suffered by participants/communities.

- **Principle of social justice** – The benefits and burden of public health research, should be equitably distributed across all study groups. When vulnerable or disadvantaged populations are involved, research that retains or enhances existing inequities should be avoided. Implied as a positive obligation to improve health of the least advantaged, this principle supports research into the upstream factors among the social determinants of health that influence health equity.
- **Principle of reciprocity** – This principle requires that individuals or communities, who have borne a disproportionate share of burden or risks for the benefit of others be given some form of benefit. The benefit should be context specific such as protection from further exposure, access to food, healthcare, clothing and shelter, communication or compensation for lost income.
- **Principle of solidarity** – Public health research should respect the intra- and inter-dependence among members of communities leading to solidarity for collective welfare or the common good.
- **Principle of accountability and transparency** – The conduct of research must be fair, honest and transparent. The results should be made available in the public domain.

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In order to undertake a review of public health research, an EC must carefully consider the points given in Box 4.1.

Box 4.1 Public health research proposal

When reviewing public health research proposals, ECs should consider the followings aspects:

1. Are the objectives of the study scientifically sound and linked to the achievement of public health goals?
2. Is individual written informed consent required?
   - If not, is gatekeeper consent/permission sufficient? Who is a gatekeeper and how is this decided?
   - Is it a two-stage process – initially a gatekeeper consent/permission followed by individual consent?
3. If applicable, is respect for the community applied through community engagement? If so, is the methodology appropriate?
4. Which segments of the population are likely beneficiaries and what are the expected benefits?
5. Is individual harm overriding the potentially larger societal benefit?
   - If so, is it justified?
   - What are the different types of potential harm?
   - Who would be harmed?
   - What, if any, measures can be taken to mitigate/minimize this?
   - Is the harm fairly distributed?
   - How do societal benefits outweigh individual harm?
6. Is social justice considered while designing, implementing and assessing outcomes of the study?

4.2 Ethical issues of epidemiological and public health research study designs

4.2.1 Epidemiological and public health research studies

These involve use of different study methods and tools on a large number of research participants in single or multiple settings. These include observational studies (such as cross-sectional studies), case control studies, cohort studies, case reports, case series and other descriptive studies and experimental studies (such as field trials and cluster randomized controlled trials, stepped-wedge and quasi-experimental study designs involving groups, geographic areas, institutions or systems collectively rather than individually).

- Specific ethical issues emerge from the scientific merit and design of the research and its implementation and should be considered by EC.

4.2.2 Surveillance, programme monitoring data and programme evaluations

A fundamental public health activity is to measure and monitor changes in health status, risk factors and health service access and utilization. Surveillance is an ongoing, systematic collection, analysis, and interpretation of outcome-specific data, with the timely dissemination of these data to those responsible for preventing and controlling disease or injury. These data may be used by researchers for generating new evidence to improve programme performance, and for more generalizable application at other sites and contexts. Programme evaluation refers to the systematic application of scientific and statistical procedures for measuring programme conceptualization, design, implementation and utility; the comparison of these

measurements; and the use of the resulting information to optimize programme outcomes. Evaluation research may or may not involve human participants such as health personnel, patients, community members and other stakeholders. It will also involve screening the documents and observations of various activities at different levels.

- These studies may be placed under the exempt from review category in specific situations where the sole purpose of the exercise is refinement and improvement of the programme or where an unspecified but large number of stakeholders are to be interviewed who are spread across large geographic areas.
- Proper ethical review must be carried out for programme evaluation research activities if it is clearly for generalizable knowledge, to ensure scientific soundness, examine the public health value and potential harm inherent in the protocol, and the need to have permission from relevant public health authorities.
- The ethical concerns for managing data are similar to those mentioned in section 4.3.

4.2.3 Demographic surveillance sites and registries

A demographic surveillance site is a geographically defined population with continuous demographic monitoring and regular production of data and reports on all births, deaths and migrations. This monitoring system should provide a platform for assessing a wide range of health-systems and social and economic interventions. In addition, these sites can also be used to monitor developmental and environmental parameters and determine their interaction with, and impact on, human health. The sites are used as platforms for the testing of new health and non-health interventions and can provide feedback on programme effectiveness. The aim of a surveillance site is to provide an evidence base for improving the lives of people living in developing countries by informing and influencing existing as well as future health-related policy and practice. They can also help define a relevant research and development agenda.

- Prior approval from competent state/national authorities and from the community leadership is required to set-up the demographic surveillance sites, with or without the use of geographic information system (GIS) facilities. Setting-up such sites need not be subject to prior review and approval by an EC.
- Strategies for research studies to be undertaken at these sites including data-set collection and its storage, with plans to maintain confidentiality, will have to undergo appropriate EC review. To safeguard the confidentiality of personally identifiable records, the collected data at demographic sites must be stored in an encrypted format with primary identifiers accessible only to restricted designated individuals who are bound by a confidentiality agreement.
- Spatial epidemiology, including use of GIS technology, in health is an evolving area and the related ethical issues that may emerge need to be addressed as experience grows.
- Registries are a systematic collection of data concerning a particular diseases and/ or health conditions at one or more places. For registries that are established as part of research projects or if the data emerging from these registries is proposed to be used for research, prior approval of the EC is required.
- On the other hand, registries that are set-up as part of public health programmes by a national authority may be exempted from the ethical review process if the data is de-identified, but are subject to governance processes and a certificate

from an EC for exemption for ethics review and if required for waiver of informed consent.

- The ethical concerns for EC approval are similar to those mentioned in section 4.3.

4.2.4 Implementation research

At local, national and global levels, a persistent challenge is to effectively implement and scale-up policies, programmes and interventions that can save lives and improve health. A new approach to achieving these goals is through implementation research (IR), which facilitates informed decisions about health policies, programmes and clinical practices. IR is a type of health policy and systems research that draws on many traditions and disciplines of research and practice. It builds on operations research, participatory action research, management science, quality improvement, implementation science and impact evaluation. For research to be relevant to public health it is co-designed and co-implemented with implementers and end users to understand and encourage uptake of a piloted or completed research or programme. This requires a long-term mutually advantageous relationship between researchers, other stakeholders and the community from the inception stage of the research project involving issues such as framing of questions, research design and delivery of strategy for influencing implementation and wider dissemination as part of its design. IR may involve simple methods or more sophisticated research designs and often uses mixed, quantitative and qualitative, methods. Analyses is done with the intention to reach, rather than the intention to treat, for equitable population health impact. Specialized analyses may also be used to explain how and why a policy works, how best to scale an intervention, or how to introduce and expand an innovation. To account for the changing contexts and interventions during the period concerned, a detailed pre-specification of interventions and outcome measures may not be feasible in many projects. IR is essentially adaptive in nature and is different from protocols that require precise pre-definition of interventions, mode of delivery, outcome measurement and the role of study participants.

- ECs should, therefore, understand this requirement of flexibility or resilience while reviewing IR projects.
  The IR process attempts to distribute roles and responsibilities between researchers
  and other stakeholders including those researched, at least to a certain extent.
- ECs should acknowledge these aspects of good participatory practice in IR and delivery sciences – both formally (by undergoing training) and informally (by encouraging discussion and debate).
- The theoretical core of a complex intervention must be kept constant while allowing and accepting the unique flexibility and resilience of the study design. The ethics of IR is an emerging area and will keep growing as more experience accumulates.
- There is a critical role of governance and accountability of all stakeholders due to the asymmetry of knowledge and power relationships which should be considered.

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4.2.5 Demonstration projects

A demonstration project tests the effects of a new policy approach on the health system in a real-world situation. By their very nature, such projects change the status quo of existing public programmes, affecting communities, users/beneficiaries, providers, and expenditures. They help policymakers to learn about the potential impact and operational challenges of a new policy/programme or modification of the existing policy to a public health system, but in a more controlled environment and on a limited basis. Demonstration projects affect a large population – a district or cluster of districts or a state, thus involving hundreds of thousands of people (users and health providers) with substantial resource investment.

- A number of key issues must be considered in designing, implementing and evaluating demonstration projects. This most often requires some level of research for cultural and geographical appropriateness (formative research) to support their development and evaluation to report to the policy makers on recommendations regarding the proposed approach.
- All demonstration projects should be subject to ethical scrutiny.

Some of the key questions that the EC should raise are:

- Why is the demonstration project being undertaken?
- How is this designed/being initiated/implemented?
- What impact is the project likely to have on broader health systems?
- Will there be issues involving equity and vulnerable populations?
- What is the range of design and implementation situations on the ground?
- Should a decision on the exemption from review and consent waiver be taken on a case- by-case basis?

4.2.6 Community Trials

These are trials carried out at the community level or on groups and the treatment or intervention is allocated to communities rather than individuals. These could both be interventional or observational studies. Such studies may be carried out for conditions that are influenced due to social reasons and the interventions may be directed at group behaviour as well. These studies target the community as a whole and the randomization is also at community level and usually the method is useful in order to study public health interventions or disease prevention models.

- The studies require review and monitoring by EC as for other research.
- Informed consent issues are complex and details in section 4.4 may be seen.

4.3 Use of administrative and other data sources for research

Administrative data refer to systematically collected or compiled information designed to assist in programmatic and organizational operations. There is a shift in use of these data sets, from primarily managing and monitoring programmes and performing audits, to conducting research and informing policy. Large volume of data may be accessible from state health departments, national surveys, commercial sources and other data repositories and big data sources. In recent years, administrative data have been more widely used for research and the increase is attributed to technology improvements that permit easier data compilation and access and time- and cost-effectiveness. Data files are often population based, providing information on large numbers of persons and permitting longitudinal analysis over multiple years.

- While such data can provide quick and easy access to information for secondary analysis, there are possibilities of misinterpretation of the data, violations of terms and conditions for which data was allowed access thus compromising data security, confidentiality of information, disclosure permissions, unauthorized and inappropriate use of the data, and unethical publication.
- Partnership between the researcher(s) and the representation from the department or the organization from where data is sourced is considered an important strategy to take care of some of these concerns.
- ECs should ensure that research using administrative data does not violate any
- principles of public health research ethics.

4.4 Informed consent

4.4.1 Obtaining informed consent – Several public health research studies, such as cluster randomized field trials or IR, have participants who cannot avoid interventions. This implies that participant's informed consent refers only to data collection, not administration of an intervention. Occasionally, complete participant information may be a source of selection bias, which then raises methodological concerns. Participant informed consent in such types of research protocols should therefore be differently reviewed by an EC than in individually randomized trials because of methodological consequences.

4.4.2 The hierarchical structure of such trials imply consideration of two levels of consent. The first level is the gatekeeper(s) who could be the guardian or local authority normally responsible for participants' well-being; who give permission for participation and randomization of individual participation. The other level is individual participants, consent from whom can cover different aspects:

- consent that routinely held data on individuals be collected;
- consent regarding the collection of supplementary data;
- consent for active participation;
- Field trials which involve new pharmaceutical agents require individual consent for both intervention and collection of data.

4.4.3 Types of consent

Written voluntary informed consent is the norm for research. However, for specific research the following types of consent may be considered by the EC.

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- Verbal/oral consent: For research on sensitive topics, verbal/oral consent or pseudonyms may be suitable with appropriate approval of the EC and with proper documentation.
- Broad consent: Providing an individual opt-out option, consultation may be held with only a small representative group of the population of interest.
- Group consent: Cluster randomized trials (CRT), IR, and demonstration projects are examples where ECs have to decide on the complex issues of feasibility and type of consent to be obtained from the participants.

pes of Consent

The process of obtaining such forms of consent and the associated documentation should be approved by the EC.

4.4.4 **Waiver of consent** – Most epidemiological and public health research would follow standard informed consent guidelines. However, the EC can consider consent waiver in the following conditions, as given in Box 4.3

Box 4.3 Waiver of consent in public health research

Consent in public health research may be waived:

- on routinely collected data under programme conditions, including research involving linkage to large anonymous databases of information that has been routinely collected such as administrative data and through surveillance activities. However, at the time of collection people concerned may have been told that the data would be used for other purposes, including research;
- in circumstances where obtaining consent is impractical, such as for stored anonymous data/ biological samples, surveillance and administrative data or personal non-identifiable data/ material available from public health programmes;
- for studies performed within the scope of regulatory and public health authorities, such as process and impact evaluations of national policies and programmes, including neonatal screening programmes or diabetes screening as part of national programme activities may be exempt from the requirement for informed consent;
- when the primary purpose is refinement and improvement of the public health programmes;
- for studies using health-related registries that are authorized under national regulations; or
- when it is not practical or meaningful to obtain consent in large geographical clusters in cluster randomization trials and several IRs.

4.4.5 **Re-consenting in longitudinal studies:** There is need for re-consenting when there is a change in protocol, new information is sought, a new intervention is introduced, or new information is available which has likely influence on the safety of participants. If there is no change in the study protocol there is no need for re-consent. Other guidelines for re-consent, as described in section 2, should be followed.

4.5 Role of the EC

4.5.1 ECs should ensure that the researcher has taken adequate measures for data security, confidentiality of information, disclosure permissions, and stated appropriate use of the accessed data.

4.5.2 EC members need to give appropriate importance to the social benefit, public good and public health impact these studies may be addressing. The ECs must take decisions regarding consent on a case- by-case basis.

4.5.3 EC membership should include experts in public health or the EC should get comments from, or invite experts for, the relevant meeting.

4.5.4 ECs should consider the following while assessing a public health research:

- standards of care in public health;
- ancillary care in public health;
- stakeholder engagement – identifying and defining stakeholders' roles especially in IR, health systems and policy research; and
- responsibility of the researcher to scale-up, advocate, promote uptake, or sustain the public health intervention.

4.6 Protecting participants and communities

4.6.1 Special provisions should be provided in the design and execution of public health studies that are likely to have the potential to exploit research participants, especially socioeconomically deprived ones.

4.6.2 People who have limited access to healthcare may misunderstand the research as an opportunity to receive medical care and other benefits, besides financial incentives.

4.6.3 ECs have to consider these issues proactively and mindfully. Specific measures should also be established to protect the welfare of related community members who have not participated.

4.7 Stakeholders in public health research

4.7.1 It is important for ethical conduct of research to engage with all stakeholders, such as researchers, public health providers/professionals, sponsors, government agencies, participants, ECs, institutions, NGOs, and others who are involved in public health research in any manner.

4.7.2 The involved stakeholders must make every effort to provide post-research public health interventions, post-research use of the findings, or sustainability of the public health action.

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HUMAN GENETICS TESTING AND RESEARCH

5.0 In no other area of biomedical and health research has there been a greater concern for ethical issues than in the field of human genetics. In recent years this concern has grown even further because of direct to consumer testing and the possibilities of embryo manipulations. While the recent DNA technology has provided one of the most powerful tools in the hands of mankind to unravel the mysteries of the human genome and its manipulation, it has also led to a great deal of concern about scientists' ability to handle such information. There is also a very narrow gap between routine genetic testing and research raising several ethical, legal and social issues (ELSI), which warrant continuous and prompt monitoring and judicious response to the emerging ethical issues.

5.1 General issues

5.1.1 The harm/risks associated with genetic testing may be psychosocial rather than physical in the form of anxiety, depression or disrupted family relationships.

5.1.2 Potential benefits and risks should be discussed thoroughly with prospective participants. Appropriate communication skills are required for genetic counselling which is akin to therapy.

5.1.3 There is a likelihood of social stigmatization and discrimination in schooling, employment, health and general insurance, which requires greater care in recruiting participants in research.

5.1.4 Maintaining confidentiality is very important in genetic testing as results have social implications.

5.1.5 There is often an overlap between genetic research and services for the physician as well as the patient and therefore, adequate safeguards against therapeutic misconception are needed.

5.1.6 Genetic manipulations may have known or unknown consequences for the future and therefore, greater caution against potential dangers is necessary.

5.1.7 Emerging genetic/genomic technologies cause emergence of newer ethical concerns and issues. Therefore, there is a need for professionals to keep abreast of such advancements and understand their implications.

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5.1.8 The EC reviewing genetic research should have necessary expertise to understand the ethical implications and provide safeguards for research participants.

5.1.9 There is a need to have a team of clinicians, geneticists, genetic counsellors and laboratory personnel to work together.

5.1.10 Genetic testing and research often require dealing with persons who are unable to protect their rights and safety and may be vulnerable, such as children, individuals with mental illness, cognitively impaired individuals, people with rare diseases and others. See section 6 for further details.

5.2 Genetic Counselling

5.2.1 Pre- and post-test non-directive counselling should be given by persons who are qualified and experienced in communicating the meaning of genetic information as some conditions may require termination of pregnancy or selection of embryos to avert birth of a genetically abnormal child/foetus. While disclosing the result, appropriate options should be provided to the family to enable them to come to a decision.

5.2.2 While general principles of counselling require the presence of both spouses, necessary care and caution must be taken so as not to break families. Truthful counselling with extreme caution and patience is essential to explain the situation in a proper perspective in order to minimize psychosocial harm.

5.3 Privacy and confidentiality

The researcher should explain the specific nature of the confidentiality of data generated through genetic testing/research to the patient/participant. Disclosure may cause psychosocial harm and needs careful handling.

5.3.1 Participants should be told of the limits of the researcher's ability to safeguard confidentiality in certain circumstances and the anticipated consequences of breach of confidentiality.

5.3.2 The researcher can delink data to maintain confidentiality and safeguard the information for basic research. However, If the result of the research is of benefit to the health of the participant then, with approval of the EC, data could be re-linked for communication of the result. See Table 6.1 for further details.

5.3.3 Genetic research requires collection of family history and details about other members of the family, thus involving them as secondary participants. If

identifiable information is being collected about the secondary participants, their informed consent will be required.

5.3.4 An individual has the right to keep information generated by screening/testing confidential and not share it with family members to avoid the possibility of domestic disputes if the genetic information is damaging, such as results revealing non-paternity, disease carrier status or others.

5.3.5 The researcher cannot reveal the genetic information to family members without the participant's permission. If family members are recruited/tested then their information should be kept confidential from each other by the physician/researcher.

5.3.6 If disclosure is absolutely warranted to provide treatment or counselling, the physician must first obtain informed consent from the family member concerned. If that family member does not consent, then the physician should balance the risks of non-disclosure against breach of confidentiality and take an appropriate decision.

5.3.7 Storage of samples collected as part of routine care with potential for future genetic research should be done with appropriate consent from individuals.

5.3.8 Transfer to, or sharing of biological material and/or data with other laboratories within or outside the country should be done as per relevant guidelines.

5.3.9 Handling IPRs related to gene patenting and development of newer technologies for commercial gains should follow the applicable national policy/regulations.

5.3.10 Newer genomic techniques for research like whole exome sequencing (WES) and whole genome sequencing (WGS) may create uncertain evidence at the present level of knowledge. Therefore, the confidentiality of data, and pre- and post-test counselling need to be revisited with an entirely new perspective.

5.4 Informed consent

Stringent norms and caution should be followed in the consent process when done for research purposes.

5.4.1 For routine genetic diagnostic testing, written consent may or may not be needed as per institutional policies; however, for any research it is required.

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5.4.2 Informed written consent is essential for procedures such as pre-symptomatic testing, next generation sequencing (NGS), prenatal testing, genomic studies, carrier status etc.

5.4.3 It needs to be emphasized that consent for screening or a subsequent confirmatory test does not imply consent to any specific treatment or termination of the pregnancy or for research.

5.4.4 If the research or testing involves a child, appropriate age-specific assent (verbal/oral/written) should be obtained along with parental consent.

5.4.5 In addition to the general contents specified in section 2, the consent form for genetic testing for research may have explanations/details on the following elements:

- the nature and complexity of information that would be generated;
- the nature and consequences of return of results and choice offered to the participant whether to receive that information or not and incidental findings, if any;
- direct/indirect benefits and their implications including if there are no direct benefits to the participants;
- how the data/samples will be stored, for how long, and procedures involved in anonymisation, sharing , etc. See section 6 for further details;
- choice to opt out of testing/withdraw from research at any time;
- whether the affected individual or the proband would like to share her/his genetic information with family members who may benefit from it; and
- issues related to ownership rights, IPR concerns, commercialization aspects, benefit sharing,. See section 06 for further details.

5.4.6 Group consent/community consent

- In case of population or community based studies, it may be noted that the genetic research may generate information applicable to the community/populations from which the participants were drawn, and therefore, group consent must be taken from the community head and/or the culturally appropriate authority.
- Even if group consent is taken, it will not be a replacement for individual consent as individual consent is important. See section 02 for further details.
- Researchers should be aware of potential stigmatization of the entire group and must explain ways to avoid the same during the conduct of research and publication of research results.

5.5 Culturally sensitive issues

5.5.1 Transmission of a genetic abnormality from parents, especially the mother to the foetus, could be a very sensitive cultural issue. Such possibility arises when during routine testing or prenatal diagnosis it is revealed that the wife is

a carrier of X-linked or recessive disease affecting the foetus or making it a carrier of fatal or late onset disease conditions, such as haemophilia, huntington's disease, non-syndromic deafness and mitochondrial conditions where a female foetus could transmit the abnormality to the next progeny, etc. If information is revealed to the husband or other members of the family, it may cause marital discord despite the fact that the husband himself is a carrier of the autosomal recessive disorder. Appropriate counselling should be part of the testing process.

5.5.2 Consanguineous marriages are common in some communities. If there are inherited diseases detected in the family, it is the responsibility of the health professionals/ researchers to inform participants regarding the possible implications that may arise due to consanguinity. Appropriate pedigrees need to be prepared and stored, as these can reveal a lot regarding disease inheritance in affected families.

5.6 Storage of samples for future genetic research

5.6.1 Rapid advances in science and technology have necessitated the storage of biological materials for future genetic research.

5.6.2 The samples from patients with rare genetic conditions, ethnic groups/tribes/ populations on the verge of extinction, endogamous groups and others have great cultural and geographical value and need to be preserved for future research (See section 06 for further details).

5.7 Results of genetic testing

5.7.1 Results of the tests should be informed to the participants. Return of the results depends on the research findings. If results are anticipated to be actionable, leading to potential benefits of improving health outcomes through correction of diet as therapy or prevention (such as phenyl ketonuria) by delaying onset or reduction of disease burden, they need to be communicated to the participants. This should also be reported to the participants if they wish to know the results and must be specified in the ICD. For this, participants' contact details should be available.

5.7.2 The researcher should work with the local EC to decide on the validity of the research finding and the severity of the potential disease in order to return the results which should be avoided if the logical outcome of the research is

expected to be inconclusive and the participants were informed of this in the ICD.

5.7.3 Results cannot be returned for the advantage of participants when the research is done using irreversibly anonymized samples or data, as identifying the individuals is not possible.

5.8 Publication aspects

5.8.1 Publication of pictures, pedigrees or other identifying information about individuals, families or secondary participant(s) should be done with fresh or re-consent.

5.8.2 Features on the face should be masked to prevent identification. If these features have to be revealed for scientific reasons, this fact should be stated clearly in the informed consent form and fresh consent must be obtained, if not taken earlier.

5.9 Commercialization and COI

5.9.1 Direct to consumer testing (DTC) in laboratories offering a battery of genetic tests is rapidly growing. While this ensures a patient's autonomy to undergo testing, it is important that the sensitivity and specificity of these investigations and the ability of the laboratory personnel to interpret the result in consultation with treating physician/ clinical geneticist is ensured before arriving at a diagnosis.

5.9.2 When research is conducted by commercial companies, steps should be taken to protect researchers and participants from possible coercion or inducement.

5.9.3 Academic or research institutions require a review to probe possible COI between scientific responsibilities of researchers and business interests (for example ownership or part-ownership of the researcher in the company developing a new product).

5.9.4 An EC should determine if the COI could damage the scientific integrity of a proposal or cause harm to research participants and should advise accordingly.

5.9.5 Institutions need self-regulatory processes to monitor, prevent and resolve such COI and assess the need of informing prospective participants.

5.10 Role of the team in genetic testing and research

5.10.1 Adequate awareness should be created by professional societies and universities/ institutions regarding genetic diseases, their prevention, screening and prenatal diagnosis amongst obstetrician, geneticists,

paediatricians, neonatologists, radiologists, laboratory professionals and others.

5.10.2 Laboratory personnel, attending physician(s) and counsellors should possess formal qualifications/sufficient experience in genetics.

5.10.3 The concerned specialists dealing with genetic disorders should ideally undergo training in genetic counselling and be able to devote time to handle sensitive issues appropriately.

5.11 Quality standards of the laboratory

5.11.1 There is a paucity of quality assurance programmes in the country and therefore valid and reliable testing is a constant concern for both clinical practice and research. Any misinterpretation of genetic results or misdiagnosis may lead to psychological harm, and unnecessary or inappropriate intervention.

5.11.2 It is important to set standards for laboratories to ensure that test results are reliable, manpower is competent and the care provider is updated on developments in genetics.

5.11.3 All laboratories offering genetic testing should consider undergoing quality accreditation standards which are specific to genetic testing laboratories.

5.12 Misuse of genetic technology

Genetic information has potential for misuse as well as long-term implications.

5.12.1 3.12.1 Prenatal sex selection is not allowed and to prevent misuse of genetic tests, particularly pre-selection of sex, GOI has enacted the Pre-Conception and Pre-Natal Diagnostic Techniques (Prohibition of Sex Selection) Act, 1994, amended in 2003. All researchers in this area shall follow the provisions of this Act. Prenatal sex determination is prohibited by law for sex selection of the foetus.

5.12.2 Misuse of genetic information by insurers, employers or schools: Knowledge of genetic information of an individual/family/community/population/child might be misused by insurers/employers leading to discrimination and psychosocial harm. Hence, the information about a patient's disease and investigations may not be shared with anyone without the consent of the individual concerned.

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5.12.3 Research involving genetic manipulations must be carefully reviewed and protections established for participants.

5.13 Genetic diagnosis/testing and screening

5.13.1 History and pedigree studies: These involve obtaining history of other members of the family of the proband under investigation. It may reveal information about the likelihood of individual members of the family being either carriers of genetic defects or being affected by the disease. Privacy and confidentiality issues involved in this process are given in section 5.3.

5.13.2 Predictive genetic testing: The results of genetic tests in diseases that are multifactorial in origin and have a polygenic basis involving multiple genes or gene–environment interaction or those that are late onset, must be communicated carefully to prevent unnecessary worry or fear in the minds of individuals.

5.13.3 Genetic screening: Genetic screening implies searching a population for those individuals who have, or are susceptible to a serious genetic disease; or who, though not at risk themselves, are carriers and thus at risk for having children with a particular genetic disease.

- It is essential for screening to be purposive. Besides validation of screening tests, it should also be ensured that a suitable intervention and counselling are available.
- Those being screened are entitled to receive sufficient information about what is proposed to be done, reliability of the screening test, and what will be done with the collected samples.
- Although screening may be permissible to allay anxiety, the response of different individuals might vary, which should be borne in mind by the health-care provider.
- Confidentiality should be maintained in handling of results with emphasis on responsibility of individuals with an abnormal result to inform partners and family members. In case of refusal, the duty of confidentiality shall weigh higher than the duty for beneficence to family members unless sharing of information is vital to prevent serious harm to the beneficiary in the family. In such case, appropriate precautions may be taken to ensure that only the genetic information needed for diagnosis/treatment is shared.
- Screening tests should be sensitive enough to identify a significant proportion of affected persons (the detection rate) with minimal misidentification of unaffected persons (the false positive rate). Screening tests do not aim to make a diagnosis, but rather rationalize the use of more accurate confirmatory tests.

5.13.4 Population screening: Genetic disorders can be population specific (for example, B-thalassemia and sickle cell disease in some population groups in India).

- Population screening should not be undertaken without prior education of the population to be screened and counselling should be integrated with the programme.
- Screening tests should be robust with acceptable sensitivity and specificity.
- Wherever applicable, community permission/group consent should be taken in
- addition to individual informed consent.
- Researchers may conduct coded or reversible anonymized testing on general population in order to establish prevalence of genetic traits/diseases (See Table 6.1 for further details). Blood spots collected for screening newborns for treatable disorders could also be used for this purpose. In case information derived from stored specimens might be useful to an individual, the code may be broken with the approval of the EC.

5.13.5 Prenatal screening: Prenatal screening is aimed to screen mothers and foetuses that are at high risk of having functional or structural defects including chromosomal and single gene disorders. There are many screening tests which are recommended in routine practice.

- Biochemical and ultrasound screening: Various combinations of serum screening and ultrasound screening tests are done either during first (dual marker) or second trimester (triple or quadruple screening) for aneuploidy screening. It is important to discuss detection rates, false positive and negative results with participants.
- Invasive testing for prenatal diagnosis: Preliminary genetic counselling of women for invasive prenatal diagnosis should include the following:
  - risk of the fetus being affected;
  - natural course and prognosis of the specific disorder;
  - risks and limitations of the invasive procedures to be used;
  - time required before a report can be issued;
  - possible need for a repeat procedure in the event of a failed attempt; and
  - limitation of a test due to laboratory error.
- Non-invasive prenatal screening/testing (NIPS/NIPT): Recent advances in genomic technologies have resulted in the shift of antenatal aneuploidy screening towards the development of NIPS methods by using cell-free foetal (CFF) DNA sequences isolated from a maternal blood sample. This test prevents the risk of an invasive procedure which would also be beneficial for high risk mothers. However, there are several limitations of these techniques which should be clearly explained.

Utmost caution should be taken while reporting the foetal status after prenatal testing. HLA testing on embryos and foetuses should not be done.

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5.13.6 Pre-implantation genetic screening and diagnosis (PGS and PGD)

In this technique, in vitro screening is done on early embryos for a panel of common genetic disorders, such as aneuploides, and specific disorders with family history or proven carrier status in parent(s) to implant unaffected embryos. This obviates the need for invasive testing for associated risks and also termination of the affected foetus, which is traumatic for the family.

- Advanced techniques like chromosomal micro array (CMA) are being used for PGS and NGS for screening which might theoretically raise ethical issues regarding eugenics and designer babies based on selection of embryos.
- This also raises ethical concerns regarding selection of sex and therefore adequate safeguards should be in place to prevent misuse.

5.13.7 **Newborn screening (NBS):** Newborn screening is a robust measure for secondary prevention of genetic diseases through early diagnosis with timely intervention and should ideally be in a programme mode and providing not only diagnosis, but also management and treatment alongwith counseling.

- Screening of newborns is recommended for treatable genetic diseases, the serious effects of which could be prevented by a suitable intervention, such as a special diet or drug. Examples of such conditions include hypothyroidism, phenylketonuria and many other inborn errors of metabolism.
- Such screening should not be generally done when there are no existing therapeutic modalities available (such as special diets) or treatment may not be affordable (such as lysosomal storage disorders). There may also be no known intervention for management.
- The family should have a choice to decide if they would like to be part of newborn screening program with appropriate consent explaining the requirements and implications of the screening with provision to "optout".
- Community education and advocacy regarding NBS should precede the initiation of the programme.
- Availability of facilities for confirmatory diagnosis and experts for management of the disorders have to be in place before initiating the programme.
- Use of advanced technologies like chromosomal micro array (CMA) and WES for NBS will generate many new dimensions for debate in this area.

5.13.8 Screening of children

- Children should not be screened for carrier status or disease merely at the request of their parents.
- Testing of children should be deferred until they are able to comprehend and are able to participate in the decision-making process, unless early

intervention based on results of the test is likely to be of direct therapeutic benefit to them.

- Screening for late onset diseases should not be done in children unless there is any suitable intervention available for treatment during the childhood stage.

5.13.9 Screening for carrier status

- Single gene: If there is a family history of a single gene disorder (autosomal recessive, X linked), the individual should be tested after administering informed consent when she/he is able to comprehend the benefits and risks of screening. Stigmatization for carrier status is common and therefore, the information should be kept confidential.
- Chromosomal: If there is a family history of balanced translocation in any individual, then immediate relatives may be at risk. The same principles as for carrier testing should be followed.

5.14 Gene therapy

All gene therapies are considered as research and all protections for human research participants should be in place.

5.14.1 Somatic cell gene therapy is permissible for the purpose of preventing or treating a serious disease when it is the only therapeutic option. It should be restricted to alleviation of life threatening or seriously disabling genetic disease in individual patients and should not be permitted to change normal human traits.

5.14.2 Prior to obtaining approval for initiating a gene therapy trial, an approval from the local EC and DBT has to be obtained for the gene construct.

5.14.3 If the trial is for a product for commercial use or for marketing purposes, approval needs to be taken from CDSCO.

5.14.4 All gene therapy trials should have the provision for long-term surveillance.

5.14.5 Informed consent must be taken, especially regarding uncertainties about outcome.

5.14.6 Children could be candidates for therapy, if the therapy is meant for a childhood disorder.

5.14.7 Germ line therapy is prohibited under the present state of knowledge.

5.14.8 Eugenic genetic engineering for changing/selecting/altering genetic characteristics and creating so called designer babies is prohibited. These should not be attempted, as we possess insufficient information at present to

understand the effects of attempts to alter/enhance the genetic machinery of humans. It would be unethical to use genetic engineering for improvement of intelligence, memory, formation of body organs, fertility, physical, mental and emotional characteristics, etc. even if specific gene/genes are identified in future.

5.15 Use of newer technologies

New technologies like CMA, WES and WGS and clustered regularly interspaced short palindromic repeat (CRISPR) technology have unmasked new knowledge that could find solutions to diseases or inherited disorders but could also create ethical debates due to uncertain future. These techniques have made it possible to study genomes. Each individual's genome is a unique and definite identity, which in spite of anonymization of such data will always be associated with individual's identity, and this would be in conflict with the principle of privacy. With the advent of digitized medical records of such sophisticated data, additional efforts should be made to maintain confidentiality.

5.15.1 **Chromosomal micro array** –Interpretation of CMA results should be done with caution since on many occasions the identified copy number variation (CNV) may be a variation of unknown significance (VOUS) which may be reported or unreported and may not explain the phenotype.

5.15.2 Whole exome sequencing and whole genome sequencing

These high throughput next generation sequencing techniques are used for sequencing all the exons (WES) or the whole genome including introns (WGS). These techniques are increasingly being used in clinical practice, particularly WES, and have raised a new challenge for counsellors as well as patients.

- These genomic techniques identify pathogenic mutations or variations of unknown significance in many other genes, hidden genetic disorders or cancers which may manifest later. The individual should be informed and asked whether she/he will like to know about unrelated genetic mutations. The results should always be interpreted keeping in mind the coverage of genes of interest.

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- Families/individuals opting for the test should be counselled regarding grey areas in these upcoming technologies prior to testing. They should be aware that WES/WGS may not give conclusive results.

5.15.3 Gene editing technology – Clustered, regularly interspaced, short palindromic repeat (CRISPR)

This is a powerful technology which efficiently edits DNA with immense value for accurate and precise genome editing to alter human genes to cure and eliminate certain genetic based diseases. Experiments done so far have shown that the technique can be used to rapidly, easily and efficiently modify genes in a wide variety of cell types and in organisms. Somatic cell genome editing has an immediate clinical translational potential and can be used in a variety of areas such as drug development, gene surgery, understanding genetic variation, and it also has implications for biomaterial, fuels, food etc. CRISPR works as a pair of DNA scissors, and Cas9 is the protein in the system that unzips DNA and finds the target by matching the DNA sequence against a snippet of its guide RNA. When Cas9 finds its target and snips it, there are concerns about associated risks, which blur the excitement about its usefulness. Similar concerns are there for the use of other genome editing technologies such as zinc finger nucleases (ZFN) and transcription activator-like effector nuclease (TALEN). Today therapeutic applications are possible for a wide range of indications, in preclinical models or in clinical settings through clinical trials in humans. There are some considerations related to the use of this technology.

- The risks are irreversible changes in germline, risks of inaccurate genome editing, implications for future generations, interactions with other genetic variations and environment, and the fear that once the genetic change is introduced it may be permanent which would have long-term effects.
- Despite the promise of the technique, there is a possibility of encountering error in genetic engineering which has unforeseen implications. Cas9 will sometimes identify a wrong target even when up to five of the guide RNAs do not match the DNA – hence the off-target

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mutations may cause disease or alter germline or DNA of future generations of humans.

- It could be used to change harmless genes, as for eye colour, leading to designer possibilities. There are also possibilities of creating interspecies organogenesis or chimerism. There are possibilities of making gene correction in zygotes using CRISPR-Cas9 which has ethical implications.
- The application of this technology in plants and animals can lead to possible lateral transfer and emergence of irreversible damage to biodiversity and environment which can be a risk to not only human and animal life but also the environment due to its long-term consequences. It could also possibly be used for bioterrorism.
- CRISPR-Cas9 needs to be judged for the good of future generations. This needs time and thus, at present, there is a ban on germline manipulations.
- There is a need to consider the possibility of commercialization, patenting or rightful access, therefore, a vigorous benefit-risk evaluation is required to address the expectations and concerns of the public. There is need for an initial cautious approach before this technology can be widely used for various applications.
- An open and transparent discussion, advocacy and public engagement should be encouraged with various stakeholders to understand, build trust and be involved in decision making. Capacity building is required not only of researchers but also regulators and policy makers to carefully consider social and ethical aspects and put systems in place to ensure safety.
- At the moment, there is a need for initiatives to increase knowledge base, infrastructure, funding, guidelines, inter agency communications and interactions, engagement with public and other stakeholders, and establish science communication. In addition, attempts should be made to foster research to assess the feasibility, efficacy and safety of CRISPR technology.

5.15.4 Genome-wide association study (GWAS)

Genetic epidemiology, also known as whole genome-wide association study, involves an examination of many common genetic variants in different individuals to see if any variant is associated with a trait. A GWAS typically focuses on associations between single-nucleotide polymorphisms (SNPs) and traits like major diseases, particularly multifactorial disorders.

5.15.5 As in other techniques there is a possibility of getting variations of known or unknown significance and participants should be aware of these facts.

5.16 Research on human embryos

Embryonic state is the period between 15 days and 8 weeks post-conception of a pregnancy and in the absence of more precise information (such as menstrual cycle length), conception is presumed to have taken place 2 weeks after the beginning of the woman's last menstrual period. The distinction of the 15-day stage as the beginning of the embryonic stage is because of the formation of neural crest (future nervous system symbolizing moral being or personhood) by then. At 8 weeks, the rudiments of nearly all the main structures are developed giving a general appearance of a mammal-to-be with four limbs and a head. Research on human embryos raises a number of ethical issues.

The concerns are more social, including questions about the rights of unborn babies and the roles of humans in making permanent genetic changes. If research is planned on embryos, consent of both parents should be taken.

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5.16.2 If research is planned on embryos, consent of both parents should be taken.

5.17 Foetal autopsy

5.17.1 Foetal autopsy should be done after informed consent, preferably from both parents/ LARs.

5.17.2 Relevant samples may be stored for possible future use following the guidelines of biological materials, biobanking and datasets given in section 6.

5.17.3 Adequate genetic counselling should be done to explain the requirements and benefits of autopsy to the family.

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SECTION 6

BIOLOGICAL MATERIALS, BIOBANKING AND DATASETS

6 Biological materials or biospecimens or samples include biological fluids, such as blood, dried blood spots, body fluids, urine, tissues, organs, cord blood, oocytes, sperm, semen or embryos. These may be stored or prospectively collected.

A repository or biobank is an organized collection of resources that can be accessed to retrieve human biological material and data for research purposes. The bio resources would therefore be protocol-based prospective collection of biospecimens, left-over samples after clinical investigations or research proposals, biopsy materials, surgical or autopsy specimens/tissues, embryos or foetuses, cell lines, or waste materials like abandoned organs/tissues. Repository activities involve three components: collection of biospecimens and/or data; storage of biospecimens and data including its management; and retrieval and disbursement to researchers.

A dataset is an organized collection of data and information maintained in physical and/or electronic/digital form that can be used for biomedical and health research. Besides data related to biospecimens as in biobanks, there are other repositories like disease registries, health surveys, disease surveillance, census data and even personal health records in health-care institutions which may have huge potential for subsequent research. The data may be from small numbers to large numbers or whole population. Examples of biobanks and datasets are Iceland's deCODE biobank, National Institute of Mental Health and Neurosciences (NIMHANS) Brain Bank, Tumour Tissue Bank at Tata Memorial Hospital (TMH), Census data, NFHS data, Cancer Registry of India, CTRI, etc.

6.1 Biobanking

A biobank is an organized collection of human biological materials with usually associated dataset stored for years in appropriate facilities for research and potential commercial purposes with inbuilt policies for transparency. The space occupied by organized collection of these materials and data is termed biorepository. Research on such biospecimens or samples and/or related datasets may not directly involve the individuals. Biobanks involve governance of collection of biological material, processing, storage with

associated data, and dissemination of samples and/or data through sharing with other researchers and overarching ethical oversight. The biological materials could be kept for research, assisted reproductive technology (ART) purposes or for forensic purposes. The stored samples in these biobanks can range from small numbers in researcher's refrigerator to departments, research institutions including universities and non-profit organizations, judiciary custody, pharmaceutical companies and may extend into large warehouse like facilities at a single site or a chain of facilities with central coordination which provide medical, genetic and life-style related data. Thus biobank may be very large with public or private funding, for commercial or non commercial use and on other hand may be small limited to a researcher who stores samples in the laboratory or at institutional level where common facility is available for storing samples. Biobanks can also store non-human materials, such as plant, animal, microbes and parasites, but for the purpose of these guidelines this section will only pertain to human biomaterials and/or related data.

There is a need to comply with all the safety requirements and sets of universal standards, testing of biomaterials and biocompatibility as per relevant regulatory standards. The testing of such standards could be done in a NABL certified laboratory.

As biobanking concerns storage and research at a later time, the ethical issues pertaining to consent requirements for the collection and banking and further uses of tissue and DNA samples and/or data are the same but with greater responsibilities concerning their ownership, access and benefit sharing to the individual or community. Therefore, to prevent any exploitation and protect the rights of donors, the main requirements are individual informed consent, clarity on custodianship, approval of the EC and the repository governance committee and post-research benefit sharing, wherever applicable.

6.1.1 Samples can be classified in a variety of manner. Samples classified on the basis of availability of attached identifying information are provided in Table 6.1.

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6.1.2 Privacy of donor and confidentiality related to biological materials and/or data

This pertains to both personal identifiers and the related data of the participant. Some key points for maintaining privacy and confidentiality related to donors are listed in Box 4.1.

6.2 Storage of biospecimens and data with personal identifiers

6.2.1 Informed consent, confidentiality, privacy and re-consent are largely influenced by the degree of identifiability, whether the biospecimens and data are anonymized or not. As a general principle, research must be conducted on least identifiable data.

Table 6.1 Types of samples

Anonymous or unidentified	No identifiers are present from the start or if collected, are not maintained. Such samples are received by biobanks without any identifiers and supplied to researchers.	
Anonymized	This involves systematic de-identification, reversible or irreversible: link of samples/data to personal identity is reversibly or irreversibly cut.	
	Coded or reversibly anonymized: There is an indirect link of sample/ data to the participant's identity with restricted access. This link could be re-linked if required; therefore, it may also be termed reversible anonymization.	**Irreversibly anonymized:** Link to the participant's identity is removed and cannot be re-linked.
Identifiable	A direct link of sample/data to the participant's identity exists.	

Box 6.1 Confidentiality and privacy of donors related to biological materials and/or data

Some key aspects related to maintaining confidentiality and privacy of donors of biological materials and/or data:

1. The procedure of anonymization minimizes the connection between the identifiers and the stored sample or medical data by delinking the person from her/his biological material.
2. Maintaining confidentiality of data and respecting ethnic identity is of prime importance, especially in population based genetic studies.
3. More precautions should be sought when the research pertains to stigmatizing diseases.
4. When data pertains to epidemiological and public health practice or research, it may be dealt with in the manner described in section 8.

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6.2.2 Under certain circumstances, some degree of identifiability may have to be retained for reasons related to the research. For example, anonymized data or specimens will not allow later withdrawal of consent by an individual, while in the coded category, this will be possible. In the latter scenario, the custodians of the respective biorepository or biobank have a greater responsibility to take adequate measures to safeguard the codes and the data so as to respect the privacy and confidentiality of individual research participants.

6.2.3 Permissibility of a certain research design, acceptability of benefits versus risks, and adequacy of the informed consent, will thus have to be assessed by the EC on a case- by-case basis, taking into account specific contextual and potential vulnerability factors of the participants and the sensitive nature of the proposed research.

6.3 Ethical issues related to donors

6.3.1 Informed consent for biobanking poses specific ethical issues as the aims of scientific study based on which biospecimens are collected and stored in a biorepository are not defined clearly at the time of collection when there are no specific end points and there is a time lag between the collection of the sample and its use in research.

6.3.2 The issues involve multiple stages at which consent needs to be administered – storage, analysis of the biospecimens/samples, use of data linked to the sample, incidental findings, return of results to the participant, sharing of the sample/data with other researchers/national or international institutions, multicentre and multinational collaborations and potential commercialization. These raise issues of access and benefit sharing.

Box 6.2 Example of multiple options in a multi-layered consent

Please pick one of the choices below:

a. I agree to allow my sample/biospecimen to be stored for future use for any biomedical research.
b. I agree to allow my sample/biospecimen to be stored for future use for specific disease such as cancer research.
c. I agree to allow my sample/biospecimen to be stored for future use for other pre- specified health problems, such as diabetes, heart disease.
d. I do not wish to allow my sample/biospecimen to be used in future research which is beyond the scope I have already consented for, unless researchers re-contact me to seek my permission.
e. I do not wish to allow my sample/biospecimen to be used in future research. I do not want researchers to contact me about future studies.
f. I wish to be informed/not to be informed about the results of my investigation.

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Examples of different types of consent processes and their implications are given in Box 6.3.

Box 6.3 Types of consent processes and their implications

1. Blanket or broad consent: This is an open consent given only once to collect the sample, store it and use it for any research at any time in future without the need to revert to the individual for a re-consent. A consent model that allows for current and future access and use of samples or data for research without necessarily specifying what the focus of such studies might be.
2. Tiered consent: This model of consent offers several options from which participants can choose. It includes an opt-in option for future use specifying general permission, or use only related to some aspects of research, sharing of biospecimens/data benefit sharing, etc. It also takes into consideration return of results for which options are also provided for consent. See section 11.4.4 for further details.
3. Specific consent: Consent is obtained for a specific research purpose. Participants are re-contacted for every new use of their stored samples/data if the scope of research is outside that for which they had originally given consent.
4. Delayed consent: It may be administered in the post-medical procedure period when biospecimen or data may be collected for appropriate research from critically ill patients who may not have given prior consent for research. Consent may be taken from the participant or LAR when it is practical.
5. Dynamic consent: This consent is different from one of static, paper-based consent and involves an ongoing engagement and interactions over time with participants to re-contact in response to changing circumstances using technology based platforms. It incorporates a flexible, configurable, technology-based design accommodating both participant and researcher needs. Modern longitudinal biobanks equipped with advanced technology strive for this type of consent.
6. Withdrawal of consent or destruction of sample: The donor has the right to ask for destruction of her/his collected sample(s) and discontinuation/withdrawal from participation in the research. In longitudinal studies, a participant may withdraw from one component of the study, like continued follow-up/data collection when withdrawal may be referred to as partial.
7. Waiver of consent: While using anonymized (de-identified) samples/data, researchers should seek the approval of the EC of the institution or the repository for waiver of consent from donors.
8. Re-consent
   - Secondary or extended uses of stored samples/dataset: In such an instance, one of the preliminary considerations for ECs must be to identify the circumstances under which the research requires re-use of collected identifiable biological material to generate the data or utilize the pre-existing identifiable dataset. This must also include review of the informed consent obtained originally to see if re-consent is warranted. There may be situations where consent would be impossible or impracticable to obtain for such research, in which case the research may be done only after independent evaluation by an EC (Declaration of Helsinki, October 2013).
   - **Paediatric donors:** In longitudinal studies once the child donor attains the legal age of consent a re-consent should be sought for the storage and use of her/his tissue or sample. In paediatric biobanks or biobanks with paediatric samples it is important to address the issue of children reaching legal age of consent. Sometimes re-contact may lead to withdrawal, resulting in limited data analysis. This may lead to bias or it could evoke emotional distress about past research. On the other hand, re-consent may give the participant the power to agree. A biobank should decide the policy it would like to adopt for re-contact.

6.4 Ethical issues related to research

Biobanks can use the stored material/data for doing research themselves or they can outsource or supply such material/data to other researchers or institutions on a non- profit basis.

6.4.1 **Ownership of the biological samples and data:** The participant owns the biological sample and data collected from her/him and therefore, could withdraw both the biological material donated to the biobank and the related data unless the latter is required for outcome measurement and is so mentioned in the initial informed consent document. Complete anonymization would practically make the original donor lose the right of ownership. Biobanks/institutes are the custodians or trustees of the samples and data through their ECs as their present and future use would be done under supervision of the respective ECs. Researchers have no claim for either ownership or custodianship.

6.4.2 **Transfer of biospecimens:** An MTA should be executed if the biospecimens are likely to be shipped from the host institution to collaborating institutions within the country or abroad. The EC should oversee the process of the in-country and international material transfer. Mandatory regulatory clearances with appropriate MoU are required if biospecimens are to be sent overseas. See section 3.8.3 for further details. Directorate General of Foreign Trade (DGFT) has issued a notification related to transfer of human biological material for commercial purposes.38

6.4.3 **Secondary or extended uses of stored samples/re-consent:** The EC will examine circumstances under which the biological material or the data were originally collected and informed consent obtained. The decision about anonymization/informed consent waiver or re-consent will be made on a case-by-case basis as provided in Box 6.4

Box 6.4 Use of stored samples

The following must be considered when stored samples are to be used:

1. whether the proposed use is aligned with the original consent given for the earlier research and scrutinize the validity of the objectives of the new research;
2. whether provisions for ensuring anonymity of the samples for secondary use are stated;
3. whether the permission of LAR is obtained for post-mortem uses of samples;
4. whether the consent form mentions retention and various possible future uses of tissues in the form of a tiered consent; and
5. Whether provisions have been made for allowance of waiver of consent if the donor is not traceable or the sample/data is anonymized or it is impractical to conduct the research.

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6.4.4 Return of research results to individual/groups

There are several possibilities which may be appropriate for a particular research and, according to the suitability, could be included in the participant information sheet/ informed consent document for biobanking.

- Results of the study should be communicated back to the providers of samples/data.
- If the findings are in an aggregate form, the participant will not be able to receive any feedback on individual data.
- Wherever applicable, research findings in aggregate form (which does not reveal individual results) must be discussed with the community, especially when research involves populations who are more vulnerable, such as tribal populations, ethnic groups and people living with certain diseases.
- In the absence of an appropriate mechanism to deal with informational harm that can occur if participants are provided feedback when they are not prepared to face it or if it is not actionable or when such information is unrelated, a lot of distress could be caused to participants concerned.
- At the time of sample collection, it may be a good approach to offer donors the choice of receiving the results of the research whether they are beneficial or not. Participants may also choose not to be contacted about their results. Another alternative is to give participants the option of receiving an aggregate report of all the results of the study which could become a shared benefit for the community. The aforementioned options may be incorporated in a tiered consent.

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6.4.5 Benefit sharing

Biological materials and/or data have potential commercial value but the participants' contribution and their share in this benefit is very often not known to them. The informed consent document should emphasize this aspect with necessary clauses for clarity about benefit sharing. See Box 6.5 for further details.

Box 6.5 Considerations for benefit sharing

1. The document should describe whether donors, their families, or communities would receive any financial or non-financial benefits by having access to the products, tests, or discoveries resulting from the research.
2. The benefits accrued, if any, should be returned to the communities from where the donors were drawn in community-based studies.
3. To the maximum extent possible, benefits should be indirect or in kind.

6.4.6 Role of the EC

ECs play a key role in oversight and use of the bio- and data repositories for research, scientific and public health programmes. Research proposals, which require biorepository services including material transfer and available data sets, should be reviewed by the EC, either an institutional one or that of the biorepository.

6.5 Biological material/data in forensic departments of laboratories

Specimens collected for forensic purposes and related or unrelated data (DNA profiling) offer a good source for academic research after the initial purpose has been served. Data sharing with researchers across the globe is a common practice for refining techniques to develop biomarkers, which could identify missing persons in most difficult circumstances (for example, highly decomposed bodies, disaster situations). In academic institutions, there is a demand for organs and tissues for education, training and research purposes.

6.5.1 Informed consent: If there is no written consent by the deceased person permitting use of organs or tissues, the family can be approached for consent for use of left-over organs or tissues.

6.5.2 No consent would be required if sample or data is anonymized.

6.5.3 If the deceased has no claimant then forensic officials will be authorized to give permission for use of material/data from its sources and be responsible for use of unclaimed cadavers.

6.5.4 The quantity of tissue taken should ideally be minimal, particularly if it is seen externally on the body in order to preserve the dignity of the dead and be culturally acceptable by the next of kin or closest relative or friend.

6.5.5 The information in the informed consent document should state what tissue/organ will be retained, who will be the custodian, duration of storage of sample, what type of research would be conducted and method for disposal of the remains.

6.5.6 Genetic research or revelation of any other stigmatizing factors like HIV, etc. in the deceased may have implications for family members. In such instances, all ethical requirements as in the case of live participants should be followed.

6.5.7 The role of the EC is to review and approve the type of consent – broad, tiered with or without option to opt-out or specific and to assess from whom it would be taken – the family, closest relative or friend – or whether sample anonymization should be done.

6.6 Governance of biobank/biorepository

Institutions where data are collected and archived must have an established governance structure with the following requirements for regulation.

6.6.1 Each bio repository should have its own technical authorization committee with representation of both science and ethics and external members. This committee should function in tandem with the EC.

6.6.2 A technical authorization committee, indigenous to the biorepository, should govern collection of specimens, disbursement of biospecimens and data to researchers. The same committee should also oversee regulatory aspects like execution of MTA or data transfer agreement (DTA) for transfer of biospecimens and/or data to other institutions.

6.6.3 Stand-alone huge repositories should have separate technical authorization committees and ECs to undertake the above-mentioned tasks.

6.6.4 The biobank should have well-structured SOPs and clear guidelines for collection, coding, anonymization, storage, access, retrieval and sharing of biospecimens and data.

6.6.5 The technical authorization committee/governance committee could comprise members such as clinicians, geneticists, lawyers, basic scientists, sociologists, epidemiologists, statisticians and ethicists.

6.7 Special issues related to datasets

6.7.1 With increasing ease of establishing and maintaining large repositories the primary objective of data collection and storage in some of these databases may not be research but with advances in information technology (IT) and decreasing costs, they offer a huge potential for subsequent research as well as commercialization. Whenever such repositories are used for purposes of research or for subsequent commercialization, it must follow the expected requirements of any other health-related research with due diligence, including review by an EC.

6.7.2 There is also a proliferation of data mining and other data science tools that can be employed on existing databases for research purposes to reduce costs and health related processes. EC approval is required to establish legitimacy of the purpose for data mining, access control and about the usefulness of information for particular groups (such as rare disease group). Data privacy, data accuracy, data security, and possibility of legal liability should be ensured when the data is outsourced or sold. Auditing could be done to detect misuse.

6.7.3 Health data is increasingly being collected outside of traditional healthcare settings. Data is shared with third parties not only for research, but also for commercial gain. Big data in health research raise a wide spectrum of ethical issues, ranging from risks to individual rights, such as privacy and concerns about autonomy to individuals. There are unique aspects, such as its data sources, scale, and open access provisions. Ethical issues related to data security, sharing, rights, benefit sharing and others surrounding big data need to be closely examined.

6.7.4 Databases maintained in electronic/digital formats, linked by internet or other networks, using cloud computing technologies and those associated with big data initiatives, may pose additional risks to privacy and confidentiality than what is described under biobanks or traditional paper-based data repositories. Hence, in such situations all reasonable measures must be adopted to respect and protect privacy and confidentiality of individuals as given in Box 6.6

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Box 6.6 Measures to ensure privacy and confidentiality of individuals

1. Ensure physical safety and security of the involved devices and computer servers
2. Take data security measures such as password protection
3. Provide differential and role-based controlled access to data elements for members of the research team
4. Ensure use of data encryption when data is transferred from one location/device to another
5. Ensure benefit sharing with owners and related legal issues since, unlike some other countries, India does not have a data protection act as yet

6.8 Contingency plan

One of the important but often neglected ethical issues related to biorepository is the legacy or contingency plan. Institutions should develop the contingent plans for sustainability of the biobanks.

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RESEARCH DURING HUMANITARIAN EMERGENCIES AND DISASTERS

7 A humanitarian emergency or disaster is an event or series of events that represents a critical threat to the health, safety, security or well-being of a community or other large group of people, usually covering a wide land area. For the purpose of these guidelines, humanitarian emergencies and disasters include both man-made and natural ones, some of which occur at periodic frequency. Emergencies, such as an earthquake, flood, mass migration, conflict and outbreak of disease, leading to substantial material damage affecting persons, communities, society and state(s), create an imbalance between capacity and resources to meet the needs of the survivors or the people whose lives are threatened during that period. Research is necessary in such circumstances to enable provision of efficient and appropriate health and humanitarian response during the ongoing emergency and to be able to plan for future emergency situations. Local, national or international responses and preparedness, without interfering with measures to control the crisis or ecology, are the key to reducing morbidity and mortality in such events.

Humanitarian emergencies raise complex issues. The health system, communications, research infrastructure, and research governance frameworks may be adversely affected during such situations, which create challenges for the feasibility and oversight of conduct of research. While there may be a need to undertake research quickly, this should not impact scientific validity and the need to uphold ethical requirements. Close attention should be paid to the effect of the emergency on perceptions of ethical questions, altered or increased vulnerabilities, provider–patient and researcher–participant relationships, issues related to integrity of studies and ethical review processes. A unique challenge would be the response to rapidly evolving health needs or priorities of those impacted by the humanitarian emergency when the research cannot be conducted outside the humanitarian emergency situation. Designing or adopting innovative relevant research, based on rapidly evolving scientific and ethical uncertainties, which is expected to yield scientifically valid results is another significant challenge. The other

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challenges are inadequate time to design a study and lack of infrastructure facilities and resources to conduct it within a disrupted physical-socio-cultural environment. The role of ECs in such circumstances is very important in reviewing protocols prepared for such emergency situation(s). Responsiveness to the situation, supervision, training and prevention of heightened risk of violence are other factors to be considered and planned.

7.1 Pre-emptive research preparation for future humanitarian emergency

A natural disaster of cyclical frequency is an expected phenomenon. The following will be acceptable if a research is planned to study various implications on humans and ecological effects on humans in these circumstances.

7.1.1 Researchers and sponsors could make arrangements about research questions to be addressed in the design, collection of samples and data, and sharing mechanisms much in advance of a future humanitarian emergency.

7.1.2 Researchers could screen available and/or relevant draft research protocols to expedite the review process.

7.1.3 The EC could review proposals prior to the occurrence of the emergency and determine who could be an acceptable LAR in the absence of intended LARs (authorized/ acceptable) in such situations.

7.2 Informed consent requirements

7.2.1 Obtaining valid informed consent in humanitarian emergencies is a challenge as the decisional capacity of the participants would be so low that they may not be able to differentiate between reliefs offered and research components. This should be very clearly distinguished during the informed consent process.

7.2.2 Additional safeguards are required for participants due to their vulnerability, for example, counselling, psychological help, medical advice and process of stakeholder consultation.

7.2.3 The potential research participants might be under duress and traumatized. Researchers should be sensitive to this situation and are obligated to ensure that the informed consent process is conducted in a respectful manner.

7.2.4 Researchers should strive to identify and address barriers to voluntary informed consent and not resort to inducements for research participation.

7.2.5 The different roles of researchers, caregivers and volunteer workers must always be clarified, and potential COI declared.

7.2.6 If research involves incompetent individuals (such as minors), then the LAR should give consent. Additional protections might be required in special cases, for example, children with untraceable or deceased relatives. In these situations, the consent should be obtained from an individual who is not part of the research team who should be designated by the institution/agency conducting research.

7.2.7 For seeking waiver of consent, the researchers should give the rationale justifying the waiver. EC should approve such a waiver after careful discussion on the issue. See section 5 for further details.

7.2.8 When consent of the participant/LAR/assent is not possible due to the situation, informed consent must be administered to the participant/LAR at a later stage, when the situation allows. However, this should be done only with the prior approval of the EC.

7.3 Risk-minimization and equitable distribution of benefits and risks

7.3.1 Considerations for fair selection of participants are described in Box 7.1.

Box 7.1 Considerations for fair selection of participants

1. The overall effort is not to over-sample, particularly vulnerable segments of the population.
2. Explicit selection criteria or prioritization of participants with proper justification should be provided in the protocol.
3. Efforts should be taken to ensure that research participants are not exploited during the research project by imposing additional burdens on them.
4. It is desirable to set up a DSMB to frequently review the data to check on risk quantum.

7.3.2 Efforts should be made to see that the positive results of a specific research are applicable to future similar disaster situations.

7.3.3 Whenever possible, a priori agreement could be reached between researcher(s) and disaster affected communities for benefit sharing, which could be extended to future disaster affected communities wherever applicable.

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7.4 Privacy and confidentiality

7.4.1 Disruption of governance, infrastructure and communication networks and inflow of visitors during emergencies can lead to a breach of privacy and confidentiality. In some situations, there can be stigmatization and discrimination which should be minimized at all stages of research.

7.4.2 Special efforts (culturally appropriate and scientifically valid) are required to maintain dignity, privacy and confidentiality of individuals and the communities.

7.4.3 Efforts should be made to protect the identifying information about individuals and communities, for example, from exploitation by the print and visual media.

7.5 Ethics review procedures

7.5.1 Research during humanitarian emergencies and disasters can be reviewed through an expedited review/scheduled/unscheduled full committee meetings and this may be decided by the Member Secretary on a case-to-case basis depending on the urgency and need. If an expedited review is done, full ethical review should follow as soon as possible.

7.5.2 Meticulous documentation and archiving are required to enable future application in similar situations.

7.5.3 Suggestions to expedite the review process are given below:

- Measures such as virtual or tele-conferences should be attempted when face-to-face meetings are not possible.
- In exceptional situations, preliminary research procedures including but not restricted to data/sample collection that are likely to rapidly deteriorate or perish may be allowed while the review process is underway.
- Available protocol templates could be reviewed to expedite the process.
- Re-review should be done if the emergency situation changes.
- In situations where members of local ECs are unavailable due to the emergency, the ethics review may be conducted by any other recognized EC within India for initiating the study, until the local EC is able to convene its meeting. ECs should develop procedures to ensure appropriate and timely review and monitoring of the approved research. On a case-by-case basis, some protocols may require re- review as the emergency situation may change with time and circumstances.

7.5.4 The EC should closely monitor the conduct and outcome of research.

7.6 Post-research benefit

Sponsors and researchers should strive to continue to provide beneficial interventions, which were part of the research initiative even after the completion of research and till the local administrative and social support system is restored to provide regular services.

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RESEARCH DURING HUMANITARIAN EMERGENCIES AND DISASTERS

7.7 Special considerations

Humanitarian emergencies lead to fragile political environments with disruption of health systems and social situations.

7.7.1 The researchers should undertake steps to maintain participant and community trust.

7.7.2 Efforts should be made to engage the community in the conduct of research in a culturally sensitive manner to ensure public trust.

- The research team should preferably describe a preliminary community mapping/scoping exercise.
- Wherever possible, community representatives or advocates should be involved in conceptualization, review, research and dissemination of research results in such settings.

7.7.3 In case of an outbreak of infectious diseases, monitored emergency use of unregistered and experimental interventions (MEURI) may be approved with the following precautions:

- A thorough scientific review should be conducted, followed by an ethics review by a national level EC constituted for this purpose.
- Oversight by a local EC is necessary.
- Only a product complying with GMP should be used.
- Rescue medicines and supportive treatment should be accessible.
- Sharing data on safety and efficacy would be beneficial to reduce delay for other researchers.
- Consent process is important and must be carried out with care.
- Planning should be done for community engagement.
- Fair distribution should be ensured when faced with scarce supply.

7.8 Continuation of ongoing research when a humanitarian emergency occurs

7.8.1 The research may have to be suspended and the decision may be taken by researchers with information to EC.

7.8.2 The researchers can go back to the EC for guidance regarding continuation of research or not.

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7.8.3 Amendments might be incorporated in the proposal(s) to align to the research needs arising from the emergency including issues related to re-consent from participants.

7.8.4 The EC may decide if more frequent monitoring is required.

7.9 International participation in research

7.9.1 Conduct of research in a humanitarian emergency situation, which involves a foreign researcher/institution, must involve local partner(s).

7.9.2 Existing guidelines on international collaboration for biological samples, data and intellectual property including publication related issues will be applicable. See section 1.8.3 for further details.

7.9.3 The local EC will monitor the progress of the research and compliance to the various clauses of the international collaboration.

7.9.4 Permission should be obtained from relevant national and local authorities, wherever applicable.

7.9.5 The research should help in developing the capacity of local researchers and sites and provide key learning points to the policy makers and the community.

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Guidelines and S.O.P. for PG Thesis

- **Allotment of topic**: Within 03 months of joining the P.G. Course.
- Selection of Guide will be done by Head of the Department in the order of seniority and eligibility strictly on the basis of rotation.
- Co-guide will be selected by Guide.
- Submission of proposal before Departmental Research Committee.
- Submission of Synopsis for approval will be done within 06 months from the date of admission.
- Flowchart for approval by The Dean will be as follows:-

Departmental Research Committee | Ethical Approval | Institutional Research Committee | Dean for Approval	Total time period is 03 months

- Final submission of thesis will be done 06 months before the completion of P.G. course.
- After that Thesis will be sent for evaluation to three experts.

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Standard Operating Procedure (SOP)

For

Departmental Research Committee, Institutional Research Committee and Research Sub-Committee and Investigators for Intramural Research Projects

2023

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Departmental Research Committee (DRC)

9.1 Standard Operating Procedures for Departmental Research Committee (DRC)

Scope

There is a need to constitute Departmental Research Committee for all Academic Departments by the Vice Chancellor, UPUMS, Saifai. The DRC will discuss all the projects requiring ethics/research cell/administrative approval (any type of project & funding) for scientific evaluation submitted by the investigators.

Constitution

1. Head of the Department	Chairman
2. All the faculty members	Members
3. Other faculty members from different Department (optional)	Co-opted members

Frequency of DRC

The Departmental Research Committee will meet at least every two months in the Department and earlier if needed. The minutes of the DRC will be sent to Research Cell within two weeks along with a copy of the research projects discussed.

Quorum Requirements

At least 50% of members of the DRC including regular HOD should be present during the meeting and all should sign on the proceedings.

Procedure

The DRC will forward all the projects to Research/Ethics committee as required, if the project is approved (apart from a copy of DRC minutes & project to Research Cell as mentioned above). If the project is not approved, it should be sent to Research Cell along with DRC minutes. The final decision will be taken by the Research Committee of the Institute, whose decision will be final. If no project to be discussed in DRC, a note stating it will be sent to the Research Cell by HOD.

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Flow Chart for Departmental Research Committee

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9.2 Standard Operating Procedures (SOP) for Institutional Research Committee (IRC)

1. Scope

The scope of the committee is to put in place an effective and consistent scientific review mechanism for health & biomedical research for all the proposals submitted by the investigators in their area of research interest.

2. Functions of Institutional Research Committee (IRC)

The Research Committee of UPUMS, Saifai has the overall responsibility for reviewing, approving and monitoring of all the research projects undertaken by the investigators and discusses all the issues related to the research.

The objective of the committee is to review the scientific merit, rationale of the study and feasibility, scientific design and methodology, data quality, safety & progress of each health and biomedical proposals for the welfare of human participants.

3. Composition of IRC

The Institutional Research Committee (IRC) of the Institute shall be multi-disciplinary and multi-institutional in composition. The number of members of the IRC shall be around 10-14 members. At least 25% shall be external members in the committee, preferably from the local institutions of international and national repute, for ensuring the fair scientific evaluation of the protocols submitted by the investigators. There should be adequate representation of age, gender, etc.

The Hon'ble VC UPUMS, Saifai, shall constitute the Research Committee and forward it to Academic Board of the University for its approval.

The Chairperson of the committee shall be the Vice Chancellor of UPUMS, Saifai. The Member Secretary, a faculty-in-charge selected from the University, shall conduct the business of the committee. There shall be a proper representation of medical and non-medical internal faculty with a strong scientific and research temperament and experience including external members to reflect the different viewpoints.

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The composition may be as follows:

1. The Vice Chancellor	Chairperson
2. Dean Research	Member & Vice-Chairperson
3. Faculty In charge Research Cell	Member Secretary
4. One Clinician from Medical discipline	Member
5. One Clinician from Surgical discipline	Member
6. One Faculty from Radiation sciences	Member
7. One Faculty from Laboratory sciences	Member
8. One Faculty from Basic sciences	Member
9. One Faculty from Community Medicine	Member
10. One faculty member from Dept. of Biostatistics	Member
11. Four external medical/non-medical members from Local/outside institutions	Member

4. Duration of Committee

The duration of committee shall be for the period of **three years**.

5. Membership Duration and Responsibilities

1. The duration of the membership shall be of three years.
2. Any member can serve for more than one term but all efforts will be taken to appoint fresh members comprising at least two-third of total members.
3. A member can be replaced in the event of long term non-availability (three consecutive meetings). Authority to replace the member shall be with the Vice Chancellor, UPUMS, Saifai.
4. The member should maintain confidentiality during the meeting and sign a confidentiality form at the start of their term.
5. Each member of the committee will submit a declaration to maintain the confidentiality of documents submitted to them during their membership period.
6. Conflict of interest if any shall be declared by members of the Research Committee at the beginning of every meeting.

6. Quorum Requirements

A minimum of 50% members including at least one outside member will be required for the quorum. All decisions should be taken in the meeting and not by the circulation of project proposals.

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7. Offices/Conduct of Meeting

The Chairperson will conduct all the meetings of the Research Committee. If for reasons beyond control, the Chairperson is not available, then the Dean Research will conduct the meeting. The Member Secretary will be responsible for organizing the meeting, maintaining the records and communicating with all concerned. He / She will prepare the minutes of the meetings and get them approved by the Chairperson. All the decisions will be communicated to investigators by the Institutional Research Committee (IRC). The minutes should be circulated by the IRC within two weeks to all the members for their information.

8. Independent Consultants

Research Committee may call upon subject experts as special invitee for the review of selected research protocols. These experts may be from outside of the institute and have sufficient expertise on the concern research proposals submitted to them. They will not take part in the decision-making process.

9. Review Procedure

1. The Institutional Research Committee (IRC) meeting will be conducted six times in a year as per the following schedule on every second week of the following months: (Jan/March/May/July/September/November)

   The date for receiving the proposals will be the last working day of the preceding month before the scheduled month. The Principal Investigators of the research proposal will be responsible for the submission of their projects before the deadlines as mentioned. In case of their unavailability, he/she may assign the responsibility to one of the Co-PI.

For old Projects

There will be an annual review by the Research committee for the old projects sanctioned to the Investigators with the following elements to review:

i. To review the progress of the project in terms of sample size target by the investigator

ii. The procurement of consumables and utilization of budget

iii. Any deviation from the methodology as proposed in the original project, subsequent review of the project will be conducted after two years to review the completion of the project and its outcome.

If for any reason(s), the Research Committee is not able to meet, the progress report can be reviewed by a sub-committee of the Dean, Faculty I/c Research Cell, and three members of the Research Committee.

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For New Projects

1. The agenda & proposals should be sent to the members at least two weeks in advance. The decision will be taken by consensus and through a procedure described in the point no. 12 (page no.90).

2. The Principal Investigator should present the proposal before the Research Committee & the Co-investigator should be present for any clarification regarding the project. Residents/Students should not be allowed to present the proposal. In case, PI is not available during the meeting, he/she can authorize one of the Co-investigator to present the proposal before the committee.

3. Independent consultants/experts may be invited as a special Invitee to offer their opinion on specific research proposals.

4. The decisions of the meeting shall be recorded in the minutes book and shall be confirmed during the next meeting with the signatures of the Chairperson on each page.

10. Elements of Review

1. Rationale of the study
2. Scientific design & methodology
3. Relevance of sample size and its statistical correlation
4. Experimental details and their feasibility
5. Conduct of the study
6. Procedure for selection of subjects including inclusion & exclusion criteria
7. Outcome of the proposal
8. Facilities & infrastructure
9. Plans for data analysis & reporting
10. Relevance of budget estimation
11. Plagiarism Checking (through relevant software)

11. Decisions Making

1. A member shall withdraw from the meeting during the decision procedure concerning an application where a conflict of interest arises. This shall be indicated to the Chairperson prior to the review of the application & recorded in the minutes.

2. Only members will make the decision. The decisions shall be taken in the absence of the Principal Investigators & Co-investigators.

3. In case, if the member has submitted the project as Principal Investigator/Co-PI, he/she should be outside of the Committee Room during the decision-making process and shall not give the marks to his/her project.

4. The decision of the Research Committee may be to approve the project or reject or to revise the proposals. Specific suggestions for modifications and reasons for rejection should be given.

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12. Procedure for decision-making for the project (Intramural)

a. Any intramural project will follow the following procedures for approval and grant of the fund.

   i. Step 1: The Proposal will be sent to two external experts of the respective subjects for evaluation. The timeline for this will be 2 weeks. The evaluation score will be as per score sheet attached in section 10.

   ii. Step 2: After evaluation from external expert, the proposal will be presented before Institute Research Committee.

b. The final score will be the average of scores obtained in Step1 and Step2.
c. The minimum score should be 50% in overall.
d. The Principal Investigator has to obtain a minimum 50% score in external evaluation and evaluation by IRC separately.
e. After cumulating the marks given by members, the percentage may be drawn. Below 50% the project will not be considered for Intramural funding.
f. In case, there is funding available only for one project and there are two or more projects at the same percentage point then the preference will be given to the Junior Faculty Members.

13. Communicating the decision

1. Decisions will be communicated to the Principal Investigators by the Research Cell in writing.
2. Suggestions for modifications and reasons for rejection should be communicated to the Principal Investigators & their HOD's.

14. Follow up procedures

1. A Six monthly report should be submitted by the Principal Investigator on prescribed format to the Research Cell after just completion of six months. If PI fails to submit the six-monthly report in time, the expenditure of grant may be stopped by the competent authority of the University.
2. Annual report should be sent by the Principal Investigator at the end of one year on prescribed format for its review.
3. The final report should be submitted by the PI within two weeks of the expiry of the project to the Research Cell for its submission to the Research Committee for final review.
4. If any amendment/deviation is done by the Principal Investigator during the ongoing project, it should be reported to the Research Cell for its placement to the Research Committee.
5. The Principal Investigator should submit the copy of the manuscript / acceptance / publication of the research paper in the indexed journal derived from the same project.

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15. Record keeping and archiving

1. Curriculum vitae (CV) of all members of the Research Committee
2. Minutes of all the meetings duly signed by the Chairperson
3. Copy of all the correspondence with members, investigators etc.
4. Copy of all the existing relevant documents of the Institutional norms
5. Copy of all the reports (six monthly, annual and final)
6. Copy of manuscript, accepted/published reprints of the research papers

16. Updating Research Committee Members

1. All the relevant information, regarding the research activities derived from the various statutory bodies should be brought to the attention of the members of the Research Committee by the Member Secretary.

2. If any changes are done in any format or procedure, it should be brought to the knowledge of members, investigators, and co-investigators and should be available on the University website.

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9.3 Standard Operating Procedures for (RC) Research Cell, UPUMS, Saifai

Scope

The Research Cell (RC) will act as a nodal center for coordinating and management of research project for approval and disbursement and final submission of research at UPUMS, Saifai. It will facilitate all the projects requiring ethics/research cell/administrative approval (any type of project & funding) for scientific evaluation submitted by the investigators and the final management of the research project.

The function of Research Cell

1. Research cell will issue notifications for the submission of new proposals, progress report and final report.
2. The PI will submit complete Intramural Project proposal in the prescribed format along with Informed Consent Documents (in case of human studies) to Research Cell. The PI is also required to submit the filled Project information form.
3. The RC will forward all the projects to Research/Ethics committee as required. If project is approved, it should be it informed to PI/Co-PI/ Department.
4. It will coordinate all meetings of DRC/IRC/IEC and sub-committee.
5. RC will receive all funds in UPUMS Research Account from the funding agency and UPUMS accounts department for intramural projects approved by IRC.

Constitution of Research Cell

The Vice-chancellor, UPUMS, Saifai will constitute a Research Cell comprising members from the IRC for smooth coordination of all activities pertaining to research. Research Cell may have the members as follows:

1. Faculty In-charge
2. Additional Professor/ Associate Professor
3. Accountant/ Account Officer
4. Office Assistants

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Finance disbursement

1. After clearance of all approval (DRC, IRC, IEC), approved budget for each intramural project and grant received from the external agency will be transferred to bank account of Research Cell, UPUMS, Saifai.

2. The disbursement of funds will be allocated as shown below:

Disbursement of fund

Fixed expenditure (e.g. Salary of staff & equipment to be managed by Research cell)	Recurring/Variable expenditure to be managed by P.I / Co. P.I)

3. GFR- 2005 and all finance rules of Govt. of India will be strictly adhered to and followed for the disbursement of funds.

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FLOW CHART FOR SUBMISSION & APPROVAL OF INTRAMURAL-FUNDED PROJECTS

Call for intramural projects notified by Research Cell to Faculty members

Interested Faculty members (i.e. Principal Investigator [PI]) should get a copy of the minutes and recommendations of the Departmental Research Committee to be attached with the project proposal.

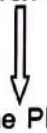
Along with DRC documents PI will submit proposal to the Institutional ethical committee (IEC).

Then submit the complete Intramural Project proposal in the prescribed format, along with the Informed Consent Documents (in case of human studies), and filled Project information form to the Research Cell. Also, attach minutes and recommendations of DRC and IEC.

After receiving 14 hard and soft copies of the documents, the Research Cell provides a provisional Project code and forwards it to the Institutional Research Committee (IRC) for review (The PI will have to make a presentation of their project before IRC).

After the IRC meeting, the Research Cell will communicate the recommendations of IRC to the PI.

After approval from IRC and IEC clearance, Research Cell will issue a Permanent Project code for the record. A letter for sanction of a grant for intramural research project will be provided to the PI by the Research Cell.



Followed by the release of grant to the PI by the research account after notification to the account section for disbursement of the grant.

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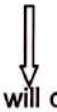
FLOW CHART OF SUBMISSION & APPROVAL OF NON-FUNDED PROJECTS

Interested Faculty members (i.e. Principal Investigator [PI]) should get a copy of the minutes and recommendations of the Departmental Research Committee to be attached with the project proposal.

Along with DRC documents PI will submit proposal to the Institutional ethical committee (IEC).

Then submit the complete Intramural Project proposal in the prescribed format, along with the Informed Consent Documents (in case of human studies), and filled Project information form to the Research Cell. Also, attach minutes and recommendations of DRC and IEC.

After receiving 14 hard and soft copies of the documents, the Research Cell provides a provisional Project code and forwards it to the Institutional Research Committee (IRC) for review (The PI will have to make a presentation of their project before IRC).



After IRC meeting, the Research Cell will communicate the recommendations of IRC to the PI.

After approval from the IRC, Research Cell will issue a Permanent Project code for the record.

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9.4 Standard Operating Procedures (SOP) for Research sub-Committee

1. Scope
The Research sub-committee is constituted by the University for the purpose to review the ongoing activities of the Intramural projects viz; Annual Reports &Final Reports presented by the Principal Investigators and for non-funded projects. Only internal members of the Research Committee will be eligible for becoming member of the Research Sub-Committee.

2. Function of the Research sub-committee
The Research sub-committee of the Institute has the overall responsibility for reviewing all the research projects, funded and non-funded, undertaken by the Investigators. The objective of the committee is to critically review the ongoing status of the projects and also provide opinion to the PI, if the PI is facing difficulty while executing the project work.

3. Composition of Research sub-committee
The Research sub-committee of the University shall be multi-disciplinary in composition. The number of committee members should be kept small (a total of five) as a large committee makes it difficult to meet and reach a consensus. All the members will be internal in the committee.

The Vice-Chancellor, UPUMS, Saifai, shall constitute a Research sub-committee on the recommendation of the Faculty I/c Research.

The Chairperson of the above committee shall be the Dean of UPUMS, Saifai. The Faculty I/c Research shall be the Member Secretary of the above committee. Other members will be mixed Medical, Surgical & Non-Medical scientific persons.

The composition may be as follows:

1. Dean (Medical faculty), UPUMS.	Chairperson
2. One clinician from Medical Discipline	Member
3. One non-clinician from Medical/non-Medical Discipline	Member
4. One Clinician from Surgical Discipline	Member
5. Faculty I/c Research	Member Secretary

4. Duration of the Research sub-committee

The Duration of the Research sub-committee shall be for the period of three years.

5. Membership Duration and Responsibilities of the Research Subcommittee

1. The duration of the membership shall be three years.
2. There will be no bar on the members serving for more than one term, but it is desirable to have around two third fresh members.
3. A member can be replaced in the event of long-term non-availability (three consecutive meetings). The authority to replace the members shall be with the Vice Chancellor, UPUMS, Saifai.
4. Conflict of interest if any, shall be declared by the members of the Research subcommittee at the beginning of every meeting.

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6. Quorum Requirements

A minimum of FOUR members including at least one Clinician & non-clinician will be required for the quorum. All decisions would be taken in the meeting and not by the circulation of project reports.

7. Offices/Conduct of Meeting

The Chairperson will conduct all the meetings of the Research sub-Committee. If the Dean, who is the Chairperson of the above committee, is not available, the acting Dean will conduct the above meeting. The Member Secretary will be responsible for organizing the meeting, maintaining the records, and communicating with all concerned. He/She will prepare the minutes of the meetings and get them approved by the Chairperson. All the decisions will be communicated to investigators by the Research Cell. The minutes should be circulated by the Research Cell within two weeks to all the members for their information.

8. Application procedure

1. All the reports should be submitted in the prescribed format, the copies of which should be available with the Research Cell and University website.
2. All the relevant documents should be enclosed with the reports as per the checklist.
3. The required number of hard copies along with a pen drive of the reports with supporting documents viz: copy of the publication, abstracts, conference presentation, documents etc. should be submitted to the Research Cell by the PI.
4. The Research Cell will acknowledge the receipt.
5. The date of the meeting will be intimated to the Principal Investigators who shall be available for the presentation of their reports for the Research sub-Committee meeting.
6. The decision of Research sub-Committee will be communicated in writing within two weeks by the Research Cell, if the Research sub-committee recommends for Extension /termination of the project, the same shall be communicated to the Principal Investigator after the minutes are approved by the Vice Chancellor, UPUMS.

9. Review Procedure

1. The Research sub-committee shall be held as per the need preferably in
   i) Second week of May
   ii) Second week of November

2. The Research sub-committee will review the annual/final reports of the ongoing projects sanctioned earlier to the investigators with the following elements to review:
   i) To review the progress of the project in terms of sample size target by the investigator.
   ii) Appropriate methodology adopted by the investigator as per the sanctioned protocol design.
   iii) The status of procurement of consumables and utilization of budget.
3. The Agenda & reports should be sent to the members at least two weeks in advance. The decision should be taken by consensus.
4. The decisions of the meeting shall be recorded in the minutes book and shall be confirmed during the next meeting with the signatures of the Chairperson on each page.

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10. Elements of Review

1. The appropriate implementation of the project as per the methodology sanctioned in the project.
2. Sample size target by the investigator during the one year of its implementation in the annual report and total sample size target by the investigator during the completion of the project.
3. Experimental details during the conduct of the study.
4. Outcome of the study after completing its duration.
5. To assess the generation of an extramural project based on the work conducted by the investigator after the completion of the project.
6. Quality of publication resulted from the project.
7. Utilization of budget during the annual and final year.

11. Decision Making

1. A member shall withdraw from the meeting during the decision procedure concerning an application where a conflict of interest arises. This shall be indicated to the Chairperson prior to the review of the application & recorded in the minutes.
2. Only members will take the decision. The decisions shall be taken in the absence of the Principal Investigator & Co-investigator.

12. Communicating the decision

1. Decisions will be communicated to the Principal Investigator by the Research Cell in writing.
2. Suggestions for modifications and reasons for rejection should be communicated to the Principal Investigator.

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Prof. B. K. Singh
Vice Chancellor

Uttar Pradesh University of Medical Sciences, Saifai

9.5 Standard Operating Procedure (SOP) for Principal Investigator for Research Proposal Submission

Scope

The project should be developed with well-defined objectives that can be completed in 12 months (one year) and maximum extended up to 2 years. These are specifically meant to generate pilot data or innovative technology development. These projects will help the investigators to generate extramural grants on a larger sample size.

Period for submission of project

The project proposal will be invited from all the Faculty Members twice a year in the month of February and August. The Research Committee will review the projects in March and September each year. The Principal Investigators are encouraged to submit the project even before the invitation is sent so that they can be taken in the upcoming Research Committee Meeting.

Number of copies

14 hard copies & a soft copy should be submitted by the Principal Investigator to the Research Cell.

Procedure for application of intramural funding

1. Faculty members should apply for only one intramural project.
2. The project should be discussed in the Departmental Research Committee meeting and a copy of the minutes should be attached with the project proposal prior to the submission to the Research Cell for its placement in the Research Committee.
3. The projects which are submitted by the Principal Investigator for intramural funding, the PI should attach the proof of submission to the Institutional Human Ethics/Animal Ethics committee prior to the submission to the Research Cell.
4. The duration of each project is ordinarily limited to 12 months period after sanction of the intramural grant, and can be extended maximum for another one year, if needed.
5. The budget shall not ordinarily exceed Rs. 5 lakhs. Under exceptional circumstances, the budget for Rs. 7 lakhs maximum may be considered by the committee only for outstanding, innovative projects after due sanction by the Hon'ble Vice-Chancellor.
6. The budget should be given in detail with full justification for all items in a separate sheet under various heads. **Please do not tailor the budget to make it around 5 lakhs. Contingency should not be asked separately.**
7. The funds will be utilized only for the purchase consumables: chemicals, kits, disposables, travel expenses for field-based studies, etc. All items covered under the Learning Resource Allowance Scheme will not be allowed under this scheme. Stationary (office and computer), photocopying will not be allowed. Expenditure for attending conferences for presenting the paper of the approved projects will not be

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allowed.

8. Funding will not be utilized purchase of any permanent items like instruments, machines, equipment, computer, books etc. which are not of consumable nature.
9. For the field based /community-based study, data collectors can be hired on a daily basis. The minimum wages and other monetary benefits will be decided as per the guidelines of the central and state labour employment act.
10. Senior and Junior Residents, PhD students, Research Associates, Undergraduate and Postgraduate students, and Paramedical staff cannot be co-investigators. PhD projects will not be allowed to utilize this intramural funding. Registration of Ph.D. students will not be allowed under this scheme and employment staff will not be allowed.
11. Collaborative projects involving more than one department should be discussed with all participants. Only those actually involved in the work should be co-investigators. The co-investigator from outside the institute may be approved by the Research Committee depending upon the need & merit of the project. His/her one-page CV should be attached.
12. If the project involves direct intervention or interaction with patients, the Principal Investigator should be a clinical faculty member, similarly, if the project involves Research work on human subjects with no direct intervention, then the co-investigator should be from the concerned Department where the samples are collected.
13. For faculty members approaching superannuation, the remaining service period of the Principal Investigator should be longer than the duration of the project at the time of submission.
14. At any given period of time, no faculty member should have more than TWO intramural projects running. The third project will be considered only when at least one of the currently running two projects has been completed and reviewed by the Research Committee or and Principal Investigator has submitted a manuscript/acceptance / published paper from the project.
15. The intramural project **should not** be sent to the extramural funding agency simultaneously.
16. Statistical inputs from the Expert (Biostatistician) may be taken if needed.
17. For those faculty members who have already completed two or more intramural projects, further projects will be sanctioned only if they have published a paper in an indexed journal from at least one of the last two completed projects or have generated an extramural research grant from the inputs derived from the intramural project.
18. The grant for a new intramural project will be released when the PI will provide the ethical clearance of the concerning project to the Research Cell.
19. All the presentations for the new projects should be made before the Research Committee and the PI should present the project consisting of 10-12 slides.
20. The PI should send the project per the prescribed format with each section starting on a new page and all the points should be addressed.
21. If a faculty wants to use his/her intramural project for funding a DM/M.Ch. project, the student may be a Co-investigator after approval of the Research Committee.
22. Till such time that the institute develops a mechanism for the provision of insurance cover for the trial subjects, no drug/device/procedural trials will be allowed either for the intramural project, independent projects, DM/M.Ch./MD projects, or for investigator-initiated trials. It is allowed only when there is a provision of sufficient insurance cover for compensation of trial subjects, for e.g. in extramural/drug/device trials funded by industries.
23. If an investigator conducts a drug/device/procedural trial and if any problem arises for the compensation to the subjects as per the DCGI guidelines and Gazette of India, the institute will not be responsible in any manner. This will be applicable even if the project has been cleared by the Institutional Ethics Committee, UPUMS, Saifai.

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24. No projects will be allowed to go through the IEC/signatures for higher authorities of the institute unless the minutes of the Departmental Research Committee are attached thereof.
25. Outsourcing of any investigations will not be permitted from intramural projects. If there is a strong justification, it has to be discussed in the Research Committee meeting of the Institute and will have to be approved explicitly.
26. For all the projects, there should be at least one co-investigator in each project preferably from the same department and there should be an undertaking by the co-investigator that he/she will take the responsibility to complete the project and financial matters related to it. In case PI is unable to complete the project due to unavoidable circumstances (resignation, superannuation etc.).

27. All the investigators are requested to provide a copy of the published papers/submitted manuscript or a write-up explaining why the paper has not been published for all previous closed/completed intramural projects.

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Vice Chancellor

Flow chart for submission of projects by the Principal Investigator

Principal Investigator

⇓

Departmental Research Committee (DRC)

⇓

Submission of project to the IEC cell

⇓

Submission of project with minutes of DRC & IEC

⇓

Research Cell

⇓

Institutional Research Committee (IRC)

⇓

Recommendation of Institutional Research Committee to be communicated to PI

⇓

Sanction of grant to the PI by the Research Cell for funded projects after IEC clearance and approval of IRC

⇓

Release of grant to the PI by the Research Account

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Vice Chancellor

9.6 Standard Operating Procedures (SOP) for submission of Annual Progress Report by the Principal Investigator

1. The Principal Investigator will submit the annual progress report in the prescribed format for research progress and utilization of funds after the expiry of one year from the date of release of the grant.
2. The investigator should clearly highlight the target of sample size as per the sanctioned protocol.
3. Any change in the objective or the design of the protocol, the PI should clearly mention in the report.
4. The Principal Investigator should justify in the report that the project will be completed in the remaining one year period of the project.
5. If the PI found that the project is not completed within the sanctioned duration, he should clearly justify for extension of the project with duration.
6. Only Principal Investigator/Co-investigator will present the annual progress report of the project in the Research Committee meeting.

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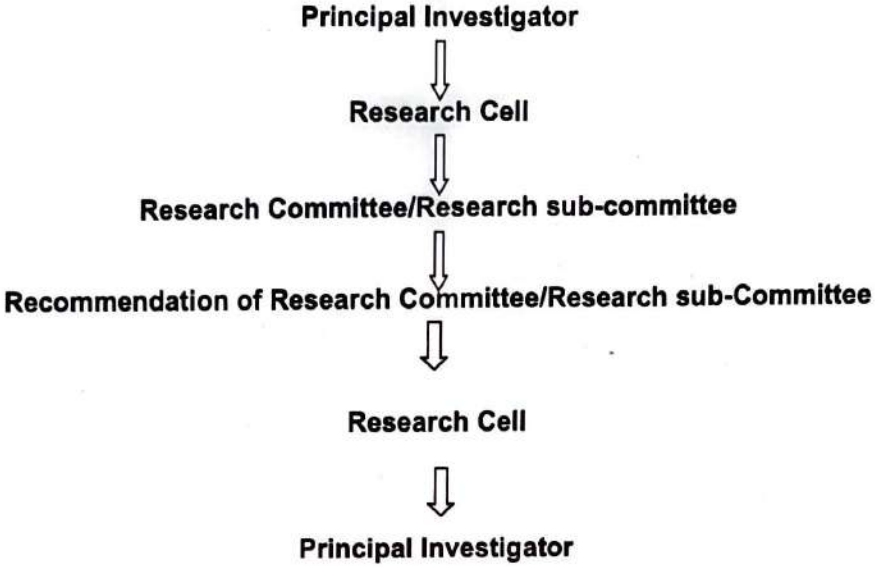
Vice Chancellor

Flow chart for submission of annual progress reports by the Principal Investigators



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9.7 Standard Operating Procedures (SOP) for submission of Final Progress Report by the Principal Investigator

1. The Principal Investigator should submit the final report of the project after the completion of the study on the prescribed format for its review before the Research committee.
2. The Principal Investigator should highlight in the final report regarding the result & discussion derived from the data obtained from the study.
3. The Principal Investigator should submit the final data of the completed study.
4. The Principal Investigator should clearly state that whether this project can further be extended for the extramural funding from the national or international funding agency.
5. The Principal Investigator should attach the manuscript along with the report or copy of the accepted research/published paper in the national or international journals.

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9.8 SOP for Procurement of Consumables for Research Work

BUDGET FLOW FOR INTRAMURAL RESEARCH GRANT

ACCOUNT: An account in the name of Research Cell may be opened.

- Signatory of the Account will be (Any two of the Three):
  a. Dean of the Institute
  b. Faculty In-charge, Research Cell.
  c. Accounts Officer.
- Amount approved against the respective project proposal will be transferred to this account for hassle-free maintenance of accounts.
- Cash book against this Account to be maintained and verified by Accounts Officer.

PROCUREMENT OF CONSUMABLES

- Indent/Proposal to be given by the PI through file.
- Separate stock register to be maintained by the PI which can be verified at the time of payment.
- **NOC** from central store for non-availability of Goods is not required.
- **Rate Contract** – if available at the Institute, PI may give the supply order after the approval from the Research Cell.(Flow chart is attached for reference.)
- If there is no Rate Contract available, the PI may follow GFR rules as stated below.

A. Purchase of consumables up to Rs. ≤ 25000/-

i. This type of procurement should be under GFR Rules – 154.
ii. Single quotation is required for this type of purchase.

Documents required for Payment

a. Quotation as per GFR.
b. Copy of Purchase/Supply Order by Principal Investigator.
c. Details mentioning the entry of bills in stock register. (Photocopy of the particular page of stock register)
d. Declaration for GFR's.

B. Purchase of consumables amounting to Rs. >25000/- and ≤ 250000/-

i. This type of procurement should be under GFR Rules – 155.
ii. Three quotation is required for this type of purchase.
iii. Purchase order will be given to the one offering the least amount.
iv. One person from Research Cell is mandatory In the Purchase Committee for this type of Procurement.

Documents required for Payment

a. Quotation as per GFR.
b. Copy of Purchase/Supply Order by Principal Investigator.
c. Challan mentioning the receipt of goods. (Exempted for purchase up to Rs. 25000/-)
d. Details mentioning the entry of bills in stock register. (Photocopy of the particular page of stock register)
e. Declaration for GFR's.

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Chancellor

C. Purchase amounting to Rs. >250000/-

i. All purchases will be done by Procurement department as per suitable GFR as per UPUMS Saifai Procurement Procedure, which includes tender, proprietary based purchase, TEC, Price Bid Evaluation, Supply order, Receipt of Goods through challan, Bills, Stock entry of bills etc.

ii. The goods will be received in Central Store and the Principal Investigator will receive the same from Central Store.

Payment Procedure

a. The file for payment of this type of purchase will be initiated by Central Store after the goods are received.

b. The Payment will be done according to the payment process of UPUMS Saifai after taking the approval of the Competent Authority.

INVESTIGATIONS

- Investigations may be allowed as per the rate list of UPUMS Saifai by giving virtual fund against the code of the project. This fund will be adjusted against the sanctioned fund.

GENERAL INSTRUCTIONS

- Purchase/Supply order will be placed by the Principal Investigator after taking prior approval from the IRC/ Research Cell as Hon'ble Vice-Chancellor is the Chairman of the IRC. (In case of purchases above Rs. 250000/- the Procurement Cell of UPUMS Saifai will Place the order)
- Purchase/Supply Order should be in standard format available with Research Cell, and should be used by PI to place the order.
- The PI will receive the goods and a verified bill may be placed for payment through Research Cell. (In case of purchases above Rs. 250000/- the Central Store will receive the goods and verified bills will be placed for payment.)
- Payment will be done through Research Cell after approval of the Competent Authority.
- Final settlement of all the bills against the sanctioned amount has to be submitted at every six months and/or completion of the project along with Utilization Certificate.
- All the related bills, vouchers, files and registers has to be maintained and kept by the PI in his custody for audit purpose in future and for giving Utilisation Certificate.
- Accounts Officer will verify and issue Utilisation Certificate after taking approval from FA/ F&CAO. And this file should be routed through Research Cell.
- The Utilization Certificate for the items purchased by the PI should be issued by Accounts Officer of the Research Cell after submission of all required documents.

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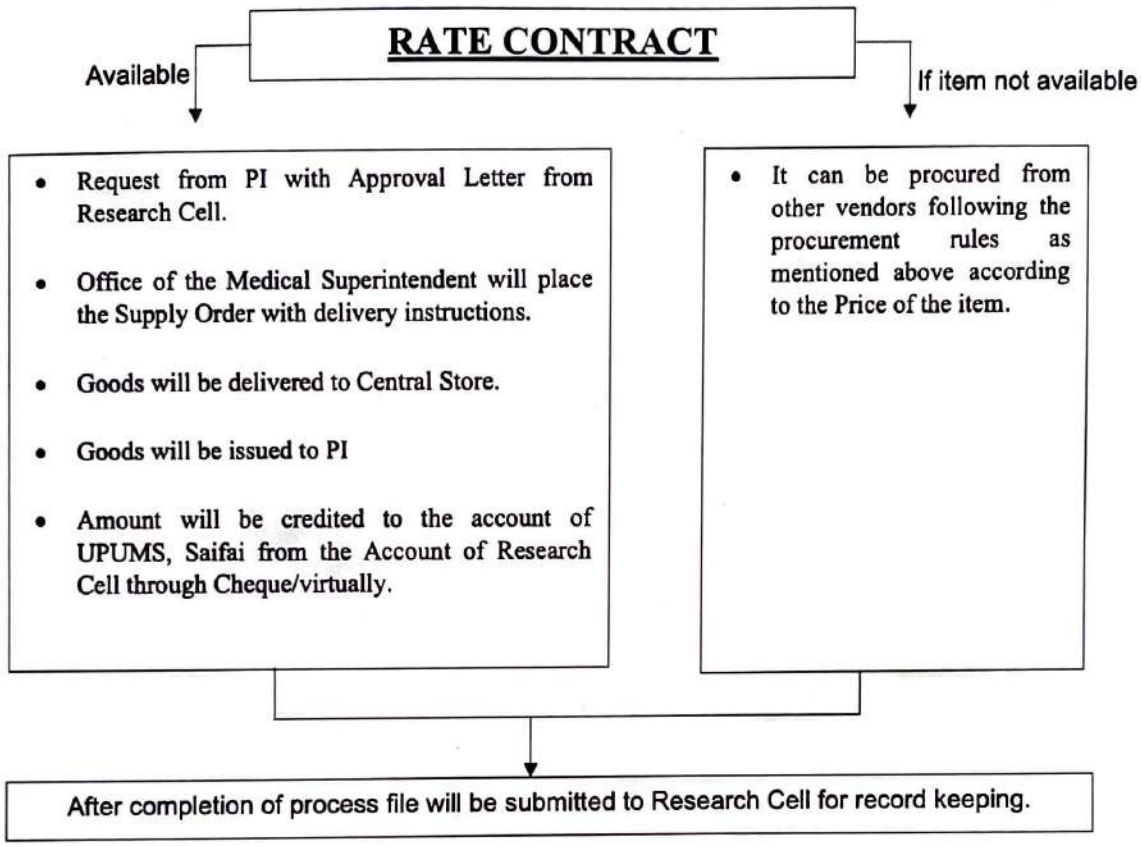
Vice Chancellor

FLOW CHART



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PROFORMAS & CERTIFICATES

For

Departmental Research Committee, Institutional Research Committee and Research Sub-Committee and Investigators for Intramural Research Projects

2023

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Dr. P. K. Singh
Vice Chancellor

Format for Departmental Research Committee meeting

1. Title of the Research Project

2. Name of Principal Investigator

3. Name of Co-investigator (if any)

4. Date of Departmental Research Committee meeting

5. Specific Comments (on scientific merit/ethics related issues only)

6. Recommendations – Accepted/Modifications/Rejected

7. Reasons for Modifications/Rejections if any

(Signature of HOD)
Chairman

(Signature of Members)

Dr. Usha Shukla
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Saifai, Etawah-206 1..

Dr. R. K. Singh
Vice Chancellor

CONFIDENTIALITY STATEMENT UNDERTAKING BY MEMBER OF THE INSTITUTIONAL RESEARCH COMMITTEE

Name:

Designation:

Address:

I understand that as a Member of the Research Committee I may receive documents containing confidential or privileged information about research activities related to the study.

I agree not to disclose or discuss such information or minutes of the meeting with persons not entitled to have them. I also agree either to return all documents marked CONFIDENTIAL/PRIVILEGED to Member Secretary or destroy them after perusal.

Date

Signature

Dr. Usha Shukla
Dean (Medical Faculty)
U.P. University of Medical Sciences
Saifai-206130

Dr. P. K. Singh
Vice Chancellor

ONE PAGE CV FOR MEMBERS OF THE INSTITUTIONAL RESEARCH COMMITTE

Last Name	Middle Name	First Name
Date of Birth(dd/mm/yyyy):		Sex:
Permanent Mailing Address:		
Telephone (Office):		Mobile No:
Telephone (Residence):		E-mail:
Academic Qualification (Most Current Qualification First)		
Degree/Certificate	Year	Institution, Country
Professional Experience		
Month and Year	Title	Institution/Company, Country
Signature		Date:

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FORMAT OF RESEARCH PLAN

1. **Title of the proposed research project:** should be **concise** and yet sufficiently descriptive and informative. Title may include study design such as randomized controlled trial; an observational study; a case-control study etc

.

2. **Summary (up to 250 words):** A structured summary should contain the following subheadings: *Background, Novelty, Objectives, Methods, and Expected outcome.*

3. **Keywords:** Six keywords separated by comma which best describe your project may be provided.

4. **Abbreviations:** Only standard abbreviations should be used in the text. List of abbreviations maximum of ten may be given as a list.

5. **Background (up to 500 words):** State the background information to adequately present the problem, mention how the research question addresses the critical barrier(s) in scientific knowledge, technical capability, and/or programmatic/clinical/lab practice and its relevance to local, national and international context.

6. **Literature review (up to 1000 words):** Review to be written cohesively to build justification for the research question to be addressed with reference of key publications in the field. Reference up to 30 in Vancouver style may be provided at the end of literature review.
   (References will not be included in the word count)

7. **Novelty/Innovation (up to 250 words):** Describe how the proposal challenges and seeks to shift the current research/knowledge/clinical practice paradigms etc. by utilizing novel theoretical concepts, approaches or methodologies, instrumentation, or interventions etc. Mention if there is a refinement, improvement, or new application of theoretical concepts, approaches or methodologies, instrumentation, or interventions in the proposed study.

8. **Study Objectives:** Define the objectives clearly and in measurable terms; mention as primary and secondary objectives if necessary. Do not write too many objectives.

9. **Methodology (up to 2000 words): Include the following subheads**
   I. Study Design: Proposed study design should be appropriate to fulfill all the objectives; details of study design whether descriptive, analytical, experimental, operational, a combination of these or any other; and adequate description of study population should be provided. Explain the rationale of selection of the research participants and controls (human or laboratory animals), whether chosen randomly, consecutively etc. with inclusion and exclusion criteria, rules for discontinuation, definitions of cases, controls and lost to follow up etc.; In case of Intervention studies a detailed description of Intervention (drug/device/behavioral intervention) should be given. The use of quantitative and qualitative methods may be specified if any.

   II. Sample Size: Details of sample size and/or power calculation should be described

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with references where needed. *[Please note: the sample size calculation should provide adequate power to the study to satisfactorily answer all the primary objectives, data from pilot studies can also be used for sample size calculation].* Operational definitions for key variables should be presented. A flow chart indicating study design with number of participants should be given where applicable.

iii. Project Implementation Plan: Describe the overall strategy for enrollment of participants including collaboration with other departments where applicable, process of enrollment of participants – how, where and by whom will the participants be enrolled, how and when and where will they be followed up; collection, storage and testing of samples; if new tests are being done describe the process of standardization etc. Describe quality assurance processes to accomplish the study objectives.

Iv. Ethics Review: Address review requirements including ethics review [human or animal], approval for use of stem cells, biological etc. and other regulatory reviews/approvals as applicable. Details of obtaining informed consent and its documentation should be described along with risks and benefits to the participants. *[Ethics and other regulatory guidelines related to Bio-medical research are available on ICMR website]*

v. Data collection & statistical analysis plan: Describe the key variables of the study, how will they be measured and unit of measurement. Specify comprehensively the data collection methods and tools are relevant to the study objectives and study design and provide structural components like data entry and analytical platforms to be used for analysis. Present data analysis plan comprehensively mentioning appropriate statistical methods to be used in order to answer/achieve the study objectives.

10. **Expected Outcomes (up to 100 words)**

11. **Limitations of this study (up to 100 words)**

12. **Timelines:** Details of activities to be carried out along with timelines during preparatory phase, data collection, analysis & report writing to be provided.

13. **Institutional Support:** Mention the efforts made to achieve inter-departmental or inter-institutional collaboration needed for study implementation, details of coordination between clinical, laboratory and data management procedures, mention the institutional resources such as equipment and other physical resources available for use in the project proposed.

14. **Budget:** Should be appropriate and as per ICMR guidelines available on the website. Justification for staff along with their roles and responsibilities in the project to be provided.

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Intramural Research Project Receipt form to be submitted in Duplicate

1. Title of the project:

2. Type of Submission: a. New b. Revised

3. Name of PI and Department:

Checklist to assess the project before submission to the Research Committee for review

S.No	Mandatory Documents	Yes	No	Not Applicable	Page nos.
1	Project Proposal as per the prescribed format				
2	Minutes of the Departmental Research Committee				
3	Institutional Ethics Committee receipt for submission				
4	Institutional Animal Ethics Committee receipt for submission				
5	Undertaking by the PI				
6	CV of new or co-investigator(s) outside UPUMS, Saifai.				

Documents submitted

a) Complete

b) Incomplete, will submit on:_____

Receivers Name:

Signature & Date (with stamp)

Project submitted by Name & Signature:

Dr. P. K. Sir...
Vice Chancellor

Dr. Usha Shukla
Dean (Medical Faculty)
U.P. University of Medical Sciences

Uttar Pradesh University of Medical Sciences, Saifai

PROFORMA FOR PROJECT PROPOSALS RESEARCH GRANT

PART (I): GENERAL INFORMATION

1. Project Title:

2. a. Broad Area: Basic/Translation/Clinical/Systems research /Community/ Education / Behavioral

   b. Specific Area:

   c. Key words (maximum three)

3. Duration:

4. Total Cost:

5. Principal/Co-Investigator(s)

Investigators	Name	Designation	Department	Signature
PI				
Co-PI				
Co-PI				
Co-PI				
Co-PI				

6. Project Summary (maximum 500 words) (Attach separate sheet):
7. Copy of the Departmental Research Committee Recommendation

8. Copy of the Ethics committee submission certificate

(Head of the Department will be responsible for periodic monitoring of the project)

9. Is radio tagged material proposed to be used in the project either for clinical trials or experimental purposes? If so, clearance from Nuclear Medicine Committee, Bhabha Atomic Research Centre, Mumbai, indicating should be attached.
10. Projects involving recombinant DNA/Genetic engineering work should be examined and certificate by the Institutional Biosafety Committee (IBSC) to be enclosed. Guidelines for constitution of IBSC can be obtained from Secretary, Department of Biotechnology, CGO Complex, Lodhi Road, New Delhi-110003.

11. Documents of the Institutional ethics committee (IEC) should be enclosed. Guidelines for IEC for animal experiments should follow CPCSEA requirements and for human studies should follow ICMR guidelines.

12. PI and Co-PIs should ensure that that there is no financial conflict of interest by the investigators.

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PART II: TECHNICAL DETAILS OF PROJECT

(Project proposal to be submitted in the format mentioned as below. The total pages should be within ten A4 papers in 1.5 space, letter size 11, Times New Roman)

1. Introduction

2.1 Origin of the proposal

2.2

(a) Rationale of the study supported by cited literature

(b) Hypothesis

(c) Research questions.

2.3 Current status of research and development in the subject

(a) International Status

(b) National status

2.4 The relevance and expected outcome of the proposed study

2.5 Preliminary work done if any. (New ideas are welcome.)

3. Specific objectives

4. Work Plan: should not exceed **three pages**

4.1 Detailed methodology including study design and outcome measures

4.2 Data analysis plan

5. Timelines:

Activities	Duration

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Vice Chancellor

Part III: Budgets Particulars

Budget requirements (with detailed break-up and full justification):

i) Personnel

ii) Contingencies

iii) Expenditure on scientists / technicians (Period, duration & number)

iv) Format of Budget

S.No	Sanctioned Heads	Expected Budget
1.	Salaries	
2.	Supplies & materials	
3.	Travel	
4.	Contingencies	
5.	Overhead Expenses	
6.	Total	

v) Justification (for each item):

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Dr. R. K. Singh
Vice Chancellor

Part IV: BRIEF BIODATA OF PRINCIPAL INVESTIGATOR/Co-PIs

1. Updated CV including List of Publications for last 5 years and honors /awards of the Principal Investigator /Co-Investigators (Attach Separate sheets)

2. List of current projects being handled including source and amount of funding

PART – 4(A): PROFORMA OF DETAILS OF PREVIOUS INTRAMURAL PROJECTS

S.No.	Title of the project	Duration	Budget	Complete/Not Complete	Final Completion Report Submitted	Manuscript Published /Submitted (Provide details)	Abstract Presented at Conference

PART – 4(B): PROFORMA OF DETAILS OF PREVIOUS EXTRAMURAL PROJECTS

S.No.	Title of the project	Duration	Budget	Complete/Not Complete	Name of Funding Agency

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Vice Chancellor

PART – 4(C): CV OF OUTSIDE CO-INVESTIGATOR(S)

Last Name	Middle Name	First Name
Date of Birth(dd/mm/yyyy):		Sex:
Study Site Affiliation (e.g. Principal Investigator, Co-Investigator, Coordinator)		
Permanent Mailing Address: (Include institution name)	Study Sited Address (Include institution name)	
Telephone (Office):		Mobile No:
Telephone (Residence):		E-mail:
Academic Qualification (Most Current Qualification First)		
Degree/Certificate	Year	Institution, Country
Current and Previous 4 Relevant Positions Including Academic Appointments (Most current position first)		
Month and Year	Title	Institution/Company, Country
Brief Summary of Research Experience related to the Project		
Signature	Date:	

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Saifai, Etawah-206130

Prof. K. S. [illegible]
Vice Chancellor

PART V: DECLARATION AND ATTESTATION

i. I/We have read the terms and conditions for UPUMS Intramural Research Grant. All necessary departmental facilities will be provided if the research project is approved for financial assistance.

ii. I/We agree to submit within one month from the date of termination of the project, the final report and a list of articles, both expendable and non-expendable, left on the closure of the project.

iii. I/We agree to submit a statement of accounts for the project to the Director Finance, UPUMS, Saifai for official audit before the end of the financial year.

iv. It is further certified that the equipment(s) required for the project will not be purchased from the funds provided by UPUMS, Saifai for another project(s) in the department.

v. ***I/We agree to submit (online) all the raw data (along with descriptions) generated from the project to the UPUMS Data Repository within one month from the date of completion/termination of the project.***

Signature of the:

a) Principal Investigator _____

b) Co-Investigator(s) _____

c) Head of the Department _____

Date:

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U.P. University of Medical Sciences
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Dr. P. K. S...
Vice Chancellor

RESEARCH CELL
UTTAR PRADESH UNIVERSITY OF MEDICAL SCIENCES, SAIFAI
Intramural Assessment Form

Ref. No. IRC/UPUMS/ /2023/ Date:

*Title of the Proposal: _____

_____

*Name of the PI: _____ *Designation: _____

*Department: _____ *Contact Number: _____

*Email ID: _____

Details of Co-PI:

Sl. No.	Name of the Co-PI	Designation	Department	Role of Co-PI in this Proposal
1				
2				
3				
4				
5				

Details of Previous Research Proposals as PI

Sl. No.	Headings	Number	Completion Report Submitted (Yes/No)
1	Number of Completed Project Proposals		

Details of Ongoing Project Proposals

Sl. No.	IEC Approval No. (Proposal Number)	Date of Last Progress Report submitted (with Dispatch No. form Department)

Signature of the PI

For Office use only

ALLOWED / NOT ALLOWED

Signature of Member Secretary

Dr. Usha Shukla
Dean (Medical Faculty)
U.P. University of Medical Sciences
Saifai, Etawah-206130

Dr. P. K. S...
Vice Chancellor

INTRAMURAL RESEARCH FORM

UTTAR PRADESH UNIVERSITY OF MEDICAL SCIENCES, SAIFAI

SECTION – 'A'

Name of the Principal Investigator: .....

Designation:..... Department.....

Date of Joining DD MM YYYY **Date of Retirement** DD MM YYYY

Title of the Proposal: .....

.....

.....

Study Design .....(Any other)

Duration of Study..... (Kindly attach Gnat Chart)

Fund Required: Rs..... (In words).....

Details of Co – Investigator (within Institute)

Sl. No.	Name Designation Department	Contact Details Mobile Number Email Id	Role and Responsibilities allotted	Signature

Dr. Usha Shukla
Dean (Medical Faculty)
U.P. University of Medical Sciences
Etawah-206130

Dr. P. K. Sin
Vice Chancellor

Details of Co – Investigator (from outside the Institute)(Prior approval of Research Cell should be obtained)

Sl. No.	Name Designation Department	Institute	Contact Details Mobile Number Email Id	Role and Responsibilities allotted

SECTION – 'B'

DETAILS OF PREVIOUS INTRAMURAL PROJECTS:

Title of the Previous study: .....

.....

.....

Date of Study approved: ..... (attach IEC Approval Letter)

Date of Completion: ..... (Submit Completion Certificate)

Amount Granted: Rs. ..... (in words).....

Details of Publications made: .....

.....

.....

(SELF DECLERATION)

I .....(Name) .....(Designation)

..... (Department) do hereby affirm the following:

1. I will strictly abide by the rules and guidelines of Research Cell as per SOP.
2. The fund allotted will only be utilised for purchase of items required as per SOP of Intramural funding.
3. I will acknowledge the institute in my publications made under the above-mentioned proposal.
4. I will inform the Research Cell when the Manuscript is accepted / published.
5. No Senior/Junior Residents, PhD Students, Research Associates, Undergraduate or Postgraduate students and Para-Medical staff are Co-Investigator in the above mentioned Proposal.

.....

Signature of the Principal Investigator

Dr. Usha Shukla
Dean (Medical Faculty)
U.P. University of Medical Sciences
Saifai, Etawah-206130

Dr. P. K. Sinha
Vice Chancellor

CHECKLIST

Sl. No.	Particulars	Tick
1	IEC Forms	
2	PIS & PICF in Both English and Regional Language	
3	Clearance from Departmental Research Committee. (Attach Minutes)	
4	Detailed Budget (On a separate paper)	
5	Undertaking stating the proposal will not be send for funding to any other agency (extramural funding)	
6	Undertaking from the Co-PI of same department stating that he/she will take the responsibility to complete the project due to unavoidable circumstances.	
7	CV of all the Investigators	
8	Copy of clinical trial protocol	
9	Gnat Chart	
10	Any Other, if required	

Dr. Usha Shukla
Dean (Medical Faculty)
U.P. University of Medical Sciences
Etawah-206130

Dr. P. K. Singh
Vice Chancellor

RESEARCH CELL
UTTAR PRADESH UNIVERSITY OF MEDICAL SCIENCES, SAIFAI
Intramural Assessment Form

Title of the Project: .....

Principal Investigator: ..... Department: .....

SCORE SHEET

S. No.	Criteria	Full Mark	Score	Comments
1.	A) Is this an innovative proposal?	5		
	B) Does this research address an important or neglected area of health care delivery?	5		
2.	A) Is the research plan well-described (Significance, overall strategy, methodology, Analysis) with defined and measurable outcomes?	8		
	B) Is the plan feasible within the time limits of the funding program (2 years)?	2		
3.	A) Is the proposed research specifically related to quality and patient safety in academic medical centres? **	5		
	B) Whether materials or procedures proposed are potentially hazardous to research personnel and/or the environment, and if needed, determine whether adequate protection id proposed.	5		
4.	A) Is the proposed research generalizable to multiple services or venues of care delivery within the academic medical centres?	5		
	B) Is there adequate inclusion of subjects from both genders, all racial and ethnic groups (and subgroups). And children, as appropriate, for the scientific goals of the research?	5		
5.	A) Are the plans for publication and dissemination of results acceptable? (Plans must be in addition to a yearly presentation at the National / International Research Conference)	5		
	B) Are the investigators qualified to conduct this research? (Previous work done by the PI/ Co-PI, as per CV Attached)	5		
6.	A) Is the proposed budget justified?	5		
	B) Whether all Ethical Issues duly addressed?	5		
Total Score		**60**		

** If it involves vertebrate animals, is it justified in terms of proposed use of the animals, and species, strains, age, sex, and numbers to be used; adequacy of veterinary care; and procedures for limiting discomfort, distress, pain and injury to that which is unavoidable in the conduct of scientifically sound research including the use of analgesic, anaesthetic, and tranquilizing drugs and/or comfortably restraining devices.

Signature of Reviewer
Name of Reviewer: .....
Name of Institute: .....

Dr. Usha Shukla
Dean (Medical Faculty)
U.P. University of Medical Sciences
Saifai, Etawah-206130

Prof. R. K. Singh
Vice Chancellor

RESEARCH CELL
UTTAR PRADESH UNIVERSITY OF MEDICAL SCIENCES, SAIFAI
Letter of Sanction of research project

Ref. No. IRC/UPUMS/ /2023/ Date:

OFFICE ORDER

Sub: Sanction of intramural research project bearing no. ***(Project Code)***.

With reference to Intramural Project titled "***Title of the Project.***" bearing number ***Proposal Reference Number***. The Research Cell now permits the commencement of the study on following grounds:

1. The proposal has been cleared by the Institute Research Committee and Institutional Ethics Committee and PI must follow the SOP of both the Committees.
2. The financial support of Rs. (***Amount***)/- from the Institute has been sanctioned.
3. The Project has to be completed within the approved time period (***Duration of Study***) and Six monthly Progress Report has to be submitted to Research Cell.
4. The final report has to be submitted along with the required documents within 3 months from the date of completion.
5. The Principal Investigator must abide by the Rules and Regulations of Intramural funds and follow GFR for all purchases.
6. Following items and investigations as approved may be availed as per the given list :

Sl. No.	Grant in Aid – General.	Amount	Remarks
1.	Consumables		Either through Rate Contract or Procurement through suitable GFR.
2.	Investigations		As per UPUMS Saifai rate list. (as per SOP circulated)
3.	Field testing (demo/training expenses) if applicable.		Payment will be made to the vendors after submission of bills verified by PI.
4.	Miscellaneous/any other item		To be paid as per GFR.
5.	Grant in Aid (Salary) Post/Designation		To be paid by Research Cell through account transfer.

This is issued with the approval of the Competent Authority.

Faculty In-charge.
Research Cell

PI of the Research.

Copy to:

1. PA to VC, UPUMS, Saifai.
2. Dean, UPUMS, Saifai.
3. Medical Superintendent.
4. HoD, concerned department.
5. FCAO / Account Officer – Research Cell.
6. HIS – if needed.
7. Central Lab (department) – if needed.
8. Research Proposal File.

Dr. Usha Shukla
Dean (Medical Faculty)
U.P. University of Medical Sciences
Etawah-206

Dr. P. K. Singh
Vice Chancellor

Format for Annual Statement of Accounts to accompany request for release of First Installment.
(Year means Financial Year i.e. 1st April to 31st March of next year)

1. Sanction letter No. :..... .....

2. Total Project Cost : Rs.....

3. Sanction /Revised Project cost (if applicable) :Rs.....

4. Date of Commencement of Project :.....

5. Statement of Expenditure :.....

S.No	Sanctioned Heads	Funds Allocated	Expenditure incurred	Balance as on 31st March	Requirements	Remarks
1.	Salaries					
2.	Supplies & materials					
3.	Travel					
4.	Contingencies					
5.	Overhead Expenses					
6.	Total					

Signature of Principal Investigator

with date:

Signature of Accounts Officer

with date:

Dr. Usha Shukla
Dean (Medical Faculty)
U.P. University of Medical Sciences
Saifai, Etawah-206130

Prof. R. K. Singh
Vice Chancellor

Date: / /20

SUPPLY ORDER

To,
Name and Address of the seller/vendor.

Placement of Supply Order for procurement of .....

Dear Sir/Madam,

1) This is to inform you that Supply Order is being placed on you for supply of items/services at prices mentioned below. The word "Seller" in this S.O. is meant for your organization while word "Buyer" is meant for Principal Investigator for project .....
.....bearing project code.....

2) Schedule of Prices: List of items / services Supply Ordered is as follows:

Sr. No.	Item Descriptions	Qty.	Per Pc. Rate	Amount
			Total Amount	
			GST@.....	
			Total Amount With GST	
				Amount in words.

3) Terms and Conditions –

a) Supply & Installation Period: ..... days.
b) Liquidation Damage: 2% of total cost per month for the value of goods delayed supplied.
c) Payment: Three copies of invoice along with Challan should be sent along with material to the buyer (PI).
d) Inspection and acceptance of the said items shall be done by the Institute representative.
e) Taxes and Duties: Taxes/duties all inclusive.
f) Arbitration: All disputes or differences arising out of or in connection with the Contract shall be settled by bilateral discussion. Any dispute, disagreement or question arising out of or relating to the Contract or relating to construction or performance, which cannot be settled amicably, may be resolved through Arbitration. (Subject to Etawah Jurisdictions only.)

Thanking You,

Name of the PI

Designation

Dr. Usha Shukla
Dean (Medical Faculty)
U.P. University of Medical Sciences
Saifai, Etawah-206130

Dr. P. K. Singh
Vice Chancellor

CERTIFICATE AS PER GFR 154

Certified that we undersigned members of the purchase committee of the Institute/ Department of _____ are jointly and individually satisfied that the following goods:-

Sl. No.	Item Name	Quantity	Supplier Name

Recommended for purchase of the requisite specification and quality, priced at the prevailing market rate and the supplier recommended is reliable and competent to supply the goods in question and it is not debarred by the Department of Commerce or the Ministry/ Department concerned.

Signature:

Name:

Department:

Designation:

Date:

Dr. Usha Shukla
Dean (Medical Faculty)
U.P. University of Medical Sciences
Saifai, Etawah-206130

Dr. P. K. Sin[illegible]
Vice Chancellor

CERTIFICATE AS PER GFR 155

Certified that we undersigned members of the purchase committee of the Institute/ Department of _____ are jointly and individually satisfied that the following goods:-

Sl. No.	Item Name	Quantity	Supplier Name

Recommended for purchase of the requisite specification and quality, priced at the prevailing market rate and the supplier recommended is reliable and competent to supply the goods in question and it is not debarred by the Department of Commerce or Ministry/ Department concerned.

Name	**Department**	**Designation**	**Signature & Date**

Dr. Usha Shukla
Dean (Medical Faculty)
U.P. University of Medical Sciences
Saifai, Etawah-206130

Dr. [illegible] K. Singh
Vice Chancellor

SIX MONTHLY PROGRESS REPORT OF THE RESEARCH PROJECT

PART I: GENERAL INFORMATION

1. Project Title:
2. a. BroadArea:
   Basic/Translational/Clinical/Systems Research/Community/Education/Behavioural

   b. Specific Area: (Kindly specify)

3. Project Started on:
4. Approved Duration:
5. Funds
   a. Amount Sanctioned:
   b. Amount Utilized till date:
6. Principal Investigator
7. a. Co-Investigator-I
   b. Co-Investigator-II

PART II: TECHNICAL REPORT

8. Specific objectives
9. Work done so far (objective-wise)

10.1. Timelines: (Achieved)

Milestones	Targets achieved

11. Detailed results
12. Summary of the results(250 words)
13. Publications out of the project work

Signature of Principal Investigator

Dr. Usha Shukla
Dean (Medical Faculty)
U.P. University of Medical Sciences
Saifai, Etawah-206130

Dr. D.K. Singh
Vice Chancellor

ANNUAL PROGRESS REPORT OF RESEARCH PROJECT

PART I: GENERAL INFORMATION

1. Project Title:
2. a. BroadArea: Basic/Translational/Clinical/Systems research/Community/Education/Behavioural

   b. Specific Area: (Kindly specify)

3. Project Started on:
4. Approved Duration:
5. Funds

   a. Amount Sanctioned:

   b. Amount Utilized till date:

6. Principal Investigator

7. a. Co-Investigator-I

   b. Co-Investigator-II

PART II: TECHNICAL REPORT

8. Specific objectives
9. Work done so far (objective-wise)

10.1. Timelines: (Achieved)

Milestones	Targets achieved

11. Detailed results
12. Summary of the results(250 words)
13. Publications out of the project work

Signature of Principal Investigator

Dr. Usha Shukla
Dean (Medical Faculty)
U.P. University of Medical Sciences
S.M.L., Etawah-206

Dr. P. K. Singh
Vice Chancellor

FINAL/COMPLETION REPORT OF RESEARCH PROJECT

PART I: GENERAL INFORMATION

1. Project Title:
2. A. Broad Area:

Basic/Translational/Clinical/Systems research/Community/Education/Behavioural

B. Specific Area:

3. Project Started on:
4. Approved Duration: . . . . . (In months) Started on . . . . . Completed on: . . . . . .

5. Funds

a. Amount Sanctioned:

b. Amount Utilized:

6. Principal Investigator:
7. A. Co-Investigator-I

B . Co-Investigator-II

PART II: TECHNICAL REPORT

8. Specific objectives:
9. Work done:

Methods

Results

Discussion

Conclusions

Implications/Outcomes

12. Summary of the results

(1000 words in "background, objectives, methodology, results and conclusion" format)

13. Publications: (Kindly attach the published paper)

14. State the translational value of the study.

Dr. Usha Shukla
Dean (Medical Faculty)
U.P. University of Medical Sciences
Saifai, Etawah-206130

Dr. R. K. S...
Vice Chancellor

15. Please mention if the targets proposed have been achieved or not.

Target proposed	Targets achieved	Reasons thereof

File No..... Received on Date...../...../20.....Acknowledgement issued on

Date...../...../20.....Submitted to Research Cell on Date...../...../20.....Presentation on

Date...../...../20.....Intimation letter sent on Date...../...../20.....

Project: Approved / Sent for resubmission / Rejected

For Approved Projects: Project Code-.....

Date for first half yearly report: ...../...../20.....(With Dispatch Letter No. of the Dept.)

Date for second half yearly report: ...../...../20.....(With Dispatch Letter No. of the Dept.)

Date for third half-yearly report: . ..../...../20.....(With Dispatch Letter No. of the Dept.)

Date for final report: ...../...../20.....(With Dispatch Letter No. of the Dept.)

Signature of Principal Investigator

Faculty In-Charge
(Research Cell)

Seal of Research Cell

Signature of the Dean
UPUMS SAIFAI

Dr. Usha Shukla
Dean (Medical Faculty)
U.P. University of Medical Sciences
...wah-206130

Intramural Final Progress Report Receipt form to be submitted in Duplicate

1. Title of the project:

2. Name of the Principal Investigator:

3. Department:

Checklist to assess the project report before submission to the Research Committee for review

S.No.	Mandatory Documents	Yes	No	Not Applicable
1	Copy of the approved project			
2	Final Report on Prescribed Format			
3	Copy of the manuscript			
4	Copy of the published paper in indexed international/national journals with impact factor			
5	Copy of abstract presented in the international/national conferences			
6	Final Statement of Expenditure in prescribed format			

Documents submitted

a) Complete
b) Incomplete, will submit on_____

Receiver's Name:

Signature & Date (with stamp).

Project submitted by:
Name & Signature:

Dr. Usha Shukla
Dean (Medical Faculty)
U.P. University of Medical Sciences
Saifai, Etawah-206130

Dr. P. K. Singh
Vice Chancellor

FINAL STATEMENT OF EXPENDITURE/ BUDGET

Project Title.....

.....

Sl. No.	Particulars	Qty.	Rate	Amount	Availability	Remarks
1.	Consumables					
a.						
b.						
c.						
2.	Investigations					
a.						
b.						
c.						
3.	Field testing (demo/training expenses) if applicable.					
4.	Miscellaneous/any other item					
a.						
b.						
c.						
		(TOTAL)	(TOTAL)	(TOTAL)		

Signature of Principal Investigator

.....

Name of PI

Designation

Department

Dr. Usha Shukla
Dean (Medical Faculty)
U.P. University of Medical Sciences
...wah-206130

Dr. [illegible]
Vice Chancellor

ANNUAL UTILISATION CERTIFICATE

For each year ending 31st March, 20.....

Sanction letter No: ..... Project Code: .....

Name of the PI: ..... Designation .....Department .....

Title of the Project .....

.....

.....

Total Project Cost: Rs.....

*Certified that out of Rs ..... of grants-in-aid sanctioned during the year..... in favor of ..... under Vide official Letter No..... and Rs: ..... on account of unspent balance of the previous year, a sum of Rs:.....has been utilized for the purpose of ..... for which it was sanctioned and that the balance of Rs . ..... remaining unutilized at the end of the year has been surrendered to UPUMS (vide cheque No.....Dated..... /will be adjusted towards the grants-in-aid payable during the next year i.e. .....

Budget Breakup Chart

Sl. No.	Sanctioned Head.	Funds Allocated	Expenditure incurred	Balance as on 31st March	Requirements	Remarks
1.	Consumables					
2.	Investigations					
3.	Field testing (demo/training expenses) if applicable.					
4.	Miscellaneous/any other item					
5.	Grant in Aid (Salary) Post/Designation					
		(TOTAL)	(TOTAL)	(TOTAL)		

Signature of PI

With date

Signature of Accounts Officer

with date

Dr. Usha Shukla
Dean (Medical Faculty)
U.P. University of Medical Sciences
Saifai, Etawah-206130

Dr. P. K. Sin...
Vice Chancellor

GFR – 12A

FINAL UTILISATION CERTIFICATE

Format for Final Statement of Accounts for Intramural Project.

Sanction letter No: ..... Project Code: .....

Name of the PI: ..... Designation .....

Department .....

Title of the Project .....

.....

.....

Total Project Cost: Rs.....

Sanction /Revised Project cost (if applicable)Rs.....

Date of Commencement of Project:.....

Date of Completion of Project: .....

Statement of Expenditure

Sl. No.	Sanctioned Head.	Funds Allocated	Expenditure incurred	Requirements	Remarks
1.	Consumables				
2.	Investigations				
3.	Field testing (demo/training expenses) if applicable.				
4.	Miscellaneous/any other item				
5.	Grant in Aid (Salary) Post/Designation				
		(TOTAL)	(TOTAL)	(TOTAL)	

Signature of Principal Investigator
with date

Signature of Accounts Officer
with date

Dr. Usha Shukla
Dean (Medical Faculty)
U.P. University of Medical Sciences

Dr. P. K. Singh
Vice Chancellor

PART – II

Project Code: .....

DECLARATION

Certified that I have satisfied myself that the conditions on which grants were sanctioned have been duly fulfilled and that I have exercised the following checks to see that the money has been actually utilized for the purpose for which it was sanctioned:

1. The registers (including cash/assets/stock registers) are maintained as prescribed in the relevant Act/Rules/Standing instructions (mention the act/Rules) and have been duly verified by the account officer of the Research Cell. The figures depicted above tally with the figures mentioned in financial statements/accounts.
2. To the best of our knowledge and belief, no transactions have been entered that are in violation of relevant Acts/Rules/standing instructions and research grant guidelines.
3. The responsibilities among the key functionaries for the execution of the grant have been assigned in clear terms and are not general in nature.
4. The benefits were extended to the intended beneficiaries and only such areas/districts were covered where the grant was intended to operate.
5. The expenditure on various components of the grant was in the proportions authorized as per the research grant guidelines and terms and conditions of the grants-in-aid.

Date: .....

Place: .....

.....

Signature

Name.....

FA/F&CAO

.....

Signature

Name.....

F/I Research Cell

.....

Signature

Name: .....

Principal Investigator

Uttar Pradesh University of Medical Sciences, Saifai

Guidelines, SOPs & Proforma for Research Activities of UPUMS, Saifai

2023

Dr. Usha Shukla
Dean (Medical Faculty)
U.P. University of Medical Sciences
Saifai-206130

Dr. P. K.
Vice Chancellor