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Research Misconduct and Research Ethics – II

Research Ethics

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This is the second part of our series, research misconduct and research ethics. In this issue we will review the ethical concepts of research from language and history to the modern concepts and applications.

The term ethics derives from the Ancient Greek word ethikos, which is derived from the word ethos (habit, "custom").[1]

According to dictionary, ethics is a noun comprises a system of moral principle. It represents the values relating to human conduct, with respect to the rightness and wrongness of certain actions and to the goodness and badness of the motives and ends of such actions. These rules of conduct recognized in respect to a particular class of human actions or a particular group, culture, etc.: medical ethics.

Research ethics involves the application of fundamental ethical principles to a variety of topics involving research, including scientific research.[2]

The academic research enterprise is built on a foundation of trust. It is the mutual act between researchers and the society through the ethical conduct of research. Research ethics in a medical context should be dominated by principlism.[3]

Historically, ethical codes can be traced to the Hippocratic Oath (Figure 1). The first book dedicated to medical ethics was the Conduct of Physicians dated to the medieval and early modern period by Ishaq Ibn Ali Al-Ruhawi.[4,5] By the 18th and 19th centuries, medical ethics emerged as a more self-conscious discourse. In England, Thomas Percival (1740–1804), a physician and author, crafted the first modern code of medical ethics[6] (Figure 2). In 1847, the American Medical Association adopted its first code of ethics,

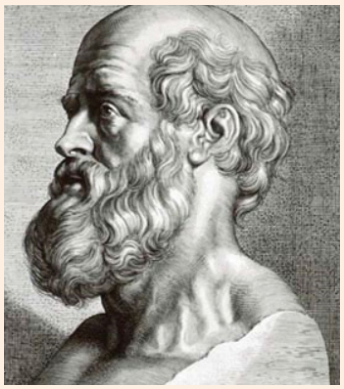

Figure 1: Hippocrates 460-77 BC, the father of Western medicine and the founder of the famous oath called for his name

with this being based in large part upon Percival's work.[7]

The birth of modern research ethics began with a desire to protect human subjects involved in research projects. The first attempt to craft regulations began during the Doctors Trial of 1946-1947. The Doctors Trial was a segment of the Nuremberg Trials for Nazi war criminals. The Nuremberg Code consisted of ten basic

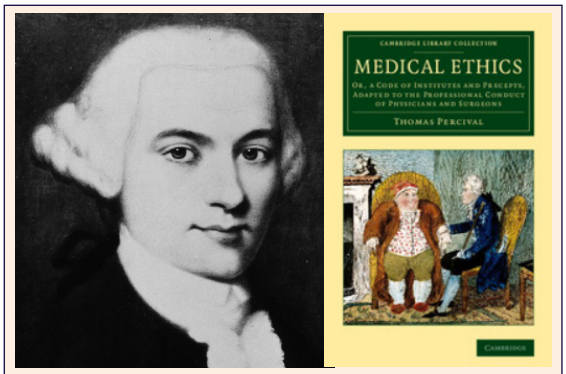

Figure 2: Thomas Percival (1740–1804) an English physician and author (on the left), the cover of his famous book Medical ethics which he had published in 1803 (on the right).

Figure 3: On the left is The Palace of Justice in Nuremberg, where the trials of Nazi war criminals had occurred. On the right the 10 basic ethical principles that the accused persons had violated

1. Research participants must voluntarily consent research participation.
2. Research aims should contribute to the good of society.
3. Research must based on sound theory and prior animal testing.
4. Research must avoid unnecessary physical and mental suffering.
5. No research projects can go forward where serious injury and/or death are potential outcomes.
6. The degree of risk taken with research participants cannot exceed anticipated benefits of results.
7. Proper environment and protection for participants is necessary.
8. Experiments can be conducted only by scientifically qualified persons.
9. Human subjects must be allowed to discontinue their participation at any time.
10. Scientists must be prepared to terminate the experiment if there is cause to believe that continuation will be harmful or result in injury or death.

ethical principles that the accused had violated (Figure 3)

The Nuremberg Guidelines paved the way for the next major initiative designed to promote responsible research with human subjects, the Helsinki Declaration. Both represented the most comprehensive and pioneering documents about research ethical issues are considered to be. In 1964, the Declaration of Helsinki, published by the World Medical Association (WMA), introduced an authoritative attestation of the need for prior review of any kind of human research.[9] The document lays out basic ethical principles for conducting biomedical research and specifies guidelines for research conducted either by a physician, in conjunction with medical care, or within a clinical setting. Although the Declaration emphasized the scientific standards that should govern scholarly research, it allowed more freedom to the physicians to omit the application of consent procedures in special circumstances.[10] This shortcoming of the Declaration indicated that the rights and safety of the research participants still lied with the individual investigator. Then came the revision of the Declaration of Helsinki in 1975.[11] Since that it has been revised and updated periodically since with the last update occurring in 2008.

The Helsinki Declaration contains all the basic ethical elements specified in the Nuremberg Code but then advances further guidelines specifically designed to address the unique vulnerabilities of human subjects solicited to participate in clinical research projects. The unique principles developed within the Helsinki Declaration include:[9]

- The necessity of using an independent investigator to review potential research projects.
- Employing a medically qualified person to supervise the research and assume responsibility for the health and welfare of human subjects.
- The importance of preserving the accuracy of research results.
- Suggestions on how to obtain informed consent from research participants.
- Rules concerning research with children and mentally incompetent persons.
- Evaluating and using experimental treatments on patients.
- The importance of determining which medical situations and conditions are appropriate and safe for research.

Following the Helsinki Declaration, the next set of research ethics guidelines came out in the Belmont Report of 1979 from the National Commission for the Protection of Human Subjects of Biomedical and Behavioural Research. The report outlines:

1. The ethical principles for research with human subjects
2. Boundaries between medical practice and research
3. The concepts of respect for persons, beneficence, and justice
4. Applications of these principles in informed

consent (respect for persons), assessing risks and benefits (beneficence), and subject selection (justice).[12]

The Nuremberg, Helsinki, and Belmont guidelines provided the foundation of more ethically uniform research to which stringent rules and consequences for violation were attached. Governmental laws and regulations concerning the responsible conduct of research have since been developed for research that involves both human and animal subjects. The Animal Welfare Act provides guidelines and regulations for research with animals. It goes into detail about sale, licensure, facilities, transport, and other care instructions.[13]

Other, much more detailed, documents have been produced in the following years on research ethics in general (e.g., Council for International Organizations of Medical Sciences, International Ethical Guidelines for Biomedical Research Involving Human Subjects, 1993, revised in 2002)[14] and The Ethics of Research Related to Healthcare in Developing Countries, 2002).[15]

Why research ethics?

Research is a public trust that must be ethically conducted, trustworthy, and socially responsible if the results are to be valuable. All parts of a research project – from the project design to submission of the results for peer review – have to be upstanding in order to be considered ethical. When even one part of a research project is questionable or conducted unethically, the integrity of the entire project is called into question. Thus ethical conduct of research will prevent jeopardizing humans recruited for research and prevent the futile hazards of research results on patients.

Research ethics committees (RECs):

The revision and updates of the Declaration of Helsinki and the emergence of other treaties raised the need to have legislative bodies and critical necessity to assess research protocols by an independent units; Research Ethics Committees (RECs).

An institution's Research Ethics Committee aims to safeguard the welfare, dignity, and safety of the participants, ensures that ethically approved research is conducted in line with the approved protocol, and promotes public confidence in the conduct of human research. RECs play key roles in promoting ethical practices in biomedical research and in identifying solutions to ensure that the interests of researchers and society do not take precedence over the rights of the participants.[16]

The committee performs the following functions:[17]

1. Prior review of human research proposals, scrutinizing the ethical standards for research conduct in legal framework
2. Observations to the investigators, to modify the research proposal to meet the required ethical standards
3. Decision to approve or reject the research proposal.
4. Monitoring the conduct of approved research proposals, ensuring that their conduct continues to conform to the approved protocol.
5. Resolution, or referral for resolution, of complaints in relation to the conduct of approved research projects or the conduct of the ethical review of those projects.
6. Premature termination and/or suspension of the conduct of a research proposal whenever it becomes evident that continuing conduct will expose participants to greater levels of risk than those approved.
7. Accountability and quality assurance by reporting to the relevant institution about its performance.

Basic issues of research ethics:

1. Informed consent

Informed consent refers to an ethical and legal doc-trine based on the understanding that all interventions (diagnostic, therapeutic, preventive, or related to scientific studies) in the medical field should only be performed after a participant has been informed about the purpose, nature, consequences, and risks of the intervention and has freely consented to it.[18]

Informed consent is the ethical cornerstone of randomized clinical trials (RCT), where volunteers are given the option to participate in a trial that includes randomization or to remain outside the trial and receive traditional medical treatment. Mandatory condition for an informed consent include; provision of detailed

information to a subject; adequate understanding of the information provided; expression of consent and/or authorization of the intervention.[19]

Implementation of informed consent can be considered as a sign of the growing patients' welfare and rights movement, protecting various dimensions of their integrity, safety, and confidentiality.[16]

2. Patient information sheet

Once informed consent is obtained, the research subject is given a patient information sheet,[16] detailing the following aspects of the study:

1. Title of the research project
2. Invitation to participate in the research
3. Purpose and significance of research
4. Time commitments
5. Termination of participation, indication voluntary contribution
6. Risks involved
7. Costs and compensation
8. Anonymity and confidentiality

3. Confidentiality

Confidentiality means the nondisclosure of certain information except to another authorized person. The concept of confidentiality applies that the information a person reveals to a professional is private and has limits on how and when it can be disclosed to a third party.[20]

The chief way that researchers seek to protect research participants from the accidental breaking of confidentiality is through the process of anonymization. Ethical guidelines and methods textbooks all note the importance of anonymizing research participants through the use of pseudonyms.[21]

There is no breach of confidentiality if the following recordings for any purpose were used, as long as they were effectively anonymized:[22]

a. Conventional X-rays.

b. Images taken from pathology slides.

c. Laparoscopic images of the inside of abdominal cavity.

d. Images of internal organs e. Ultrasound images.

4. Privacy

By dictionary, privacy is the state of being apart from other people or concealed from their view; seclusion. Privacy in research refers to the right of an individual to make decisions concerning how much information about their physical status, health, social network, and thoughts and feelings will be shared with investigators.[23]

5. Privileged communication

It includes conversations within the context of a protected relationship such as that between doctor and patient. This was defined through medical and law perspectives to be secure, reliable, and meant to be kept among the directly involved parties.[16, 24]

6. Respect and responsibility

Respect in research refers to respect for people and respect for truth. People have the right to dignity and privacy (informed consent and confidentiality). Respect for truth implies probity and respect for the intellectual rights of others. All possible efforts should be directed to avoid plagiarism and clinching false conclusions by over and under emphasizing the results.[25]

Responsibility implies the efforts of researchers and study subjects. Human subject involves voluntary informed consent, avoiding deception, rewards and incentives, privacy, and disclosure researchers are responsible for maintaining the reputation of educational research by adhering to the highest standards of quality research. When publishing the research, investigators should disclose any competing or financial interests.[16]

In conclusion, the awareness, knowledge and application of research ethics should be the continuum of medical ethics education program in the early medical career and to be upgraded regularly to match the increasing moral challenges in the medical horizon. All researchers should be familiar with the basic ethical principles and have up to date knowledge about policies and procedures designed to ensure the safety of research subjects and to prevent sloppy or irresponsible research.

The field has expanded from providing protections for human subjects to including ethical

guidelines that encompass all parts of research from research design to the truthful reporting of results. Hence the need for the development of ethical codes and legislation to follow the protocols and to have a prospective review by independent research ethics committees.

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