Biomedical Research in Developing Countries:

The Promotion of Ethics, Human Rights and Justice

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Report Summary

In this Report, the reader will find the following information:

The presentation of the joint initiative conducted by AIFA-UNICRI in the field of ethics of biomedical research in developing countries, its main scope and objectives.

In Chapter I "The International Guidance":

- an overview of the main international guidelines and regulations in the field of ethics of biomedical research;

- a list of other most relevant documents in the field of research ethics with their synthetic description;

- a description of the initiatives that have been implemented by publishing editors to prevent the publication of unethical or scientifically unsound results of biomedical research and the steps towards the establishment of a common clinical trials registry.

In Chapter II "Global Training Initiatives and Programmes on Bioethics":

- a list of 60 private and public international and national institutions and organizations, providing training programmes, information and educational tools in support of bioethics, ethical conduct of clinical research and ethical review of clinical research.

In Chapter III "Health Research in Developing Countries":

- an analysis of the interaction among the different aspects related to health research in developing countries, such as social and economic development and healthcare issues, the health research scenario, the patenting policy, a focus on the clinical research in Africa, with particular regard to the capacity for education and research on health and for the ethical review of research.

In Chapter IV "The State of Legislation regarding Ethics in Biomedicine and Ethical Review Capacity in Africa":

- an analysis on the presence of specific legislation in the field of biomedicine and regulation of clinical research in Africa, the presence of specific guidelines on ethical review of clinical research and the presence of Research Ethics Committees that review ethics of clinical research with human participants;

- this chapter also contains 42 country information sheets containing the data of the analysis with selected bibliography.

In the Annexes:

- the conclusions and recommendations that were formulated by UNICRI and AIFA at the end of the international Round Table, which was held in Rome on 15-16 December 2008 on "Biomedical Research in Developing Countries: the Promotion of Ethics, Human Rights and Justice";

- more than 500 bibliographical references regarding aspects of biomedical research with human participants.

The Report, the country information sheets and the bibliography containing all the documentation collected during the course of the project implementation as well as the lectures delivered during the International Round Table held in Rome on 15-16 December 2009 can be accessed on the UNICRI website at: www.unicri.it

FOREWORDS

It is with great pleasure that I invite you to read this UNICRI and AIFA publication that summarizes the results of a collaborative project, culminating with an International Round Table on "Biomedical Research in Developing Countries: the Promotion of Ethics, Human Rights and Justice", held in Rome on 15 and 16 December 2008.

The highest inspiration that should always direct and shape advancement of science is the benefit to humankind, with the increase of life expectancy and the improvement of the quality of life as its basic and most immediate effects and the universal respect for human rights, dignity and fundamental freedoms as its core values.

The strong link between good health and development has been amply demonstrated. Underdevelopment not only denotes poverty and inequality, but also low life expectancy, low levels of education, and low standards of living. As per the WHO definition, "health is a state of complete physical, mental and social well-being" and not merely the absence of disease or infirmity.

In the case of developing countries, strengthening of the health agenda has become a paramount necessity. Access to food, water sanitation, drugs availability and access to healthcare services are priorities clearly set out in the United Nations Millennium Declaration.

UNICRI is deeply involved in the promotion of the UN Millennium Declaration and its Goals.

Today underdevelopment generates crime and crime generates underdevelopment and the most vulnerable and exposed subjects pay the highest price of this vicious cycle.

With almost 40 years of experience, UNICRI supports governments and the international community in tackling the threat of crime to development and stability and in strengthening human rights. In this respect, its mission is deeply embodied in the MDGs core objectives. The Institute has been always at the forefront of justice reform, crime prevention, victims protection and innovative security policies.

Development, rights and security are interdependent. UNICRI work is based on the assumption that the more poverty and injustice will affect people, the more the world will be an unsafe place for everybody. Justice shall not be an empty word but the flagship of the commitment to defend the rights and the equal opportunities of each man. That is why UNICRI is putting the people at centre of its work.

Strong institutional capacity is necessary to address development and security. Bad governance and corruption represent the main drain of resources from vital sectors such as healthcare and education.

UNICRI facilitates global partnerships to share and adopt good practices and deepen the implementation of the UN treaties. Government accountability and integrity are key requirements of the United Nations Convention against Corruption (UNCAC). Cooperation among countries is pivotal in the UNCAC, especially in the efforts for the recovery of stolen assets. Currently, stolen assets held in foreign bank accounts are estimated to be equivalent to more than half of Africa's foreign debt. Every day 5500 people die from AIDS and in developing countries AIDS drugs are still difficult to get for a large percentage of the population.

Wealthy nations must prioritize the needs of poor countries, when allocating their financial resources for health research. Poor countries must not be perceived as passive recipients or as instruments for exploitation, but as crucial partners. Developing countries, on the other hand, need to concentrate their efforts into strengthening good governance and the rule of law.

UNICRI's research networks aims to catalyse the worldwide expertise in making use of international resources and in putting concrete actions in place in the name of justice and to serve people's needs.

This project has represented the effort by UNICRI and the Italian Medicines Agency to investigate the ethical and legal implications surrounding the conduct of clinical trials of drugs with human participants in developing countries and to sharpen the capacity to assess health research.

This project has also represented an opportunity to exchange experiences and know-how with the hope to increase the knowledge and promote the implementation of the international instruments.

Awareness of biomedical ethics issues will lead to the formulation of laws for the protection of human participants in biomedical research. Promoting the harmonized adoption of good clinical practice (GCP) is pivotal.

Supporting education and training curricula, to facilitate the creation of institutional Research Ethics Committees is essential to counter the violations of human rights and the law.

Fostering the development of systems for regular site inspections and for the improvement of regulatory capacity is also crucial for marketing of new drugs to ensure the widest availability of treatment options to citizens and to protect them from poor quality control of drugs and from counterfeiting.
Last but not least, it is essential to support good governance and the creation of a climate of trust in biomedical research, especially in those countries where development efforts in public health need to be supported by good governance.

2008 is the 60th anniversary of the Universal Declaration of Human Rights. This should

remind us of the serious commitments which the international community has taken. I would like to express my deepest gratitude to all the people who contributed to this project and to the International Round Table. In particular, I would like to thank the Representatives of UNESCO and WHO, the Representatives of the European Commission, of the World Medical Association, the Academics and the NGOs. I thank of course, primarily, the representatives of the countries, who share in first person with us the strong commitment to contribute in a concrete way to the existing concerns raised by the globalization of clinical trials and the consequent need to protect its most vulnerable participants, while at the same time promoting the developments of science in the health field.

Sandro Calvani, UNICRI Director

PRESENTATION

In welcoming the publication of this book, that summarizes the project carried out by the Italian Medicines Agency and UNICRI, I would like to underline the reasons that induced the Italian Medicines Agency to support this initiative and the general framework in which it falls.

The Italian Medicines Agency is a regulatory institution, and as such, among its main duties, it authorizes the marketing of drugs, on the basis of the results of clinical trials that show their efficacy and safety.

The recent and progressive increase in the number of clinical trials conducted in developing countries is determining an increase in the request for authorization of marketing for drugs based on efficacy data from clinical trials conducted in developing countries.
The acceptability and reliability of those data depends, as envisaged by the Italian national law and in line with the European Directive, on two factors:

1) *That the clinical trials are conducted according to the ethical principles of the Good Clinical Practices;*
2) *That the clinical trials are conducted according to the scientific and procedural principles of the GCP.*

As the experts know, GCP is "an international ethical and scientific quality standard for designing, conducting, recording and reporting trials. Compliance with the standard provides public assurance that the rights, safety and well-being of trials subjects are protected, consistent with the principles that originate in the Declaration of Helsinki and that the clinical trials data are credible".

Among the ethical principles of the GCP to which the clinical trials have to conform in any country in which they are conducted, two have a fundamental relevance:

1) *a trial should be initiated and continued only if the anticipated benefits justify the risk;*
2) *the rights, safety and well-being of the trial subjects are the most important consideration and should prevail over the interests of science and society.*

Also the scientific and procedural principles of the GCP contain ethical considerations; they state in fact the necessity that:

1) *the clinical trials be scientifically sound and described in clear, detailed protocols;*
2) *the protocols have received prior independent ethics committees approval;*
3) *the trials be conducted in line with an approved protocol.*

It is evident that the lack of these elements, that ensure the scientific and methodological appropriateness of the trial, represents a risk for the safety of the trials subjects and translates into a lack of protection of their fundamental rights.

What I said applies to any country, irrespective of whether it is developed or under-developed and its compliance will be the more higher, the more the following instruments are in place:

1) *Laws that permit the marketing of drugs only if duly authorized and that sanction any violations;*
2) *Laws that permit trials of drugs only if previously authorized and that sanction any violations;*
3) *The actual existence of Research Ethics Committees, that can be truly independent and professionally sound;*
4) *Systems of control of clinical trials while they are being conducted, through the use of GCP Inspectorates;*
5) *Laws that envisage the possibility of refusal by the Regulatory Agencies to authorize marketing of drugs for which safety and efficacy has been determined through trials which are not conducted according to the GCP principles.*

Numerous initiatives by International, regional and national organizations have been launched to collaborate with the developing countries in order to implement the points above mentioned.

These initiatives in many instances are implemented without having a clear picture of what has been already done, what are the results and what is being done in the same geographical area, in the same field of study etc. As a consequence, there could be little knowledge of neglected areas of intervention or of the necessity for complementary interventions that can be more effective.

The Italian Medicines Agency, in collaboration with UNICRI, have considered the necessity to start a process, with this Round Table as a first step, to bring:

1) *a reciprocal knowledge of what is being done in this field;*
2) *an evaluation on what has been done to date;*
3) *a continuous update on what is going to be done.*

In other words, the Italian Medicines Agency, in collaboration with UNICRI and the other international organizations, the developing countries, the European Union and non European Union countries as well as the NGOs, aims to support a continuing information tool that can provide a continuing assistance to professionals working in this field or who are directly or indirectly involved in the field of clinical trials conducted in developing countries.

This service should provide assistance, for example, to the different developing countries, beginning from those countries in Africa on which AIFA and UNICRI have carried out a research study that is included in this publication, to find the following information:

1) *the laws and regulations governing this field for each country;*
2) *the existence of Research Ethics Committees and GCP Inspectorates;*

3) *the existence of centres or research groups with experience on conducting trials according to ethical principles of GCP, as shown by favourable reports from GCP Inspectorates;*
4) *the existence of investigators that have followed training in GCP and in bioethics;*
5) *other elements that will emerge in the implementation process.*

In this way, this service would allow the professionals to be up to date on the latest developments in the field as occurring in developing countries and would be useful in these circumstances:

1) *an international, regional or national organization or a NGO wants to support a country through training programmes for investigators or for members of ethical committees or GCP inspectors.*
2) *A regulatory agency needs to verify the compliance to the principles of GCP for a certain clinical trial.*
3) *A scientific institution or a pharmaceutical company wants to conduct a clinical trial.*
4) *A qualified institution wants to provide a consultancy for the issuance of regulation in the field and so on.*

The implementation, the development and the immediate update of a map is also necessary that visualizes this type of interventions already adopted and/or planned in this field; a description of the normative situation and the organization of the clinical trials, a report of data on the real efficacy of such interventions and of the obstacles encountered.

It is hoped that this will provide a useful support for implementing interventions that can be more targeted to the real needs, more selective, and complementary and avoid duplication. The interventions should be in fact defined on the basis of the results of the experiences already carried out with success, to contribute to the process of obtaining a research on drugs that respects the ethical and human rights principles.

Guido Rasi, Executive Director, AIFA, Italian Medicines Agency

INTRODUCTION

For several years, Italy has been very active in improving the health sector of developing countries at various levels, the most important being health care and biomedical research.

In the health care sector, I would like to mention the Association "Alleanza degli Ospedali Italiani nel Mondo" (Italian Hospitals in the World Alliance), which has been established a few years ago, by a Ministry of Health initiative, with the participation of the Ministry for Scientific Research and the Ministry for Foreign Affairs. The Association comprises over 20 Italian health centers working in developing countries, connected with 30 Italian health centers working in Italy; their aim is to promote a medical consultancy service, through tele-consultation and e-learning services for health personnel and, eventually, for the local population, in order to ameliorate health care in developing countries.

With regard to Biomedical Research, there are currently many clinical trials for pharmaceutical products in developing countries, sponsored by qualified Italian health structures. For instance the AIDS vaccine trial of the National Institute of Health; the research done by the "Istituti di Ricovero e Cura a Carattere Scientifico", sponsored by the National Institute for Infectious Diseases "Lazzaro Spallanzani", which is centered on tuberculosis, malaria and HIV/AIDS clinical trials in Africa, in collaboration with non-governmental organizations; several health initiatives funded by the Ministry of Foreign Affairs.

Biomedical Research and its critical issues are always under the attention of Italian researchers, the Italian Ministries promoting the research and AIFA Agenzia Italiana del Farmaco (the Italian Medicines Agency), which has the duty to monitor and control the clinical trials carried out in Italy and abroad.
At the national and international level, Biomedical Research is a complex and topical issue, due to the continuous challenges that Science faces and necessarily requiring a deep reflection on ethics of scientific discoveries.

In the last years, the number of clinical trials of pharmaceuticals products in high income countries and, more recently, in developing countries and low and middle income countries has grown in an exponential way. According to FDA data, clinical trials in developing countries, have grown up from 9% in 2003 to 17,5% in 2007; in India, clinical trials have grown from 96 in 2001 to 493 in 2007. The Associated Chambers of Commerce and Industry of India (ASSOCHAM), foresees that the clinical trials business will grow from the present 150 million to 546 million of US dollars in 2010.

As evidenced by Dennis Normille in an analysis published in the magazine "Science" in October 2008, there are several reasons for the growth of clinical trials in developing countries:

1) *clinical trials that investigate the different reactions to drugs due to different ethno-genetic factors;*
2) *clinical trials implemented in order to facilitate the setting-up of an industry or a society in a country, where the creation of new drugs market is foreseable;*

3) *the possibility to utilize a large basin of human subjects;*

4) *savings higher than 50% compared to the expenses for the same research conducted in high income countries;*

5) *faster start of experimentations in developing countries, due to the lower legislative acts and inspections required before the authorization, as compared to western countries. As everybody knows, the shorter the duration of the experimentation phase is, the shorter the time necessary to introduce the drug in the market. If we consider that the drug is patented before the beginning of the trials, if a clinical trial is fast, the commercialization of a pharmaceutical product and its patent commercial exploitation extends longer;*

6) *possibility to test drugs for diseases that characterize developing countries, sometimes absent in others;*

7) *possibility to conduct clinical trials and to recruit participants on the basis of modalities that sometimes are not easily accepted in Western countries.*

Even academic researchers that promote clinical trials without the economic support of pharmaceutical industries, when deciding to conduct their research in developing countries try to take advantage of the more permissive setting.

It is clear then, that there are several different reasons that justify the choice to organize clinical trials in developing countries, starting from economic, organizational, operative, clinical and ethno-genetic reasons, to other reasons related to the necessity of finding shorter and simpler ways to implement experimentations of pharmaceutical products. Such ways utilize short-cuts that apparently avoid only bureaucratic obstacles but that actually elude the strict independent ethical and scientific evaluation necessary to authorize a clinical trial, in order to guarantee human rights protection, health and well-being of participants and the objective methodological severity of research.

There are other two different aspects concerning this issue. On the one side, the researcher that wishes to carry out, develop and verify immediately his scientific thesis and who believes he/she is competent, responsible and legitimate in the protection of his/her patients during the trial; on the other side, the role of the institutions that need to guarantee not only the well-being of clinical trials participants, but the health of the whole population, through the application of internationally shared laws.
For these reasons, there is a strong need, both in high income countries and in low and middle income countries, to have simple and clear laws, that guarantee clinical research participants through the necessary professionally efficient and effective regulatory bodies or institutions.

Those regulations already exist and they are agreed upon and shared in many countries: we are referring to Good Clinical Practices for trials of pharmaceutical products, that have been introduced in both European and Italian legislation.

At the European Union level, GCP are subject to two different Directives. They are the

Directive 2001/20/EC of the European Parliament and of the Council of 4 April 2001 "On the approximation of the laws, regulations and administrative provisions of the Member States relating to the implementation of good clinical practice in the conduct of clinical trials on medicinal products for human use", transposed in the Italian Legislation in the year 2003 and the Commission Directive 2005/28/EC "Laying down principles and detailed guidelines for good clinical practice as regards investigational medicinal products for human use, as well as the requirements for authorisation of the manufacturing or importation of such products", transposed in the Italian Legislation in the year 2007. The main provision of these two Directives is that all clinical trials, including bio-availability and bio-equivalence studies, shall be designed, conducted and reported in accordance with the principles of Good Clinical Practice.

ICH-GCP principles provide ethical guarantee because they foresee that:

1) *clinical trials should be conducted in accordance with the ethical principles that have their origin in the Declaration of Helsinki;*
2) *the rights, safety, and well-being of trial subjects are the most important considerations and should prevail over the interests of science and society;*
3) *a trial should be conducted in compliance with the protocol that has received prior EC approval;*
4) *freely given informed consent should be obtained from every subject prior to clinical trial participation.*

The E.U. and Italian legislation foresee also that a Clinical Trial may be undertaken only if:

1) *the rights of the subject to physical and mental integrity, to privacy and to the protection of the data concerning him, are safeguarded;*
2) *the subject may, without any resulting detriment, withdraw from the clinical trial at any time by revoking his informed consent;*
3) *provision has been made for insurance or indemnity to cover the liability of the investigator and sponsor;*
4) *the subject shall be provided with a contact point where he may obtain further information;*
5) *no incentive or financial inducement are given.*

In the E.U. and Italian legislation special attention is given to safeguard the rights of children and a clinical trial on minors may be undertaken only if:

1) *the informed consent of the parents or legal representative has been obtained; consent must represent the minor's presumed will and may be revoked at any time, without detriment to the minor;*
2) *the minor has received information according to its capacity of understanding, from staff with experience with minors, regarding the trial, the risks and the benefits;*
3) *the Ethics Committee, with paediatric expertise or after taking advice in clinical,*

ethical and psychosocial problems in the field of paediatrics, has endorsed the protocol.

According to this legislation ethics committees are in charge of supervising clinical trials; "Ethics Committee" is an independent body in a Member State whose responsibility is to protect the rights, safety and wellbeing of human subjects involved in a trial and to provide public assurance of that protection, by, among other things, expressing an opinion on the trial protocol, and on the methods and documents to be used to inform trial subjects and obtain their informed consent.

The Ethics Committee approval is necessary before the commencement of a clinical trial, and in preparing its opinion, the Ethics Committee shall consider, among others:

1) *whether the evaluation of the anticipated benefits and risks is satisfactory and whether the conclusions are justified;*
2) *the adequacy and completeness of the written information to be given and the procedure to be followed for the purpose of obtaining informed consent;*
3) *any insurance and provision for indemnity or compensation in the event of injury or death attributable to a clinical trial;*
5) *the amounts and, where appropriate, the arrangements for rewarding or compensating investigators and trial subjects;*
6) *the arrangements for the recruitment of subjects.*

The Italian legislation foresees also that:

1) *when AIFA has information raising doubts about the safety or scientific validity of the clinical trial, it may suspend or prohibit the clinical trial;*
2) *withdrawal of Marketing Authorization (MA) is possible by AIFA when CT have not been conducted in compliance with GCP;*
3) *refusal of MA must be issued when the application is based on CT performed in EU and extra-EU Countries not in compliance with GCP ethical principles.*

To verify compliance with the provisions on GCP, AIFA appoints inspectors to inspect the sites concerned by any clinical trial conducted, particularly the trial site, the sponsor's, premises and ethics committee as well. The inspections shall be conducted on behalf of the European Community and the results shall be recognised by all EU Member States. To verify compliance with the provisions on GCP ethical principles the AIFA GCP Inspectorate may require advice from the Italian National Committee on Bioethics, established at the Italian Presidency of the Council of Ministers. As above described, the ethics committee opinions before the commencement of CT and the GCP inspections before, during and after CT, are the two elements that together with investigators working in compliance with GCP, allow the respect of ethics in CT.

AIFA GCP Inspectorate with UNICRI have promoted this research, the results of which are reported in this book with the aim: to contribute to raise the awareness of international and

national institutions and organizations working in the field, to begin a collaboration between different institutions in order to strengthen the ethical aspects in sensitive settings for clinical trials in developing countries.

Umberto Filibeck
Head of GCP Promotion Unit and GCP and Pharmacovigilance Inspectorate
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CHAPTER I

THE INTERNATIONAL GUIDANCE

The Ethics of Clinical Research

Advancements of Science and freedom of research should have as their primary objective the benefit to humankind, in particular by prolonging lifespan and improving the quality of life, while at the same time always recognizing the universal respect for human rights, dignity and fundamental freedoms.

In medical ethics, the most widely accepted general approach to establish norms for ethical and moral behaviour is the "four principles plus scope" approach, described by Beauchamp and Childress[1]. This approach is based on four moral commitments: respect for autonomy, beneficence, non-maleficence and justice, plus concern for their scope of application. This four principles offer doctors and other health care workers a simple, culturally neutral and basic moral tool to direct their decisions in medical ethics[2].

Autonomy is configured as the obligation to obtain patients' consent before performing any medical intervention on them and respect of confidentiality. Beneficence and non-maleficence are the ability to produce net benefit over harm. This entails primarily a rigorous medical education and continuous training, in order to be professionally able to discern what can be beneficial to each patient. In addition, beneficence and non-maleficence require a clear vision of the risks and probability of harm. In the context of non-maleficence, a low probability of great harm such as death or severe disability is of less moral importance than is a high probability of such harm; in the context of beneficence, a high probability of great benefit, such as a cure for a life threatening disease is of more moral importance than is a low probability of such benefit. Empirical information about the probabilities of harm and benefit that may result from health care interventions is therefore of crucial importance and should be based on effective, ethically and scientifically sound medical research.

Justice can be divided into three moral obligations: distributive justice, i.e. the fair distribution of scarce resources, rights based justice, the respect for people's rights and legal justice, the respect for morally acceptable laws. All four moral commitments are subject to their scope of application, that is, who or what falls within the scope of a physician's obligation to apply these same principles.

In the field of clinical research, Emanuel and colleagues[3] have reasoned on which

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1 Beauchamp T.L., Childress J.F., *Principles of Biomedical Ethics*, 3rd Ed. New York, Oxford, OUP, 1989
2 R. Gillon, *Medical Ethics: Four Principles plus Attention to Scope*, BMJ, 1994;309:184
3 Emanuel E.J., Wendler D., Grady C., *What Makes Clinical Research Ethical?*, JAMA, 2000;283:20, 2701-2711

ethical requirements can be considered universally applicable when dealing with human participants. They enumerate seven requirements that can provide a framework to Review Boards for determining whether clinical research is carried out in an ethical manner: *social and scientific value; scientific validity; fair subject selection; favorable risk-benefit ratio; independent review; informed consent and respect for enrolled research subjects*. These requirements contain all the fundamental principles expressed in the various international guidelines, although none of them includes all seven of them. Like constitutional rulings, they are general statements of value, subject to tradition of interpretation and dependent on context and cultural diversity. The statements should be considered in their chronological order, from the design and inception of the protocol through the monitoring of ongoing research activities. Thus, a trial design that is not scientifically valid, renders the research proposal ethically illicit, irrespective of the extent to which the other requirements are met, thus it should not be approved.

In an article that considers the importance of relying on ethics of conduct for professionals involved in social and criminological research, J.L. Schneider[4] points out how, in today's exponential growth of international research, it may be difficult to rely on just one's national professional code of conduct. The ethnocentric approach may not guarantee ethical validity to research actions, when professionals are confronted with different cultural values, traditions and norms. Because codes will never be complete enough to help guide professionals when problems arise in international research, the biggest challenge for international researchers becomes to identify ethical principles that bridge, accommodate and respect the traditions of West, East and Aboriginal communities and cultures. However, the question remains as to whom are researchers' actions accountable in an international context? Where to turn for guidance? The author proposes the setting up of an international panel of peers with international experience who could provide the necessary opinion that would enable international researchers to withstand ethical scrutiny with confidence. The author also stresses the role of international peer-reviewed journals to begin calling on authors to provide more complete description of their study's ethics.

Critical issues multiply when we turn to international clinical research conducted in developing countries. In another article, Emanuel and colleagues[5], add the principle of "collaborative partnership" to the seven principles already delineated and divide the eight principles into 31 benchmarks for action. The authors consider the principle of collaborative partnership first and foremost in importance, for any research conducted in a resource-limited setting, where the risk of exploitation of human participants is higher. Its benchmarks consist in developing partnership between sponsors and investigators in developed countries and researchers, policy

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4 Schneider J.L. *Professional Codes of Ethics: Their Role and Implications for International Research*, J. of Contemporary Criminal Justice, 2006, 22:2 pp.173-192

5 Emanuel E.J., Wendler D., Killen J.,Grady C., *What Makes Clinical Research in Developing Countries Ethical? The Benchmark of Ethical Research*, J. Infectious Diseases, 2004; 189:930-7

makers and the community in developing countries for sharing responsibilities in determining research priorities, in assessing the value of research, in the planning, conducting and overseeing of research. Equal partnership with local collaborators helps to ensure that research is acceptable and relevant to the host country and helps build local capacity for research and health care delivery. In addition, it would help integrating research into health care system, as study results would influence local health care policy.

In the same article, issues such as compensation for research-related injuries, medical care for conditions unrelated to that of the research study, what medical care should be provided once research is over, as well as communication of the results of research are considered within the benchmarks for action.

The collaborative partnership principle has been criticized as showing its limitations in the fact that collaboration at this level is very difficult to achieve in most of the developing country settings. This principle may sound unrealistic, unless we were to consider all research conducted without local collaboration as unethical, or unless we considered appropriate to postpone any research until the necessary conditions for partnership can be created[6].

The Guidance

In the field of biomedicine, research ethics guidelines and standard setting regulations promulgated by the United Nations, by multilateral organizations and national institutions have their roots in the philosophical and moral background of international human rights law and treaties such as the **Universal Declaration of Human Rights (1948)** and the **International Covenant on Civil and Political Rights (1966)**, which reconfirm the value of independence from any scientific exploitation of the human being by stating that "no one shall be subjected without his free consent to medical or scientific experimentation".

World War II inspired the **Nuremberg Code (1947),** a 10-point statement that was included in the verdict of the Military Tribunal of Nuremberg in the trial against the scientists accused of crimes. While it can be considered the first structured attempt to define the legitimate parameters of medical research, it is limited in scope by its contingency to condemn the atrocities perpetrated by the III Reich scientists and to prevent future human abuse during conflicts. It stresses that no research should be done on human subjects without clear voluntary consent and the need for favourable risk-benefit ratio; however, basic concepts such as fair subject selection or the importance of independent review are absent.

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6 Kuritzkes D.R., *Ethical Conduct of Research in Resource-Limited Settings*, J. Infectious Diseases, 2004; 189:794-5

Several other important codes of regulations have been developed for the protection of human subjects involved in clinical research trials.

Ethical Principles for Medical Research Involving Human Subjects aka The Declaration of Helsinki (1964)

Revised several times (1975, 1983, 1989, 1996, 2000, clarifications in 2000 and 2004, undergoing further revision in 2008) the Declaration of Helsinki was developed by the World Medical Association and WHO and adopted by the World Medical Assembly in Helsinki in 1964. Its 2004 revision comprises three sections, each containing 32 paragraphs, each devoted to a topic. Although the Declaration itself has no legal force, it is influential and widely acknowledged as the 'cornerstone of research ethics'. All subsequent guidelines and provisions are set against its background.

The various revisions of the Declaration were done to specify the responsibilities of physicians in the preservation of the health of participants[7], by expanding, amending and adding concepts of informed consent, the necessity of ethical review of research, confidentiality and treatment of data, publication of results, definition of "standards of care" during research and what happens after research is over, especially when research is conducted in developing countries[8]. These last two concepts are contained in section C, defining principles for medical research combined with medical care, in the most debated paragraphs, n.29 and n.30.[9]

Paragraph 29 states that new treatments should be tested against the "best current prophylactic, diagnostic and therapeutic methods. This does not exclude the use of placebo, or no treatment, in studies where no proven prophylactic, diagnostic or therapeutic method exists." In 2001, raising concerns of confusion and wrong interpretation of this paragraph, especially in view of the particular circumstances in developing countries, led to the inclusion of a Note of Clarification that considers the use of placebo ethically admissible, even in the presence of a proven therapy, in two exceptions: when for "compelling and scientifically sound methodological reasons its use is necessary to determine the efficacy or safety of a prophylactic, diagnostic or therapeutic method" and when "a prophylactic, diagnostic or therapeutic method is being investigated for a minor condition and the patients who receive the placebo will not be subject to any additional risk of serious or irreversible harm".

Paragraph 30 states that: "At the conclusion of the study, every patient entered into the study should be assured of access to the best proven prophylactic, diagnostic or

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7 T.A. Brennan, *Proposed revisions to the Declaration of Helsinki – Will they weaken the ethical principles underlying human research?*, NEJM, 341(7):527-531, 1999

8 S. R. Benatar, *Linking moral progress to medical progress: new opportunities for the Declaration of Helsinki*, World Medical Journal, 5(1) pp. 11-13 March 2004

9 P.G. De Roy, *Helsinki and the Declaration of Helsinki*, World Medical Journal, 5(1) pp.9-11, March 2004

therapeutic methods identified by the study." Sharp debate within the World Medical Association between 2001 and 2003, led the Assembly to establish, in September 2003, a Working Group to clarify the controversies of the paragraph. In May 2004, the Working Group concluded that no amendment to paragraph 30 was to be made. A note of Clarification was instead included in the Declaration, stating the necessity "during the study planning process, to identify post trial access by study participants to prophylactic, diagnostic and therapeutic procedures identified as beneficial in the study or access to other appropriate care. Post-trial access arrangements or other care must be described in the study protocol so the ethical review committee may consider such arrangements during its review".

In the course of 2008 the Declaration of Helsinki was put under further revision, to be approved by the end of the year. The paragraphs are increased, due to the fact that some paragraphs have been subdivided to better specify concepts relevant to the subject of the Declaration.

Former paragraphs 13 and 14 are being reorganized and clarified so as to ensure that the protocol (new 14) and the revision by the research ethics committee (new 15) have each its own devoted paragraph.

In the paragraph regarding protocol submission (new 14), investigators are encouraged to carefully consider the ethical aspects of their research, as they should not only state the ethical considerations involved in the study, but also indicate how the principles of the DoH are addressed, instead of just indicating the compliance with its principles as previously enunciated. This paragraph also incorporates the controversial paragraph 30 and its note of clarification, regarding arrangements for post-study access by study participants, to methods identified as beneficial in the study or access to other appropriate care or benefit. The new paragraph also requests to specify, in the protocol, provisions for treating and/or compensating subjects who are harmed as a consequence of participation in the research study.

The new paragraph 15 specifies and increases the importance of the role of research ethics committees. The paragraph clearly states that research ethics committees should have the authority to approve or not approve a research protocol. Research ethics committees should exist wherever medical research is conducted and should not have to be specially appointed to deal with specific protocols. In addition, if the research is to be conducted in a country different from the one in which the committee approval is sought, the committee should ensure that the research is not in conflict with the laws and regulations of the host country. No change in the protocol should be made without prior consideration and approval by the committee.

Justification for research based on the benefit resulting for the community in which the study is conducted, has been changed to allow for phase I clinical trials on diseases primarily affecting developing countries to be carried out also in developed

countries. Assessment of risks and burdens of research study should be done not only with regard to individuals but also in considering its repercussions for the entire community.

A separate paragraph (new 19) stresses the need for clinical trials to be registered in a publicly accessible database before recruitment of the first subject.

With regard to the paragraphs dealing with informed consent, customs typical of some cultural settings are considered. For example, participation to medical research by legally competent individuals must be voluntarily expressed and cannot be replaced by consultation with family members or community leaders. In addition to that, "legally competent human subjects" as opposed to "legally incompetent subjects", such as children or people with mental disabilities substitute the term "human subjects". A separate paragraph deals with subjects physically or mentally incapable of giving consent but who are not legally incompetent (such as unconscious persons). A new paragraph deals with informed consent in research with human tissues or data. Given the fact that in certain developing contexts, another physician may not be available, in the event of a dependent relationship between physician and patient, an appropriately qualified individual, who is completely independent of this relationship, can seek informed consent.

Additional protection for research subjects is provided for in the new paragraph 31 and 32 (former 28 and 29) that considers medical research combined with medical care and the use of placebo. Research combined with medical care is justified only for its preventive, diagnostic or therapeutic value and if the physician considers that participation to the research study does not adversely affects the health of patients. With regard to the use of placebo, the contents of the note of clarification have been fully incorporated in the new paragraph and the term "best current proven method" is used to identify the control therapy.

Paragraph 33 (former paragraph 30) states that at the conclusion of the study, participants are entitled to be informed about the outcome of the study. The new paragraph 14 deals with the requirements regarding post trial access to treatment. Paragraphs 34 and 35 (former 31 and 32) have been simplified and clarified.

The International Ethical Guidelines for Biomedical Research Involving Human Subjects (1982, rev. 1993, 2002)

Published by the Council for International Organizations of Medical Sciences (CIOMS), established under the auspices of WHO and UNESCO in 1949, this document was prepared to provide a guidance for application of the Declaration of Helsinki to research, especially done in developing countries. The 1993 revision is influenced by the issues brought upon by the HIV/AIDS pandemic and the necessity

to conduct large-scale trials for vaccines and relevant drugs. The revised guidance, published in August 2002, includes special consideration of the controversial issue of international placebo-controlled trials sponsored by developed countries and conducted in developing countries. The debate was so controversial that no agreement was reached on the use of placebo and the guideline is accompanied by an extensive commentary.

The guidance consists of a general statement, a preamble and 21 guidelines related to: ethical justification and scientific validity of research (1); ethical review (2-3); informed consent (4-7); equity regarding burdens and benefits for the individual (8-9); research in communities with limited resources (10) choice of control in clinical trials (11) equity regarding burdens and benefits in the group selection (12); vulnerable populations, children, mentally ill persons (13-15); women as research subjects (16-17); confidentiality (18); compensation for injury (19); strengthening of national or local capacity for ethical review; and obligations of sponsors to provide health-care services (20-21).

ICH E6 - Guidelines for Good Clinical Practice (1996)

Prepared by the International Conference on Harmonisation of Technical Requirements for Registration of Pharmaceuticals for Human Use, which is composed by the Medicine Regulatory Agencies and members of the pharmaceutical industry of the European Union, Japan and the United States. The WHO, Canada and EFTA have observer status. Since its creation in 1990, the ICH has issued 58 Tripartite Guidelines on issues related to its four main areas of work: quality, safety, efficacy and multidisciplinary topics. The process to reach harmonization of technical requirements resulting from scientific progress goes along with the process of keeping up-to date the current guidelines, in order to ensure that the harmonization process, so far achieved, is not lost. Guidelines are adopted by the Steering Committee and signed by the three regulatory parties to ICH. However, guidelines become binding only when the regulatory bodies in the three regions implement them. The guidelines related to clinical trials are comprised in the Efficacy Area. The GCP Guideline is the sixth in this group. The objective of this guidance is to provide "international ethical and scientific quality standards for designing, conducting, recording and reporting trials that involve the participation of human subjects. Compliance with this standard provides public assurance that the rights, safety and well-being of trial subjects are protected, consistent with the principles that have their origin in the Declaration of Helsinki, and that the clinical trial data are credible." ICH E6 GCP Guideline is designed to set a unified standard for the ICH countries in order to facilitate the mutual acceptance of clinical data by the regulatory authorities in these jurisdictions and speed up registration for market authorization of medicines. Topics covered include the composition of ethics committees / review boards, the responsibilities of investigators and sponsors,

provisions regarding trial protocols and protocol amendments, including treatment of data, informed consent, payment of subjects, insurance in case of harm. This guideline has been adopted by Europe in 1996 and by the United States and Japan in 1997. Guideline E10 "Choice of Control Group in Clinical Trials" adopted by the EU in 2000, and in 2001 by the USA and Japan, addresses the use of placebo; it states that a placebo controlled trials can be considered ethical depending on the particular circumstances of the trial and on what the trials wants to clinically demonstrate. "It should be emphasized that use of a placebo or no treatment control does not imply that the patient does not get any treatment at all".

The Universal Declaration on Bioethics and Human Rights (2005)

Prepared by the UNESCO Bioethics Programme, it is the most recent instrument that aims to identify universal ethical principles on bioethics, conformed to human rights principles and within the boundaries of international law. The Declaration aims to promote the emergence of shared values and to set the standard of action in the field. The Declaration provides a coherent framework of principles and procedures that can guide Member States in the development of national policies, legislation and codes of ethics.

Within its mandate, UNESCO has been very active, over the years, in setting the standards in bioethics. Its valuable actions, in recent years, have included the preparation of two of the most important bioethics instruments: the Universal Declaration on the Human Genome and Human Rights, adopted by the General Conference in 1997 and endorsed by the United Nations General Assembly in 1998, and the International Declaration on Human Genetic Data, adopted unanimously and by acclamation by the General Conference on 16 October 2003.

The works towards the Declaration began in 2003 with a Report prepared by the International Bioethics Committee[10], at the request of the UNESCO Secretary General. In the area of research involving human subjects, the IBC Working Group considered that the main focus of a universal instrument on bioethics would be that of increase North/South partnership, building capacity of scientists in developing countries, promote transfer of knowledge and technology to raise the standard of benefits for host countries. At its 32nd session in October 2003, the UNESCO General Conference considered that it was "opportune and desirable to set universal standards in the field of bioethics with due regard for human dignity and human rights and freedoms, in the spirit of cultural pluralism inherent in bioethics" (32 C/Res. 24). The General Conference also invited "the Director-General to continue

10 UNESCO, International Bioethics Committee, *Report of the IBC on the Possibility of Elaborating a Universal Instrument on Bioethics*, SHS/EST/02/CIB-9/5 (Rev.3), Paris, 13 June 2003

preparatory work on a declaration on universal norms on bioethics, by holding consultation with Member States, the other international organizations concerned and relevant national bodies, and to submit a draft declaration to it at its 33rd session" (32 C/Res. 24). The instrument of the declaration was thought to best suit a still non-homogeneous and rapidly changing context and to enable the broadest consensus among Member States. A Declaration would also allow more flexibility for the elaboration of protocols on specific issues and provide a reporting mechanism on its implementation by the Member States. A declaration would also be the best vehicle to stress the importance of values such as education, information diffusion, raising awareness and the importance of public debate.

The UNESCO General Conference of its Member States finally adopted the Declaration in October 2005. A Resolution was also adopted by the General Conference that engages Member States to take appropriate steps to make every effort to give effect to the principles set out in the Declaration itself. Although the Declaration has no regulating or sanctioning power at the level of international law, it is innovative because it was adopted unanimously by the UNESCO Member States, thus constituting a moral commitment to respect and implement the principles set out in it and to include bioethics in their political agenda[11].

European Union

The European Union and its Organs have developed various instruments in the field of ethics and protection of human rights. Among the most recent ones: The Charter on the Fundamental Rights of the European Union (2000) stating the rights to human dignity and integrity as well as freedom of research; The Action Plan Sciences and Society adopted by the Commission in 2001, in which there are provisions for the development of ethical review capacity in different regions of the world; the 6th Framework Programme for Research and for the creation of the European Research Area (2002) concerning the possibility for developing countries to apply for EU funding in the area of research.

The EU has issued two Directives on the regulation of research carried out in its Member States, and for EU funded research trials, it has a responsibility to guarantee respect of ethical and scientific principles. Moreover, the EU controls marketing authorization of medicines and medical products within the EU market through the European Medicine Agency (EMEA). EMEA is responsible for evaluating the effectiveness, safety and cost of medicines and medical devices and products, the respect of ICH Good Clinical Practices, up to the granting of informed consent and approval by Ethical Committees. The EMEA can intervene after the clinical trial is completed and the medical product is presented for market authorization. In case of

11 Have H. Ten, *The Activities of UNESCO in the Area of Ethics*, Kennedy Institute of Ethics Journal, 2006,16:4, Pages. 333-351

irregularities, EMEA can advise the European Commission to refuse authorization or withdraw it after the medical product has been put in the market.

The EU Regulation 726/2004[12] lays down the procedures for the supervision and the authorization by EMEA of medicinal products for human and veterinary use[13]. In the opening, the Regulation calls upon the need to ensure the ethical requirements of Directive 2001/20/EC[14] "In particular, with respect to clinical trials conducted outside the Community on medicinal products to be authorised within the Community, at the time of the evaluation of the application for authorisation, it should be verified that these trials were conducted in accordance with the principles of good clinical practice and the ethical requirements equivalent to the provisions of the said Directive"[15].

However, a recent report by the Wemos Foundation[16] shows that most European registration authorities do very little to ascertain whether clinical trials of drugs conducted in developing countries for subsequent marketing authorization in the EU, are actually conducted in an ethical manner. Of the 25 EU registration authorities to which Wemos submitted a questionnaire based on the Declaration of Helsinki, only 12 responded, representing both the old and the new EU Member States. The results show very little concern, on the part of registration authorities, as to the form and independency of the local Ethical Review Committees, poor attention to the trial's relevance for the research population, little concern over the treatment of vulnerable groups, no automatic rejection in case of overall consideration of unethical conduct. The report finds that European registration authorities place most of the responsibility for compliance with the ethical provisions, with the initial review by the local ethical committee, without any investigation, however, into its actual composition or performance.

For the evaluation of drugs for human use that are only for export, (such as malaria vaccines, for ex.) or for clinical trials applications done outside the EU, Regulation 726/2004, at article 58, envisages the possibility of issuing a scientific opinion by the EMEA. This provision was included by request of the WHO to prevent a reduction of R&D of new drugs (especially vaccines) as well as a reduction in their supply to developing countries. Current legislation, in fact, does not obligate US, European and other countries regulatory authorities to review clinical trials applications done outside their countries or if the products are only for export.

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12 *Regulation (EC) No 726/2004 of the European Parliament and of the Council of 31 March 2004 laying down Community procedures for the authorisation and supervision of medicinal products for human and veterinary use and establishing a European Medicines Agency, OJEU 31 March 2004*

13 See also *Directive 2005/28/EC of 8 April 2005 by the Commission of the European Union, laying down principles and detailed guidelines for good clinical practice as regards investigational medicinal products for human use, as well as the requirements for authorisation of the manufacturing or importation of such products.* L 91/13 of 9 April 2005.

14 *Directive 2001/20/EC of 4 April 2001 of the European Parliament and of the Council on the approximation of the laws, regulations and administrative provisions of the Member States relating to the implementation of good clinical practice in the conduct of clinical trials on medicinal products for human use, OJEU 1 May 2001*

15 See also *Directive 2003/63/EC, OJEU 27 June 2003*

16 The Wemos Foundation, *Do European registration authorities ascertain whether clinical trial in developing countries have been conducted in an ethical manner?*, Amsterdam, June 2007

Consequently, these authorities rarely perform GCP trial inspection in developing countries, except in case the results are to be submitted for an EU marketing authorization. At the same time, developing countries registration authorities, where in place, are called to be primarily responsible for licensing of priority drugs in their countries, when, in the past, they used to rely on the regulatory evaluation of the agency in the country of origin.

Ethical Aspects of Clinical Research in Developing Countries (2003)

This is an opinion prepared by the European Group on Ethics[17] (EGE, formerly GAEIB), an independent body created in 1991 to support and advise the European Commission on ethical values and aspects of science and new technologies, in view of the preparation and implementation of Community policy and legislation. 15 members that participate in their personal capacities and belong to various disciplines, such as ethics, law, science, philosophy, theology, political science, medicine etc, compose the EGE. The EGE issues Opinions after hearings, round-tables and discussions with the main experts in the fields[18]. Opinion n.17 "Ethical aspects of clinical research in developing countries" was issued in February 2003, at the request of the then President of the Commission, Romano Prodi, to provide advise on the ethics of carrying out EU funded research in economically disadvantaged countries, in view of the major investments of the EU in the fight against poverty linked disease such as malaria, AIDS and tuberculosis (see the EDCPT) as well as to the new possibilities opened by the 6th Framework Programme that allows developing countries to apply for EU funds in the area of research.

The EGE opinion mainly stresses the complexities and consequences of social inequality, poverty and cultural diversity in developing countries and how these factors can influence research. The opinion states that EU-funded research should always be based on the fundamental principles of justice, beneficence and non-maleficence, should be driven by solidarity and can never be assimilated to an economic activity. The EGE stresses the investigator's moral duty to make a concrete contribution to overcome these inequalities and to ensure that "the fundamental ethical rules applied to clinical trials in industrialized countries are to be applicable everywhere"[19]. In addition, research should comply with the health priorities of the host countries. However, research should not be considered charity assistance. To this end, partnership with local expertise should be developed at all stages of

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17 The European Group on Ethics in Science and New Technologies to the European Commission (EGE), Opinion No.17, *Ethical aspects of clinical research in developing countries*, Luxembourg, 4 February 2003

18 European Group on Ethics in Science and New Technologies to the European Commission (EGE) *The Ethical aspects of biomedical research in developing countries. Proceedings of the Round Table debate*, Brussels, October 1st, 2002, European Commission, February 2003

19 Ibidem, p.12

research: in the very early stage of planning and implementation as well as at the evaluation stage, through the close collaboration with the local Ethics Committees. The involvement of independent local evaluation is so crucial that, according to EGE, "where it is not possible to involve such an independent local representative in the evaluation, then no clinical trial should be implemented in the country"[20].
In its preparatory works, EGE had requested expert opinion on two important issues: the use of placebo[21] and the investment of pharmaceutical industry-funded research in developing countries[22]. With regard to the use of placebo, EGE considers that it should be regulated in developing countries in principle by the same rules as in European countries. Any exception must be justified and "the justification clearly demonstrated in the research protocol submitted to the ethical committees and especially approved by the local committee"[23]. For instance, a justification could be that the goal of the research is to develop low cost treatment when the existing standard treatment is unaffordable to poor countries. Nevertheless, two members of the Group consider that the use of a placebo for the purpose of developing low cost treatment could mean accepting a "double standard" for poor and rich countries. In the context of cultural diversity, the Group emphasizes that "both the values and ethical principles of the funding agencies and of the host country have to be considered[24]" and "in the case of conflicting views between parties, every effort should be made to negotiate solutions but without compromising the respect of fundamental ethical principles"[25].

The EGE opinion is very clear-cut with regard to protection from damage caused by research, and on what happens once research is over. The EGE states that the standard of insurance, liability and indemnity has to be the same for the participants and their families, no matter where the trial takes place. If unavailable through the local health system, the standard treatment in resource-limited countries has to be provided by the sponsor together with the new drug being tested. At the end of the trial, there should be an obligation by the sponsor to provide benefits to the individuals and to the community that contributed to the development of the new drug, even for a lifetime if necessary. This can be done through the supply of the drug at an affordable price or through capacity building. The protocol must include this information. Finally, patenting limitations should be overcome by either considering the patent within the public domain or devising a system for compulsory licensing for applications in developing countries. Results of clinical trials should be always communicated to all participants to research and the

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20 Ibidem, p.14
21 Ruiz Ibarreta D., Lheureux K., Rodriguez-Cerezo E., *Study on the ethical controversy over the use of placebo in clinical trials in developing countries: impacts on international research guidelines and scientific literature*, Institute for Prospective Technological Studies, Joint Research Centre, Sevilla, August 2002, in EGE Opinion no. 17, *Ethical aspects of clinical research in developing countries*, Luxembourg, 4 February 2003, Pages 161-187
22 Ruiz Ibarreta D., Lheureux K., Rodriguez-Cerezo E., *Background paper on Industry-funded clinical trials in developing countries*, Institute for Prospective Technological Studies, Joint Research Centre, Sevilla, October 2002, in EGE Opinion no. 17, *Ethical aspects of clinical research in developing countries*, Luxembourg, 4 February 2003, Pages 189-203
23 Ibidem, p.15
24 Ibidem, p.14
25 Ibidem, p.14

new scientific developments made accessible to the local scientific community. In addition, the contribution of local scientists should be acknowledged in publications and patents.

Council of Europe

Convention for the Protection of Human Rights and Dignity of the Human Beings with regard to the application of Biology and Medicine aka the Oviedo Convention (1997)

Prepared by the Council of Europe[26], it is currently the only existing international legal instrument established to protect human dignity, rights and individual freedom and to protect from the possible misuses of scientific progress. The Convention was opened for signature in 1997 and entered into force in 1999. It is legally binding for the countries that signed and ratified it[27].

The Convention is composed by a Preamble and 38 Articles divided into 14 Chapters. It opens by reaffirming the primacy of the human being, whose interest shall prevail on that of society or science. The first three chapters are devoted to access to health care, consent, the right to privacy of personal data. Detailed rules are given regarding consent to medical research and treatment, especially in the case of inability, due to a mental condition, in the case of children or in emergency. Consent to treatment must be clearly expressed in advance, except in emergencies and such consent can be withdrawn at any time. Treatment of persons unable to give their consent should be provided only if it could produce real and direct benefit to his/her health.

The Convention also deals with the human genome. It prohibits all forms of discrimination based on a person's genetic make-up and allows predictive genetic tests only for medical purposes. The Convention permits genetic engineering only for preventive, diagnostic or therapeutic reasons and only where it does not aim to change the genetic make-up of a person's descendants. The use of medically-assisted procreation techniques are prohibited to help choose the sex of a child, except to avoid a serious hereditary condition. Human embryos cannot be created for research purposes and adequate protection of embryos should be put in place in countries that allow in-vitro research. The removal of organs and other tissues which cannot be regenerated from people not able to give consent is prohibited. The only exception is, under certain conditions, for regenerative tissue (especially bone marrow) between siblings.

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26 Council of Europe, *Convention for the Protection of Human Rights and Dignity of the Human Beings with regard to the application of Biology and Medicine*, 1997

27 See the list of ratifications and signatures at http://www.coe.int/t/e/legal_affairs/legal_cooperation/bioethics/texts_and_documents/ETS164map.asp#TopOfPage

Chapter 5 is dedicated to scientific research and provides strict guidance for the protection of participants. In article 16, research on persons can be carried out only if certain conditions are met, i.e. if there is no comparable effective research instrument, the risk is proportionate to the benefit, the research has been approved by a competent independent body for its scientific and ethical integrity and importance, the informed consent has been duly obtained and can be documented. Article 17 sets out detailed provisions for persons unable to give consent. It states that research on persons who cannot give consent should be carried out only if there is a direct benefit to their health and condition. However, when the research has not the potential to produce results of direct benefit, exceptions, under the protective conditions of the law, can be applied when the research has the aim of contributing, "through significant improvement in the scientific understanding of the individual's condition, disease or disorder, to the ultimate attainment of results capable of conferring benefit to the person concerned or to other persons in the same age category or afflicted with the same disease or disorder or having the same condition" and when "the research entails only minimal risk and minimal burden for the individual concerned". Chapter 8 regards infringements, obligation to sanction and compensation for damage resulting from an intervention. Article 23 states that "the Parties shall provide appropriate judicial protection to prevent or to put a stop to an unlawful infringement of the rights and principles set forth in this Convention at short notice" while article 24 requires adequate compensation from damage suffered according to conditions and procedures prescribed by law. Article 25 requests parties to the convention to provide appropriate sanctions in the event of infringement.

The Convention stresses out, in Chapter 10, the importance of promoting a public debate and consultation on questions raised by the development of biology and medicine. The only restrictions are those prescribed by law and which are necessary in a democratic society in the interest of public safety, for the prevention of crime, for the protection of public health or for the protection of the rights and freedoms of others. However, such restrictions cannot be placed on the following Articles: 11 (no discrimination of genetic make-up), 13 (interventions on the human genome), 14 (no selection of sex in medically assisted procreation), 16 (protection of persons undergoing research), 17 (protection of persons not able to consent to research) 19 (organ and tissue removal from living donors for transplantation purposes), 20 (protection of persons not able to consent to organ removal) and 21 (the human body and its parts shall not give rise to financial gain).

The Convention allows for clarification and interpretation mechanisms that can be exercised by the Steering Committee on Bioethics (CDBI), or by any other committee designated by the Committee of Ministers or the Parties and request the European Court of Human Rights to give advisory opinions on legal questions concerning its interpretation[28].

[28] Zilgalvis P.V., *Ethics Committees: the European Convention on Human Rights and Biomedicine and ethical review of biomedical research*, Acta Medica Lituanica, 2006, 13:1, pp.2-5

Additional Protocols are foreseen in the Convention to clarify, strengthen and supplement the overall Convention. Currently there are three Additional Protocols derived from the Convention: on the cloning of human being (1998), on transplantation of organs and human tissue (2002) and the most recent one, on biomedical research, opened for signatures in January 2005 and entered into force in September 2007. The Committee of Ministers adopted in May 2008 the Additional Protocol to the Convention on Human Rights and Biomedicine concerning Genetic Testing for Health Purposes.

The Additional Protocol to the Convention on Human Rights and Biomedicine on Biomedical Research[29] was intended to clarify and build on the principles embodied in the Convention, in the specific field of the protection of human rights and dignity of participants in biomedical research. In its 12 Chapters, the Protocol covers a full range of issues relevant to biomedical research with human participants: risks and benefits of research, informed consent, protection of persons not able to consent to research, scientific quality, independent examination of research by an ethics committee, information to be submitted to the ethics committee, information for research participants, confidentiality and the right to information, dependent persons, undue influence, safety, duty of care, and research in States not Party to the Protocol. In the opening Chapters, the *"conditio sine qua non"* for conducting biomedical research on human beings is clearly set out: 1) the primacy of the human being, with the interest of the individual prevailing over that of society and science, 2) research shall be carried out only if there is no alternative of comparable effectiveness, 3) the risks of research shall not overcome its benefits, 4) the research shall be approved by a competent independent body for scientific and ethical integrity, 5) research shall be scientifically justified.

Chapter 3 is devoted to ethical review of research; the Protocol requires that all research project be examined for their scientific validity and ethical acceptability by an independent committee "in each State in which any research activity is to take place". A good practice would also include consulting one ethical committee in every research location within each State. Different Ethical Committees may reach different conclusions in their examination. However, it is important that they endorse the opinion of one leading committee on the appropriateness of carrying out the research project. The ethical committee should always be multidisciplinary and include, in its composition, laypersons that can represent the interests of the community and guarantee the public perception of the integrity of the research examination. Independence from any external influence or from personal conflict of interest is a paramount consideration in the setting up of a ethical committee. At the same time, ethical committees must be satisfied that no undue influence, including that of financial nature, be exerted on participants to the research, with particular regard to vulnerable persons. Researchers should provide written information on the research activity to be examined by the ethical committee. The

29 Council of Europe, *Additional Protocol to the Convention on Human Rights and Biomedicine on Biomedical Research*, 2004

Protocol also includes an Appendix, which details the data to be provided to ethical committees in order to ensure the proper examination of the research protocol and the consequent protection of the dignity, rights and safety of participants. In the Appendix, the issues of selection of participants, use of control group and placebo are considered.

Chapter 4 and 5 are dedicated to information for research participants and the forms and types of consent, including detailed requirements for the protection of persons not able to consent. Particular consideration is given to the notion of vulnerable persons, including economically disadvantaged persons, such as those from developing countries. Research sponsored by developed countries but conducted in developing countries carries an intrinsic risk of exploitation, due to the fact that persons might be induced to participate in order to obtain a financial gain or not to lose access to some benefits, including, in certain cases, access to basic medical care. States Parties should make sure that persons are free to give, refuse or withdraw their consent to participate in research, without being subject to discrimination, with particular regard to continuing provision of medical care.

Chapter 6 evaluates the enrollment and treatment of specific categories of participants: pregnant and breastfeeding women, persons in emergency settings, prisoners.

Chapter 7 regards safety issues and the responsibility of researchers towards the well being of participants. The Chapter also deals with the issue of control groups and the use of placebo, by stating that "in research associated with prevention diagnosis or treatment participants assigned to control groups shall be assured of proven methods of prevention, diagnosis and treatment.(…) The use of placebo is permissible were there are no methods of proven effectiveness or where withdrawal or withholding of such methods does not present an unacceptable risk or burden". The proven methods refer to those available in the country or region concerned. Region may signify more neighbouring countries or a wider area to take into account multicenter studies or the fact that European countries may utilize the healthcare standards of a neighbour country. The ethical committee must eventually approve the use of placebo, being the only one that can assess the relative risk and burden.

Chapter 8 sets out the rules for protecting confidentiality of personal data, the duty to provide care if new developments arise in the course of the research project, and the duty to make public the results, once the research project is over, within reasonable time.

Chapter 9 stipulates that research conducted in countries that are not Parties to this Protocol shall comply "with the principles on which the provisions set out in this Protocol are based". The recent proliferation of international and multicentre research projects, the concerns over the possibility of a double standard being

applied in the protection of participants, as well as concerns that ethically unacceptable studies might be carried out where protection mechanisms are weaker, has originated the inclusion of this provision in the Protocol.

Other Relevant Documents in the Field of Research Ethics

This table lists in chronological order other most relevant documents and guidelines in the field of research ethics with a brief description of their preparation and of their content and purpose. Documents that were subject to revisions are listed under the year of their latest revision.

Document	Year	Source	Brief description
The Belmont Report. Ethical Principles and Guidelines for the Protection of Human Subjects of Research	**1979**	**USA, National Commission for the Protection of Human Subjects of Biomedical and Behavioural Research**	The Belmont Report is a statement of basic ethical principles and guidelines prepared to assist in resolving the ethical problems surrounding the conduct of research with human subjects. The three main ethical and moral commitment guiding medical research and care, respect for the autonomy of the person, beneficence and justice are analyzed in their application to informed consent, assessment of risks and benefits and selection of participants in research.
Guidelines for Good Clinical Practice for Trials on Pharmaceutical Products	**1995**	**WHO**	Prepared by the WHO, in consultation with National Drug Regulatory Agencies in developed countries, it aims to set globally accepted and applicable standards for the conduct of trials with human subjects, by bringing together standards already in use in developed countries. Their aim is to provide mutual recognition of data among interested countries and contribute to the process of harmonization of provisions. It is interesting to note that while the guidelines do not challenge or replace national guidelines, they aim to be a model for standard setting in those countries where no regulation exists. The guidelines are designed to be applicable to all stages of drug development but they can be applicable to biomedical research as a whole, including evaluation of scientific and ethical integrity of manuscripts submitted to editors for publication.

Resolution on Research Involving Human Subjects	**1996**	**Brazil, National Health Council**	This Resolution is based on the most important international documents on research involving human subjects and it includes the following articles: Preamble; Terms and definitions; Ethical aspects of research involving human subjects; Freely given and informed consent; Risks and benefits; Research protocol; Committee for Ethics in Research (CER); National Committee for Ethics in Research (CONEP/MS); Operationalization; Transitional provisions.
Guidelines and Recommendations for European Ethics Committees	**1997**	**European Forum for Good Clinical Practice**	The document was the output of research and discussions by the Ethics Working Party of the European Forum for Good Clinical Practice. It provides a series of guidelines proposals and recommendations for European ethics review committees involved in clinical trials ethical review. These guidelines and recommendations aim to assist and support the ethical review capacity of pharmaceuticals products and related substances trials, but they are also applicable to other areas of biomedical research.
Guidelines on Ethics in Health Research	**1997**	**New Zealand, Health Research Council**	This document requires that the ethical approval from a recognized ethics committee is obtained before the Health Research Council of New Zealand funds for any proposed research may be granted. The following topics are contained in the Guidelines: Introduction to Ethics Committees in New Zealand; Procedural requirements for ethical approval; Ethical issues of research involving humans or human materials; Specific ethical issues of concern; General issues that may have legal relevance; Health research and privacy guidance notes.
Guidelines for the Conduct of Health Research Involving Human Subjects in Uganda	**1997**	**Uganda, National Consensus Conference on Bioethics and Health Research, National Health Research Organization (UNHRO)**	These guidelines have been the result of several workshops focused on the conduct of biomedical research with human subjects. It offered an overview of the generally accepted ethical principles and a commentary on the guideline and on the relevant workshops discussions.

Guidelines for Good Clinical Practice in Clinical Trials	**1998**	**The United Kingdom, Medical Research Council**	This document provides good clinical practices for trials funded by the Medical Research Council, the largest public sector organization in the United Kingdom that directly finances human health research.
Guidelines on Ethical Review of Medical Research	**1998**	**China, Committee on Research Involving Human Subjects**	Chinese Guidelines are not substantially different from those in Europe and in USA. They regulate topics such as informed consent, the responsibilities of investigators, the rights of research subjects, and the administrative management of ethical reviews and legal responsibilities. The document states also that research in China be based on international recognized ethical principles.
Operational Guidelines for Ethics Committees that Review Biomedical Research	**2000**	**WHO**	This guidance was published by WHO in order to set the appropriate procedures for the work of Ethics Committees that review biomedical research, in compliance with the ethical and scientific standards established by international guidelines. The purpose of the guidelines is to practically support and facilitate the ethical review function within countries, in line with existing national laws and regulations or the strengthen this functions, where needed. In fact, the guidelines "should be used by national and local bodies in developing, evaluating, and progressively refining standard operating procedures for the ethical review of biomedical research." The guidance includes a detailed discussion on the role of an Ethical Committee, on the minimum requirement for the proper functioning of a EC (including membership requirements, terms and conditions of appointments, training for members and consultants) on the review and decision making process.
Ethical Considerations in HIV Preventive Vaccine Research	**2000**	**UNAIDS**	This document is composed by 18 guidance points on Ethical Considerations in HIV Preventive Vaccine Research and it is the result of a series of meeting held in Geneva, Switzerland, in 2000. This document underlines the importance of the analysis of critical elements in HIV vaccine research and other references in this field, which should be consulted during the research: the Nuremberg Code (1947); the Declaration of Helsinki; the Belmont Report (1979 - US National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research); the International Ethical Guidelines for Biomedical Research Involving Human Subjects (1993 - CIOMS),; the WHO's Good Clinical Practice Guideline (1995); and the International Conference on Harmonisation Good Clinical Practice Guideline (1996).

Ethical Guidelines for Biomedical Research on Human Subjects	**2000**	**India, Central Ethics Committee on Human Research, Indian Council of Medical Research**	The CECHR (Central Ethics Committee on Human Research) Guidelines include a series of chapters addressing the following issues: Statement of general principles on ethical considerations involving human subjects; Ethical review procedures; General ethical issues; Statement on specific principles for clinical evaluation of drugs/devices/diagnostics/vaccines/herbal remedies; Statement of specific principles for epidemiological studies; Statement of specific principles for human genetic research; Statement of specific principles for research in transplantation including fetal tissue transplantation; Statement of specific principles for assisted reproductive technologies.
Guidelines on Ethics for Medical Research	**2000 (rev.) 1993**	**South Africa, Medical Research Council**	These guidelines were recently revised to bring them closer to the South African context and needs. Their revision is based on the SA Constitution's Bill of Rights and the ethical and human rights concepts such as the dignity of the person, the respect for autonomy and the paramount importance of informed consent are especially stressed out. The revised version also stresses the concept of the best interest of the research participant and emphasizes that developing communities must not be exploited and that in some way participating communities must benefit from the research done in or with them.
Guidelines for Good Practice in the Conduct of Clinical Trials in Human Participants in South Africa	**2000**	**South Africa Department of Health**	These guidelines are the output of a working group organized by the South African Directorate General of the Department of Health and it has included representatives from the Department of Health, South African Drug Action Programme / World Health Organization, Medical Research Council, the Medicines Control Council, Universities of Natal and the Witwatersrand and the AIDS Law Project. The main purpose of these guidelines is to provide South Africa with GCP standards and to become a reference text for people involved in clinical trials research in South Africa.
United Nations Millennium Declaration	**2000**	**The United Nations 55th General Assembly**	In the context of health research, the Declaration sets an important goal: to halt and start reversing by 2015 the spread of AIDS and the major diseases that affect developing countries. The Declaration also directly encourages the pharmaceutical industry to make essential drugs available and affordable to affected countries. A special section is devoted to meet the special needs of Africa, sustaining its efforts to development and to the establishment or consolidation of democracy and the rule of law. The respect of human rights and fundamental freedom and the protection of the vulnerable subjects are strongly reaffirmed.

Ethical and Policy Issues in International Research: Clinical Trials in Developing Countries	**2001**	**National Bioethics Advisory Commission**	This report was prepared by the National Bioethics Advisory Commission (NBAC) and its major aim was to ameliorate the ethical conduct of international clinical trials through a series of steps, such as respect of host country health needs and post-trial access to research products, in order to diminish the risk of exploitation of research participants in developing countries.
Surveying and Evaluating Ethical Review Practices	**2002**	**WHO**	The document was intended to be complementary to the Operational Guidelines and aimed at assisting governments in establishing the correct mechanisms of ethical review of research in their countries, to promote public confidence in ethical research review and to sustain education efforts by EC in their ethical and scientific evaluation practices.
The Ethics of Research Related to Healthcare in Developing Countries	**2002**	**Nuffield Council on Bioethics**	The major aim of this report was to identify ethical standards for healthcare research in developing countries, by providing a framework for people involved in it. It has been focused on standards of care, consent, ethical review of research and what happens when the research is over.
The 10/90 Report on Health Research 2001-2002	**2002**	**Global Forum for Health Research**	The 10/90 Report on Health Research 2001-2002 is the third edition of the Report (1999; 2000) and it focuses on health research and its crucial role in the fight against poverty. It underlines the importance of the definition of health research priorities, the development of partnerships and networks, the development of new instruments for the health research agenda. The Reports are issued once every two years.
Guidelines for Research in Partnership with Developing Countries	**2003**	**Swiss Commission for Research Partnership with Developing Countries (KFPE)**	These Guidelines stress the need and the urgency to build research capacities in developing countries. They are based on the analysis of a series of North-South research partnerships case studies and on their impact on capacity strengthening, community and policy-making.

Rome Declaration on Harmonization	**2003**	**Rome High Level Forum**	The Rome Declaration on Harmonization has been the output of the High Level Forum, which was held in Rome in February 2003 with the participation of the major multilateral development banks, international and bilateral organizations, donors and recipient countries. The major aim of this meeting was to improve the management and effectiveness of aid, to achieve and identify concrete progress before the following Forum (2005). The Rome Declaration is a very ambitious programme and it aims to reach its goals through: guaranteeing that harmonization efforts are adapted to the country and that the assistance of the donor is in line with the priorities of the recipient; Streamlining donor procedures and practices; Facilitating harmonization, adapting institutions and country policies, procedures and practices; Respecting the development of community standards and good practices principles.
A Practical Guide for Health Researchers	**2004**	**WHO Regional Office for the Eastern Mediterranean**	This is a comprehensive guide for all those involved in health research: students, researchers, people engaged in teaching and training. It provides a series of principles, methodologies, references and represents a very useful instrument to highlight the key points of health research issues.
The Mexico Statement on Health Research	**2004**	**Ministerial Summit on Health Research**	The Mexico Statement on Health Research was the result of the Ministerial Summit on Health Research organized by WHO, held in Mexico City, Mexico in 2004. The Summit underlined the importance of research in the improvement and sustainable development of population health and the need to translate knowledge into action (the know/do gap). This important event was organized with the collaboration of the Mexico Ministry of Health and in conjunction with Forum 8 of the Global Forum for Health Research.
Code of Federal Regulations, Title 45 Part 46 Subparts A, B, C and D. **The "Common Rule"**	**2005 (rev.)** **1991**	**USA, Department of Health and Human Services**	The Common Rule, developed by the DHHS, was adopted from 1991, as a set of guidelines to be followed by all 16 federal agencies for research conducted at the federal level, by or for the agencies or oversight by them. It is constituted by four parts each devoted to an aspect of the protection of human subjects: Subpart A is the basic policy for protection of human research subjects, Subpart B is the protection for pregnant women, human fetuses and neonates, Subpart C is the protection for prisoners, Subpart D is the protection for children.

Drug Development Research in Resource-Limited Countries	**2005**	**CIOMS-WHO Working Group on Drug Development Research in Resource- Limited Countries**	This is the report of the discussions of the CIOMS-WHO Working Group on Drug Development Research in Resource-Limited Countries, held in Geneva in 2005. The report makes recommendations on how good clinical practice guidelines can be successfully implemented in a developing context, with particular regard to ethical review of research and pharmacovigilance. The Working Group particularly addresses the role of local governments in supporting clinical research, through legislation and priority setting in health policy, in order to accrue the greatest benefit from clinical research conducted in their countries and set it against the wider framework of social, political and economic development.
Handbook for Good Clinical Research Practice (GCP) Guidance for Implementation	**2005**	**WHO**	This document is an adjunct to WHO's "Guidelines for good clinical practice (GCP) for trials on pharmaceutical products" (1995). The handbook aims to assist national regulatory authorities, sponsors, investigators and ethics committees in implementing GCP for industry-sponsored, government-sponsored, institution-sponsored, or investigator-initiated clinical research.
Operational Guidelines for the Establishment and Functioning of Data and Safety Monitoring Boards	**2005**	**UNICEF/UNDP/WORLD BANK/WHO Special Programme for Research and Training in Tropical Diseases (TDR)**	The Operational Guidelines are intended to provide international guidance to sponsors of health research on the establishment and functioning of Data and Safety Monitoring Boards (DSMB) within the framework of randomized controlled clinical trials. While safety monitoring is an essential requirement of all clinical studies, DSMB are essential to preserve the scientific integrity of the study and to protect the rights and welfare of human participants in studies intended to reduce severe mortality or morbidity, high risk interventions, novel intervention with limited information on safety or with potential severe adverse events, emergency or studies that involve vulnerable populations.
Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans	**2005** **1998, 2000, 2002 (rev.)**	**Canada, Institutes of Health Research, Natural Sciences and Engineering Research Council, Social Sciences and Humanities Research Council**	This guideline replaces all previous guidelines issued by the Canadian Government on the protection of research subjects. The guidelines have a very strong accent on protection of confidentiality, especially in the context of research with aboriginal population and human tissue research.

Paris Declaration on Aid Effectiveness	**2005**	**Paris High Level Forum on Aid Effectiveness**	The Paris Declaration on Aid Effectiveness, Ownership, Harmonization, Alignment, Results and Mutual Accountability, was prepared during the High Level Forum held in Paris in March 2005, which gathered officials and ministers from 91 countries, donor organizations and partner countries, representatives of the civil society and the private sector. The Paris Declaration is an international statement, which tries to promote harmonization, alignment and managing aid for better results. The Declaration also set up a series of twelve Indicators of Progress, to measure and monitor both nationally and internationally, the effectiveness of aid. The strategy adopted to achieve these objectives is composed by several commitments included in the Declaration.
Establishing Bioethics Committes Guide n.1	**2005**	**UNESCO**	This is a practical guide on the establishment of Bioethics Committees. It is one of three tools that can be very useful in connection with training and educational courses.
Bioethics Committees at Work: Procedures and Policies Guide n.2	**2005**	**UNESCO**	This is a practical guide on the procedures of work and functioning of Bioethics Committees. It is one of three tools that can be very useful in connection with training and educational courses.
The Abuja Declaration	**2006**	**African Summit on Roll Back Malaria**	The Abuja Declaration was the output of the African Summit on Roll Back Malaria, held in Abuja, Nigeria, in 2000, which brought together forty-four African countries affected by malaria. During the Summit African leaders signed the Declaration and a Plan of Action.
The Accra Declaration	**2007**	**African Union, 9th Session**	The Accra Declaration was adopted at the end of the Ninth Ordinary Session of the African Union Heads of States Summit in July 2007, in order to increase strategies for the African integration through the implementation of a common vision on the methods.

Educating Bioethics Committees Guide n.3	**2007**	**UNESCO**	This is a practical guide on the training and continuous education needed by members of Bioethics Committees. It is one of three tools that can be very useful in connection with training and educational courses.
AFRICA HEALTH STRATEGY: 2007 – 2015 "Strengthening of health systems for equity and development in Africa"	**2007**	**Third Session of the African Union Conference of Ministers of Health**	This document is the African Union Ministers of Health strategic paper, containing the objectives and methods that can ensure essential health care for all Africans, especially the poorest, by 2015, in line with the UN MDG.
National Code of Health Research Ethics	**2007**	**Nigeria - Federal Ministry of Health, Department of health planning and research, National Health Research Ethics Committee (NHREC),**	This code applies to all health research involving human participants, conducted, supported or otherwise subject to regulation by any institution in Nigeria. The Code includes guidelines on the composition of Research Ethics Committees and Standard Operating Procedures for their functioning. It is interesting to note that in addition to the necessary competence to review health research, RECs must be able to evaluate "acceptability of proposed research in terms of institutional regulations, applicable laws, and standards of professional conduct and practice. The HREC shall therefore include persons knowledgeable in these areas and whenever feasible, a lawyer."
National Statement on Ethical Conduct in Human Research	**2007 (rev.) 1999**	**Australia, National Health and Medical Research Council**	This statement represents Australia's primary guidelines for the ethical conduct of research involving human participants.
Ouagadougou Declaration	**2008**	**Organization of African Unity, 34th Session of Assembly of Heads of State and Government**	The International Conference on Primary Health Care and Health Systems in Africa, was held in Ouagadougou, Burkina Faso in April 2008. During this Conference the principles of the Declaration of Alma-Ata of September 1978 were reaffirmed and it was stressed the importance of the recognition of health as a fundamental human right as well as the responsibility of governments in ensuring health for their people.

Algiers Declaration	**2008**	**Ministerial Conference on Research for Health in the African Region**	In preparation for the Bamako Meeting in November, the African Conference adopted the Algiers Declaration, which commits countries in the Region to work together to strengthen national health research, information and knowledge systems through the optimization of investments, better co-ordination and enhanced management in order to improve the health of the people of Africa. The ethical conduct and evaluation of research is also a strong point of the Declaration. The Ministers called on the World Health Organization (WHO) to establish an African Health Research, Information and Knowledge Systems Observatory.

Publication Ethics

Editors of scientific journals have a responsibility in the way clinical trials results are submitted for publishing. That is why we included, in this chapter, a description of all the initiatives that have been implemented by publishing editors to ensure the respect of the good practices in the reporting of clinical trials, so as to avoid the publication of unethical or scientifically unsound results.

International Committee of Medical Journal Editors (ICMJE)

The ICMJE released the Uniform Requirements for Manuscripts Submitted to Biomedical Journals in 1997 in an attempt to promote and systematize the good practices when submitting a manuscript for publication in scientific journals. The Uniform Requirements were subsequently revised in 1999, 2000, 2001, 2004.

In 2004, in order to foster a "comprehensive, publicly available database of clinical trials[30]" the ICMJE mandated that clinical trials would be considered for publication in its member journals[31] only if registered in one of the five ICMJE approved registries, before the enrollment of the first patient, starting from July 1, 2005.[32] Initial opposition by researchers and sponsors that registration would complicate

30 De Angelis C., Drazen J.M., Frizelle F.A., et al. *Clinical trial registration: a statement from the International Committee of Medical Journal Editors.* Lancet. 2004; 364:911-2

31 Currently, the ICMJE member journals are: Annals of Internal Medicine, British Medical Journal, Canadian Medical Association Journal, Croatian Medical Journal, JAMA, Nederlands Tijdschrift voor Geneeskunde, New England Journal of Medicine, New Zealand Medical Journal, The Lancet, The Medical Journal of Australia,Tidsskrift for Den Norske Llegeforening, and Ugeskrift for Laeger. However, more and more journals include in their selection criteria for publication the ICMJE Uniform Requirements , including data on registration of clinical trials.

32 The ICMJE accepted registries are: www.actr.org.au; www.clinicaltrials.gov; www.ISRCTN.org; www.umin.ac.jp/ctr/index/htm; www.trialregister.nl

processes and stifle competition, did not prevent ICMJE to carry out a policy re-evaluation, two years after implementation that showed very encouraging results. For example, the US National Library of Medicine registry "clinicaltrials.gov" almost doubled its trials registration number (from 13153 to 22174 trials) in one month after implementation of ICMJE policy. By April 2007, the register contained over 30.000 trials with an average increase of 200 new trials per week.

In 2007, the ICMJE adopted the WHO definition of clinical trial [33] and joined efforts with the WHO to get closer to the goal of a single worldwide standard for registration of the information that trial authors must disclose. In addition to the above registries, starting in June 2007 the ICMJE also accepted registration in any of the primary registries that participate in the WHO International Clinical Trials Registration Portal [34]. The WHO is currently responsible for reviewing registries for acceptability[35].

Consolidated Standards of Reporting Trials, i.e. the CONSORT Statement (1996, 2008 rev. underway)

It is an evidence-based tool to help researchers, editors and readers to assess the quality and transparency of clinical trials reports. The CONSORT Statement[36] is now widely recognized as "the cornerstone of research reporting" and established evidence is currently available that the application of the statement can improve the quality of research reports[37].

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33 "Any research study that prospectively assigns human participants or groups of humans to one or more health-related interventions to evaluate the effects on health outcomes." Purely observational studies (those in which the assignment of the medical intervention is not at the discretion of the investigator) will not require registration. The WHO is also working towards the implementation of an international trials registration process The ICMJE member journals start to implement the expanded definition of clinically directive trials (phase III), for all trials that begin enrollment on or after 1 July 2008.

34 See http://www.who.int/ictrp/about/details/en/index.html) The ICTRP has taken the first steps toward developing a network of primary and partner registers that meet WHO-specified criteria. Primary registers are WHO-selected registers managed by not-for-profit entities that will accept registrations for any interventional trials, delete duplicate entries from their own register, and provide data directly to the WHO. Partner registers, which will be more numerous, will include registers that submit data to primary registers but limit their own register to trials in a restricted area (such as a specific disease, company, academic institution, or geographic region).

35 Evans T., Gulmezoglu M., Pang T., *Registering clinical trials: an essential role for WHO*, Lancet, 2004 May 1; 363 (9419): 1413-4

36 http://www.consort-statement.org (accessed in June 2008).

37 Plint AC, Moher D, Schulz K, Altman DG, Morrison A., *Does the CONSORT checklist improve the quality of reports of randomized controlled trials? A systematic review*, Fifth International Congress of Peer Review and Biomedical Publication, September 16-18 2005. [PMID: 16948622]

EQUATOR Network

Enhancing Quality of Trials and Other Research,[38] established in 2008 and funded by the UK National Library for Health and the National Institute for Health Research is a new global initiative that aims to improve the quality of health care by promoting the transparent and accurate reporting of health research. It acts as an 'umbrella' organization, bringing together developers of reporting guidelines, medical journals editors and peer reviewers, research funding bodies and other collaborators with mutual interest in improving the quality of research publications and of research itself.

Committee on Publication Ethics (COPE)

It is a charity, created in 1997 by a group of journal editors, to provide a discussion forum for editors of peer review journals on issues related to integrity of research publication. The web site provides for case discussion on breach of ethics on a variety of issues such as plagiarism, fabrication of data, ghost writing etc.. The COPE[39] has also issued Guidelines on Good Publication Practices and specific Codes of Conduct for editors and authors.

World Association of Medical Editors

WAME[40] provides guidance on a series of topics related to research results publication. Among the topics, there is the definition of peer-reviewed journal, the responsibilities of medical editors, the registration of clinical trials, and geopolitical intrusion on editorial decisions, conflict of interest related to funding of research. Its web site contains a quite rich section that collects the web resources on publication and research ethics, including the 2004 WAME "Recommendations on publication ethics policies for medical journals".

European Association of Science Editors

EASE [41] website provides publications and resource guides from EASE, which is comprised of editors and publishing professionals.

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38 http://www.equator-network.org (accessed in June 2008).

39 http://www.publicationethics.org.uk (accessed in June 2008).

40 http://www.wame.org/ (accessed in June 2008).

41 http://www.ease.org.uk/ (accessed in June 2008).

European Medical Writers Association

EMWA[42] is an association dedicated to enhancing the professional skills of medical writers. It has issued its "Guidelines on the role of medical writers in developing peer-reviewed publications"[43]. Through its Ghostwriting Task Force, the Association is very active in clarifying the main issues surrounding this aspect of medical writing. In 2005 a Delphi consultation was held aimed to assess problems and to establish criteria for ensuring a positive and ethical role for this practice[44].

Eastern Mediterranean Association of Medical Editors

EMAME[45] is a non-governmental organization established in 2003 and hosted by the WHO Regional Office for the Eastern Mediterranean. The Association supports and promotes medical journalism in the region through an annual conference, educational materials and exchange of information and knowledge among its members. The Association also supports open/special access to medical journals for resource-limited countries, through the WHO HINARI Initiative[46].

Forum for African Medical Editors

FAME[47] is a network of African editors and journals hosted by the WHO-TDR and located in Nairobi, Kenya. It was created in 2003 and in 2005 the group issued its own editorial guidelines, in order to standardize the practices of the journals in the Region, improve quality and visibility. The Forum also promotes training workshop for editors, reviewers and investigators.

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42 http://www.emwa.org/ (accessed in June 2008).

43 Jacobs A., Wager E., *European Medical Writers Association (EMWA) guidelines on the role of medical writers in developing peer-reviewed publications*, Curr. Med. Res. Opin. 2005; 21:317-321

44 Jacobs A., *The involvement of professional medical writers in medical publications: results of a Delphi study*, Curr. Med. Res. and Opin., 2005, 21:2, 311–316

45 http://www.emro.who.int/EMAME/ (accessed in June 2008).

46 http://www.who.int/hinari/en/ (accessed in June 2008).

47 http://www.who.int/tdr/networking/fame/ (accessed in June 2008).

Council of Science Editors (CSE)

CSE,[48] formerly known as The Council of Biology Editors (CBE) established in 1957 jointly by the National Science Foundation and the American Institute of Biological Sciences, it became CSE in 2000. Its mission is "to promote excellence in the communication of scientific information". CSE includes more than 1200 members among scientific journals and scientific societies and is active in fostering networking, education, discussion, and exchange on current and emerging issues in the communication of scientific information. The CSE serves as the administrative body of the "African Medical Journal Partnership Project"[49] launched in 2003, by the Fogarty International Centre and the National Library of Medicine (NLM), to foster capacity building in medical publishing in Africa. CSE released in 2006 the "White Paper on Promoting Integrity in Scientific Journal Publications" available on its website[50]. During a retreat organized by CSE in 1999 a group of individuals working within the pharmaceutical industry and closely involved in the publication of clinical trials decided to work on the preparation of good publication practices for pharmaceutical companies. The guidelines were published in *Current Medical Research and Opinion* in 2003[51].

The Role of Professional Medical Writers

Problems with reporting of clinical trials include publication biases and the role of professional medical writers.

Under-reporting of negative or inconclusive results or redundant reporting of positive results[52] poses not only academic concerns, such as distortions in the meta-analysis of literature for evidence-based evaluations of drugs for clinical decision-making, but also more serious concerns over cases of patient's damage due to off-label prescriptions of drugs or undisclosed data on safety and effectiveness. Selective trial reporting is typical where financial interest is at risk. Negative or inconclusive results will remain unpublished or, worse, they will be concealed. In 2004, the New York State Attorney General sued Glaxo Smith Kline for concealing research results showing that one of their best-seller antidepressant was harmful if prescribed to children and adolescents. At the time of the legal proceeding, the drug was

48 http://www.councilscienceeditors.org/about/mission.cfm (accessed in June 2008).

49 Tillet T., *Global collaboration gives greater voice to African journals* Environmental Health Perspectives, 2005, Vol. 113, No. 7, pp. A452-A454

50 http://www.councilscienceeditors.org/editorial_policies/white_paper.cfm (accessed in July 2008)

51 Wager E., Field E.A., Grossman L., *Good publication practices for pharmaceutical companies: where are we now?*, Curr. Med. Res. Opin. 2003, 19:149-154

52 Chan AW, Hrobjartsson A, Haahr MT, Gotzsche PC, Altman DG, *Empirical evidence for selective reporting of outcomes in randomized trials: comparison of protocols to published articles*, JAMA, 2004, 291:20, pp. 2457-2465

prescribed to more than two million children only in the United States and its yearly US revenues for GSK amounted to approximately US$ 55 million.[53]

GSK agreed to pay to the State of New York a settlement of US$ 2·5 million in disgorgement and costs and to establish an online "Clinical Trials Register" where summaries of results for all GSK-sponsored clinical studies of drugs (both positive and negative) conducted after December 27, 2000 (the date Glaxo Wellcome and SmithKlineBeecham merged) and any earlier relevant studies[54]. The settlement aimed at setting the example for all pharmaceutical companies to exercise more transparency in disclosure of data, thus allowing doctors and patients access to scientifically sound information and for doctors to release more appropriate prescriptions. Eli Lily announced similar policies soon after that happened[55] .

To this regard, it is important to remember that researchers in the EU, Japan and the United States can rely on the Tripartite Harmonised ICH guideline: E3 "Structure and Content of Clinical Study Reports", released in 1995 by the International Conference on Harmonisation of Technical Requirements for Registration of Pharmaceuticals for Human Use, which is composed by the Medicine Regulatory Agencies and members of the pharmaceutical industry of the European Union, Japan and the United States.[56]

Many other organizations at the national level are involved in guidance for authors and editors in publishing medical research results. The Australian Medical Writers' Association (AMWA), the Danish Committee on Scientific Dishonesty, the Indian Council on Bioethics, the US Office on Research integrity and various US Universities and most of the medical journal publishing companies have adopted their own or the available international guidelines and codes of conduct for submission of manuscripts in the biomedical field, including the PhRMA "Principles on conduct of clinical trials and communication of clinical trial results", 2003.

The Need to Establish a Clinical Trials Registry

Around the world, governments are beginning to legislate on mandatory disclosure of all trials, see, for example, the U.S. Congress "Fair Access to Clinical Trials (FACT) Act", a bill introduced in 2005 and currently on discussion in the Senate, that foresees the creation of a publicly accessible national database comprising a clinical

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53 Office of the New York State Attorney General, Press Release, *Major pharmaceutical firm concealed drug information. GlaxoSmithKline misled doctors about the safety of drug used to treat depression in children* June 2, 2004 (http://www.oag.state.ny.us/press/2004/jun/jun2b_04.html)

54 Office of the New York State Attorney General, Press Release, *Settlement sets new standards for release of drug information. Glaxo to establish "Clinical Trials Register" with information on all company drugs*, August 26, 2004

55 *Drug company to make its trial results public*, BMJ, 2004;329:366

56 http://www.ich.org/cache/compo/475-272-1.html#E3 (accessed January 2008).

trials registry and a clinical trials results database that includes both publicly and privately funded clinical trials results, regardless of their outcome. The US Government maintains the ClinicalTrials.gov web site[57] created in 2000, under the Food and Drug Administration (FDA) Modernization Act, that required the U.S. Department of Health and Human Services, acting through the National Institutes of Health (NIH), "to establish a clinical trials registry for both federally and privately funded trials of experimental treatments for serious or life-threatening diseases or conditions." The Registry, developed by the National Library of Medicine (NLM), included primarily NIH-sponsored trials. The site now includes more than 36,000 studies sponsored by NIH and other Federal agencies, private industry and nonprofit organizations throughout the world[58].

In Europe, The European Medicines Evaluation Agency (EMEA) registers all trials submitted as part of licensing applications, but these data are kept confidential, so the EuDRACT database does not meet the requirements of publishing companies for disclosure of clinical results.

Pharmaceutical Companies Associations, EFPIA, IFPMA, JPMA, PhRMA have released a "Joint position on the disclosure of clinical trial information via clinical trial registries and databases" in 2006[59].

Conclusions

At present, except for the CoE Convention and the European Union Directives, all international guidelines are not legally binding and represent only a moral framework to be adopted on a voluntary basis by their stakeholders. The international community is still far from having achieved global consensus on the ethical and practical standards that should regulate international research on human subjects. Most importantly, while there is general agreement on the substantive standards, there is still no single global authority or an appropriate comprehensive global mechanism that can compel to conduct a research according to a given set of standards or that can punish misconduct.

The creation of an environment where developing countries could establish and maintain a stronger culture of ethics and legality of clinical research with human subjects is an urgent necessity that developed countries need to foster and support, in order to reach greater equity and concrete sustainability of research effort in the area of health development.

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57 Clinical Trials.gov, *A report to the Board of Scientific Counselors*, May 2005.

58 US Government, Office for Legislative Policy and Analysis, *Access to Clinical Trial Information. S. 470 (2005); H.R. 3196 (2005); H.R. 5887 (2006); S. 3807 (2006);*
http://olpa.od.nih.gov/legislation/109/pendinglegislation/fact.asp (accessed July 2008)

59 http://www.ifpma.org (accessed July 2008).

Transparency is important both in the carrying out and the reporting of clinical trials. To this purpose, a single clinical trials register should be maintained by an intergovernmental body, containing all results of all clinical trials data, full trials information at launch as a condition to obtain the marketing licence.

Clinical research with human participants has to be tailored to the therapeutic needs and expectations of the country in which it is carried out. This is a *conditio sine qua non* to reinforce the scientific validity of research, the ethical values related to the sustainability and acceptability of research and to avoid misconduct or illegal acts.

Ethical Committees need to be fully equipped to work in a sustainable environment, where their members can ensure a valid scientific and ethical review of clinical research and appropriate decision making. Ethical Committees should receive continuous education and training and particular attention should be posed on their composition, that should be as much diversified as possible both in terms of gender and professional figures. These should always include not only scientists but also law enforcement professionals (such as police officers, judges and lawyers) and lay members.

CHAPTER II

GLOBAL TRAINING INITIATIVES AND PROGRAMMES ON BIOETHICS

This list is a compilation of private and public institutions, universities and research centres which provide, at various levels, training programmes and information tools in support of bioethics, ethical clinical research and ethical review of clinical research with human participants. In the course of our survey we identify four main areas of intervention that characterize the offer for training by the various institutions and can be summarized as follows:

AREA 1: Strengthening capacity for ethical review;
AREA 2: Assistance in establishing bioethics committees;
AREA 3: Training in biomedical ethics;
AREA 4: Strengthening of the harmonization process in the application of GCP.

Although many programmes are specialized in their scope, based on the above classification, a certain degree of overlapping in the activities among the institutions will be noted, as well as a tendency to offer more than one type of training. That is why we have chosen to list the institutions in alphabetical order and not by the type of training offered. Most of the information on the institutions and training programmes has been downloaded from their websites, the address of which is indicated at the end of each description.

This compilation is available for consultation on the UNICRI website at: www.unicri.it
Any organization or individual who wish to post their project or training programme on the listing should contact:
Alice Paola Brizi, Researcher, UNICRI at Clinical Trials Ethics Project <cte@unicri.it>

African Health Research Forum
AHRF

The African Health Research Forum was launched on the occasion of the 6th Global Forum on Health Research, which was held in Arusha, Tanzania, in 2002. This was a fundamental step in the strengthening of an African perspective in health research and for the promotion of development in Africa. Its main goal was to "position health research as an integral tool for development" through the promotion of the mechanisms for the intensification of the conduct, collaboration and coordination of health research in the African continent; the support of research for development; the reduction of the global imbalances in health research and the enhancement of

investments in research". Currently, one of the main projects implemented by AHRF is a three-years Fellowship Programme, which aims to build capacity in health research training people from different countries, particularly Mali, Uganda, Benin and Zambia.

http://www.ahrf.org

African Malaria Network Trust
AMANET

The African Malaria Network Trust (AMANET) previously known as African Malaria Vaccine Testing Network (AMVTN), was created in 1995 with the primary goal of preparing Africa in planning and conducting malaria vaccine trials. In 2002 it was given the current denomination and an expanded role in promoting capacity strengthening and networking of malaria research and development in Africa. From mainly organizing training in GCP research ethics, AMANET has developed to the extent of currently sponsoring vaccine trials and ethics training. The strategic plan for 2007-2011 includes among the other objectives, to create global awareness of the African malaria burden, to advance essential human capacity for research and development of malaria intervention in Africa, to determine the needs and characteristics of potential sites for testing malaria interventions in Africa and to promote good governance, efficient management and networking of malaria institutions in Africa.

Being a Trust Fund, AMANET is governed by its Board of Trustees, elected by a General Assembly that meets every two years and also elects the members of the Scientific Coordinating Committee and the Secretariat. Two other bodies, the Trial Sites Development Committee (TSDC) and the Scientific Advisory Panel (SAP), appointed by the Board of Trustees, advise AMANET on specific issues relating respectively to the development of trial sites and to research and scientific issues. AMANET is financially supported by the Danish Development Agency (DANIDA), the Bill and Melinda Gates Foundation, the Netherlands Ministry of International Cooperation (DGIS) and the European Commission-Directorate General Research and EuropeAID Cooperation Office (AIDCO).

The main objective of AMANET remains that of developing self-sustainable centres in Africa that meet international requirements for conducting malaria intervention trials. To do this, AMANET supports the development of common standards for the infrastructure and for the expertise required to perform and evaluate trials. To reach these goals, AMANET has been working around three main areas: training in health research ethics, vaccine development and malaria centres networking. We will describe the training area.

Training is being provided through web-based courses and through short-term trainings and workshops as well as direct financial support of the network centres. Training subjects go from data management to GCP training to health research

ethics in Africa. A current three year project "Building institutional capacities in Health Research Ethics in Africa" includes three parts:

1. Strengthening ethical review capacity of institutional Ethics Committees in Africa. This component includes a survey of institutional ethics review committees to determine needs and areas of weakness; training workshops in health research ethics from an African perspective; a series of eight workshops, six in English and two in French to develop Standard Operating Procedures (SOPs); a workshop on the harmonisation of SOPs for ethics review committees; provision of sub-grants for strengthening capacity of institutional ethics review.
2. Training investigators in Advanced Health Research Ethics. This component includes: five training workshops in Health Research Ethics for investigators; fostering and promoting discussion and debate on health research ethics from an African perspective.
3. Electronic discussion forum, to encourage debate on ethical dilemmas and challenges encountered in Africa.

At the end of the project, it is expected that competent and independent Ethics Committees will be established and running, with well equipped offices, harmonized SOPs, electronic databases and trained members who will interact through direct networking and online discussion forums.

Two web-based courses in health research ethics and GCP, funded with grants from the EDCTP (European-Developing Countries Clinical Trials Partnership) have been recently made available, which are attracting participants from across Africa and abroad.

To date, over 1200 African researchers and associated personnel have participated in AMANET courses.

AMANET produces an annual report and a bi-annual newsletter in which malaria research and information, grant and workshop calls are disseminated to stakeholders and other interested parties.

http://www.amanet-trust.org

Aga Khan University
Master on Bioethics

The Aga Khan University (AKU) was the first Pakistan private university, founded by the Aga Khan in 1983. Its main purposes are: to promote human welfare and in particular that of Pakistani people, to disseminate knowledge, to provide education, training, research and services in health sciences. AKU is an international institution, which spread over eight countries (Pakistan, Kenya, Tanzania, Uganda, the United Kingdom, Afghanistan, Syria and Egypt).

The Aga Khan Development Network (AKDN) is a group of agencies, institutions and programmes working together in the developing areas of Asia and Africa. AKU is an academic centre of this network, whose main goal is to allow communities to

identify their needs and to plan for their achievement. AKDN works by utilizing different approaches and addressing a wide spectrum of development issues (social, cultural, economic).
The Bioethics Group of the AKU holds a Master in Bioethics, which is sponsored by a grant of the Fogarty International Centre of the US National Institute of Health. The funding covers the expenses for twenty students (8 from Karachi, 8 from the rest of Pakistan and 4 from developing countries members of the World Health Organization Regional Office for the Eastern Mediterranean – WHO/EMRO). The objective of this training programme is to guarantee the development of expertise in Bioethics in Pakistan and in the EMRO Region and the promotion of professionals who will be able to: reinforce ethical issues both from Muslim and Western approach relating them to moral philosophies; identify and address solutions for ethical dilemmas of research involving human subjects and clinical practice; establish and become a reference for ethical review committees in their own institutions; develop bioethics curriculum and implement training on bioethics issues; analyze health-related policies on the basis of an ethics framework; investigate the ethical issues in clinical and research settings starting from a human rights approach; carry out research on bioethics.

http://www.aku.edu/index.asp

Arab League Educational, Cultural and Scientific Organization ALECSO

The Arab League Educational, Cultural and Scientific Organization was founded in 1970 in accordance with Article 3 of the Arab Cultural Unit Charter. It is a specialized organization and it is based in Tunis. Working within the Arab League, it aims to promote the unity of the Arab world through education, culture and science.
It also aims to develop Arab human resources, improving education, culture, sciences, environment, communication and coordination of activities among the Arab world; to promote Arabic and Arabic-Islamic culture worldwide and to bridge the gap between the Arab culture and others, utilizing the dialogue as connection.
As regards to sciences, ALECSO aspires to develop scientific research, underlying the importance of the human side in scientific and technological ethics. It also aims to prioritize the needs of Arab States in applied research, creating a sort of network between Arab universities and reinforcing the study of sciences programmes.

http://www.alecso.org.tn/lng/index.php?option=com_frontpage&Itemid=1&lang=en

Bill and Melinda Gates Foundation
Global Health Program

The Foundation was established in 1994 as the William H. Gates Foundation, and renamed as Bill and Melinda Gates Foundation in 1999. The institution aims to globally improve healthcare and reduce poverty and, in the USA, to increase educational opportunities and access to information technology. Its programmes are subdivided into four main areas: Global Health, Poverty and Development, Education and Information, Special Programmes.
The Global Health Program of the Bill and Melinda Gates Foundation, comprises: the Global Alliance for Vaccine and Immunization, the Institute for One World Health, the Children's Vaccine Programme, the University of Washington Department of Global Health, HIV Research, Areas Global TB Vaccine Foundation. The main purpose of the Bill and Melinda Gates Foundation Global Health Program is to allow advances in health to reach those populations that need them most, in particular people living in poorest countries. The two main principles of its strategy are: accelerating access to health interventions and new technologies; aupporting research of new vaccines, drugs and other health tools, with a primary interest in neglected diseases and in those issues affecting primarily poor countries (malaria, tuberculosis, HIV/AIDS, nutrition problems, acute diarrheas illness, immunization, acute lower respiratory infections, reproductive and maternal health, newborn and child health, other infectious diseases).
The Foundation is engaged in supporting efforts to build awareness of global health issues, developing documents and scientific material. The Bill and Melinda Gates Foundation tries also to help leading relief organizations to respond appropriately to disasters which require special interventions.

http://www.gatesfoundation.org/Pages/home.aspx

Brocher Foundation

The Brocher Foundation started its works in 2003, by initiative of Dr. Jaques E.W. Brocher and his wife. It was created as a private non-profit foundation of public interest. The main goals of this Swiss private law foundation are: to permit to scientific researchers to have a place to work and to hold scientific meetings, encouraging interdisciplinary activities and connections among ethics, law and medicine and investigating the implications of the development of research and new technologies. Its role in society is to be and communicate as an interface by addressing public instances, academic world, organizations and media.
The main programmes of the Brocher Foundation are concentrated in the ethical, legal and societal implications of biotechnologies for human beings and their

societies. The Foundation also hosts scientific researchers in order to support them to pursue their research works and to contribute to the preparation of the annual meeting, creating a network, which includes researchers and Swiss universities. It also promotes the cooperation with international organizations located in Geneva.
The annual scientific symposium promotes the exchange between young and senior researchers, encouraging collaboration and information sharing.
In 2008, Brocher Foundation has organized several scientific meetings and initiatives, i.e. the Symposiums on "The Science and Politics of Neglected Disease Research: Philosophical. Bioethical and Sociological perspectives on International Health Inequalities", "Access to Medicines" and the Brocher Summer School on "Research with Human Subjects: an interdisciplinary approach". These are only few examples of the very rich Brocher Foundation experience, which is dedicated also to the support of the publication of research works both in English and French.

http://www.brocher.ch

Centre for the AIDS Programme of Research in South Africa
CAPRISA

The Centre for the AIDS Programme of Research in South Africa (CAPRISA) was founded in 2002 by the Universities of Natal, Cape Town, and the Western Cape, the Trustees of Columbia University in the City of New York, and the National Institute for Communicable Diseases, as a multi-institutional collaboration, under a NIH grant. CAPRISA is also a UNAIDS Collaborating Centre for HIV prevention and research.
The three main goals of CAPRISA is to research prevention and treatment of HIV/AIDS, to build local research infrastructure through core expertise and capacity and to train professionals involved in clinical research in South Africa and in the Southern African countries.
The CAPRISA training programme aims to enhance skills and promote the strengthening of science base in the conduction of HIV/AIDS research not only in South Africa. In addition to sponsored fellowships, CAPRISA hosts the Fogarty-Ellison Overseas Fellowship in Global Health and Clinical Research Training and World Health Organization Fellowships.
CAPRISA website has a part dedicated to publications, which collect a series of selected documents from different sources, mainly scientific journals.

http://www.caprisa.org

Collaborative Institutional Training Initiative
CITI

The Collaborative Institutional Training Initiative (CITI) was founded in March 2000 by the University of Miami and the Fred Hutchinson Cancer Research Center, in response to a call to strengthen education policies by the Dept. of Health and Human Services of the USA. It consists of a web based training program in human research subjects protections that is made available to institutions or affiliated individuals by subscription.
The CITI Program includes: basic courses in the protection of human research subjects, in good clinical practice, in health information privacy and security, in laboratory animal welfare and in responsible conduct of research. Pan-African Bioethics Initiative.
The CITI Platform website includes a public access - multi-language section, The CITI International Training Platform, designated for researchers, research staff and research ethics committee members involved in international research. Two modules are available: one, for international researchers, provides a general overview of the ethical issues central to conducting human subject research internationally. The other, for non-US investigators collaborating in US funded research project outside the USA, provides more details about the US federally funded research requirements. From 2000 to 2007, the CITI Program has grown to include over 830 participating institutions and facilities from around the world. Over 600,000 people have registered and completed a CITI course. The CITI Program is managed by the CITI Developers Group that meets every six months to review the courses, to make editorial changes and to develop new initiatives for the CITI Programme. The CITI Executive Advisor Committee provides guidance and advice. The University of Miami, Ethics Programme, one of the co-founders of this initiative has been designated in March 2008 a Collaborating Centre in Ethics and Global Health Policy by the World Health Organization, in recognition of its two decades work in the area of ethics education at the international level. UM's centre is the third of its kind in the world and the first in the United States.

http://www.citiprogram.org/default.asp?language=english

Communication, Medicines and Ethics
COMET

The Communication, Medicines and Ethics Society is a multidisciplinary network composed by researchers, educators, healthcare professionals and research students. It has been created in order to help the contacts and the exchange of information, ideas and projects in the field of healthcare.
In 2003 the Society has organized the first COMET Conference, which became an

annual, interdisciplinary and international event. In 2004 COMET started the publication of the journal Communication & Medicine.
The Seventh COMET Conference will be held on June 25-27, 2009 at Cardiff University, with the aim to bring together students from different backgrounds.

http://www.cometsociety.com

Council on Health Research for Development
COHRED

The Council on Health Research for Development was founded in 1993 as an international organization. It is based in Switzerland and works on the basis of a global network. COHRED main purpose is to enable countries to put in place health research, in order to ameliorate health population and reduce inequity and poverty. COHRED working principles are: country focus, to develop institutions and appropriate research systems; capacity building for health research; inclusion and participation of each key stakeholder involved in research: decision-makers, researchers, health care providers and communities; equity in health and promotion of research on equity; southern perspective, that is working locally and globally for a research that can guarantee sustainable development.
COHRED in currently working in collaboration with the New Partnership for Africa's Development, a strategic framework adopted in 2001 by African Heads of States in order to facilitate the development and the poverty reduction in the African continent through good governance, African leadership, involvement of civil societies, cooperation and integration among African countries. COHRED and NEPAD are now working together to build African centers of excellence for research, in recognizing health as one of the major challenge for the African continent.
COHRED is also working with the Makerere University School of Public Health (MUSPH), with a project that aims to find a new way to communicate in health research, in order to build a better dialogue among all research stakeholders as a part of the research itself.
Since 2004, COHRED collaborates with the New York University Graduate School of Public Service to investigate the impact and influence of donor investments on health research in developing countries.
Among COHRED's achievements is the "Health Research Web", a web-based database on the structure and organization of research for health in low and middle income countries aimed to strengthen national health research capability and to produce effective sustainable and relevant research. COHRED has become fundamental in the field of health research and development, creating a network that includes WHO, WIPO, GFBR, IDRC and many other international, regional and national partners. COHRED also hosts the GFBR Secretariat.

http://www.cohred.org

Council of Europe
COE

The Council of Europe was founded in 1949 to promote throughout Europe the democratic principles stated in the European Convention on Human Rights and in other important documents on the protection of individuals. It aimed to promote the development of a European cultural identity and diversity, to find common solutions for common problems and to encourage and consolidate stability and democracy in Europe.
Biomedical research is part of those issues, which invest individual rights and poses many problems at different levels. The role of COE is important in this field, in order to protect human dignity and fundamental rights, both in the application of ordinary medicine and new medical techniques.
Particular attention is being paid at the COE to the fulfilment of the requirement of independent and multidisciplinary review of the ethical acceptability of biomedical research. This has been done through a more detailed examination of the subject of ethical review and ethics committees in the Additional Protocol to the Convention on Human Rights and Biomedicine. This aims to harmonize the principles of ethical review of research involving human beings in the European Region. The COE is undertaking a programme of cooperation, started in 1997, with its Member States in central and eastern Europe, called the Demo Droit Ethical Review of Biomedical Research Activity (DEBRA). DEBRA consists of multilateral and bilateral meetings, study visits and informative materials on best practices in Europe.

http://www.coe.int

Critical Research Ethics Issues in the Era of HIV in Tanzania

The course was sponsored in 2005 by the Fogarty International Center of the US National Institute of Health, the Dartmouth Medical School, the Boston University School of Public Health, Muhimbili University College of Health Sciences and the Kilimanjiaro Christian Medical Centre (KMCK).
It is a 2 days training course for Tanzanian health care professionals, researchers and administrators and anybody who needs ethical training for the design and implementation of a research project (physician, researchers, clinical officer, research nurses, ethics review committees members, institutional administrators and research managers, social and behavioral health professionals, people involved in the monitoring of research, people teaching research ethics and research methods).
The training includes different issues related to ethics and research: overview of the development and philosophy of research ethics; case-studies presenting ethical dilemmas in practical situations; scientific materials for the design of a research

project in the respect of international and national regulation and also local cultures; reference documents and links to resources on ethics.

http://dms.dartmouth.edu/aitrp/shortterm/pdf/ethics_010505.pdf

Days of Ethics and Bioethics for West and Central Africa

The First Days of Ethics and Bioethics for West and Central Africa have been held in Dakar in 2005, and have been dedicated to the theme "What's Ethics for Research in Africa?". They were jointly organized by several institutions, with support of the Senegalese Ministry of Health and Research, the University of Dakar and Saint Louis, UNESCO, WHO, the International Development Research Centre - IDRC, the French Ministry of Foreign Affairs, Agence Universitaire de la Francophonie – AUF, the NEBRA network and research institutes based in Senegal. This edition essentially focused on institutional capacity building, to the necessary sharing of data and information at regional and international level and to develop a reflection on research ethics.
The second edition, which was held in Yaoundé, Cameroon in June 2006, was organized jointly with the fourth Conference of PABIN. It focused on the Millennium Development Goals and the advancement of bioethics in Africa. It has been an occasion to deepen the issues of the first edition.
The third edition, held in Lomé, Togo in 2007, focused on the Evaluation and Management of the Risk in Africa: Ethics, Health and Environment. The Third Days of Bioethics, permitted to build a basis to implement futures forum, in order to make scientists, countries and civil societies able to acquire the principles of Bioethics in Africa.

http://www.refer.sn/rds/IMG/pdf/1JOURBIO3LOMEARGUMFRA.pdf

East African Community Health and Scientific Conference

The Third East African Community Health and Scientific Conference will be held in Nairobi in March 2009 under the patronage of the East African Community and it is a continuum of the first one, which was held in Uganda in 2007 and the second one, held in the Republic of Tanzania in 2008. The theme of the 3rd EAC Health and Scientific Conference will be "Climate Change, Environment and Health".
The main goals of the EAC Conferences are to permit to research findings to be quickly translated into policies and practices, incorporating resource mobilization and sustainability issues; to promote ownership and to activate the efforts of the

East African population, in order to improve human health and to achieve the Millennium Development Goals. The keynote address of the 2009 Conference will be on the theme "Rethinking health in a changing environment", while the event will close with "From science to policy and practice: developing responses to climate change in the East African Community Partner states". During the Conference a series of symposiums will be organized: Emerging technologies and their impact on the environment and health: Policy implications; Climate change and malaria; Drugs for Neglected Diseases Initiative (DNDI) Symposium.

http://www.kemri.org/conferenceoverview.html

European and Developing Countries Clinical Trials Partnership EDCTP

The European & Developing Countries Clinical Trials Partnership (EDCTP) was created in 2003 within the European Commission's Sixth Framework Programme for Research and Technological Development, to better co-ordinate the European response to the global health crisis caused by the three main poverty-related diseases of the developing world: HIV, TBC and Malaria. EDCTP vision is based on partnership between the participating European Union (EU) Member States plus Norway and Switzerland with sub-Saharan African countries. Through partnership, EU Member States can integrate and coordinate their own national research and development programmes with those of their African counterparts.
EDCTP main objective is to accelerate the development of new or improved drugs and vaccines against HIV/AIDS, malaria and tuberculosis, with a focus on phase II and III clinical trials carried out in Sub-Saharan Africa.
To this purpose, EDCTP supports, through grants, multicentre projects combining the three core areas of EDCTP programme of work: clinical trials, capacity building and networking. The integrated approach aims to ensure that with the necessary resources and training, African researchers developed the necessary capacity to successfully conduct high quality research in a sustainable way. The Joint Programme describes the objectives and activities of EDCTP. In it, Activity Area 4 is dedicated to fostering capacity building in developing countries. EDCTP recognizes that there is little coordination among programmes and finding synergies is a top priority for EDCTP actions. A whole set of activities are envisaged to assist in capacity building, such as: infrastructure building (laboratories, access to libraries, IT and data analysis), development of skills in project management and monitoring, ICH-GCP training, strengthening community participation, supporting scientific leadership to attract external research funding, supporting existing capacity building initiatives. Improving compliance with internationally accepted standards for ethical review is the third objective in the Joint Programme. This is done through site visits, in which EDCTP collects data on Ethics Committees, partly to describe the system in place for Ethical Review at national level, and at institutional level, but

also to assess the training needs of Ethics Committees or IRB, and to assess the need of supporting the creation of new NEC or IRB's. Partnership in ongoing ethics training is encouraged through additional funding, while accrued expertise is reinforced with allowing access to online literature, and GCP web sites. In countries where no Ethical Committees are in place, partnership between local EC is encouraged to allow creation of national authorities. Where no local EC exists, EDCTP will work to identify an Institution or a group of scientists that can form a National Ethics Committee.

http://www.edctp.org

European Forum for Good Clinical Practice
EFGCP

The European Forum for Good Clinical Practice (EFGCP) is a non-profit organization, founded in 1993 within the European Parliament, with the support of the European Commission to be the European think-tank for discussion, research, and critical evaluation of the developments of European health research.
EFGCP main objective is to promote Good Clinical Practice (GCP) and to encourage the creation of a common area of high-quality standards in all stages of biomedical research throughout Europe and globally. To do this, EFGCP encourages contact and partnership between the major organisations affected by good clinical practice: pharmaceutical companies; contract research organisations; suppliers of services, systems and equipment; academia; investigators; ethics committees; regulatory authorities; patient organisations; etc.
Each year, EFGCP organises an international forum in Brussels, focussing on GCP critical issues.

http://www.efgcp.be

Evidence Informed Policy Network
EVIPnet Africa

The Evidence-Informed Policy Network is a WHO initiative, which promotes the systematic use of research-for-health evidence in policy making. It was launched on 2005 by the World Health Organization. It covers different areas, focusing on poor and middle-income countries: Africa, America and Asia.
EVIPnet main goal is to promote partnership between policy makers, researchers and civil society in order to facilitate policy development and implementation through the application of the best available scientific evidence. EVIPnet networks comprise country-level teams, which are coordinated at global and regional level.

EVIPnet Africa sponsors partnership in 11 Sub-Saharan African countries and it was launched on March 2006 during a workshop held at WHO/AFRO Headquarters in Brazzaville, Congo, which brought together senior health policy-makers and researchers from 8 African countries.
The first phase of EVIPnet Africa is supported by the Health System Division of the Swedish International Development Cooperation Agency -SIDA- and WHO. During this initial phase African countries that are part of EVIPnet are committed to create their concept for partnership between policy-makers and researchers, build their teams, organize workshops in each country in order to identify priorities.

http://evipnet.bvsalud.org

Fogarty African Bioethics Training Programme

The Fogarty African Bioethics Training Programme is a one year training program in research ethics for scientists and professionals from Sub-Saharan Africa, organized by the Johns Hopkins Bloomberg School of Public Health and the Johns Hopkins Berman Institute of Bioethics, in collaboration with the U.S. National Institutes of Health (NIH), Department of Clinical Bioethics. It is named after the funding agency, the Fogarty International Center of the U.S. National Institutes of Health (NIH). Started in 2001, the Training Programme is structured in two parts: in the first six months, trainees are based in the USA and attend the courses at the Johns Hopkins University. Training includes seminars attendance at the Georgetown University and at the National Institute of Health (NIH), where they can directly study the functioning of the Institutional Review Board, by attending its monthly meetings. For the following six months, trainees return to their home country to conduct a project related to bioethics and research ethics, under the supervision of mentors from the USA and Africa. Projects assignments may include a scholarly papers on an issue regarding the application of the international guidelines, or ethics workshops for research colleagues or ethical committee members or the design and implementation of a new procedure in a study and its evaluation, such as an informed consent form in an African setting, the development of ad hoc programmes for patient protection. Once the training is completed, trainees remain connected trough continuing mentorship programmes and meetings, so as to create a growing network of research ethicists from different backgrounds.

http://www.bioethicsinstitute.org/web/page/440/sectionid/378/interior.asp

Fogarty International Center for Advanced Studies in Health Sciences

The Fogarty International Center for Advanced Studies in Health Sciences is the international branch of the US National Institutes of Health. Its mission is to address global health challenges through innovative and collaborative research and training programs and to support the NIH, on the basis of international partnerships.
Founded in 1968 by Presidential Order, the Fogarty International Centre has grown to have an international output of $64 million budget for research, training, and capacity building, extending to over 100 countries and involving some 5,000 scientists in the U.S. and abroad.
The Fogarty International Center is implementing a collaborative bioethics project called "Strengthening Bioethics capacity and Justice in Health", which aims to promote research ethics and bioethics in the Democratic Republic of Congo and in Francophone Africa.
Partners of this four-year project are: the University of North Carolina at Chapel Hill (USA), the University of Louvain (Belgium) and the University of Kinshasa (Democratic Republic of Congo).
A group of selected Congolese scholars will receive a research and medical ethics training at the University of Louvain and at UNC-Chapel Hill, to permit them at their return to Kinshasa, to create a new Bioethics Center at the Kinshasa School of Public Health. This newborn Bioethics Center will have a local, regional and international impact in promoting ethics and bioethics with their inclusion in courses into the MPH degree programme. It will also organize conferences and workshops, establish a bioethics resource center, offer bioethics consultation to research and health institutions and conduct bioethics research.
Scholars coming from Francophone Africa will be invited at the Kinshasa Bioethics Center for intensive bioethics workshops.
An English Bioethics Blog is part of this project, which will help to promote reflection on bioethics and research ethics in Sub-Saharan Africa.

http://www.fic.nih.gov

Georgetown University, Kennedy Institute of Ethics

The Joseph P. and Rose F. Kennedy Institute of Ethics was established in 1971 at Georgetown University with a grant from the Joseph P. Kennedy Jr. Foundation. The library of the Institute is one of the most important resources on bioethics, extremely useful for people involved in research and bioethics: researchers, students, physicians and policymakers. Being an essential reference for those who are

interested in bioethics, it includes the most challenging issues of biomedicine, such as protection of research subjects, reproductive and feminist bioethics, end of life care, health care justice, intellectual disability, cloning, gene therapy, eugenics. It also organizes training courses on bioethics: on June 2009 it will arranges the 35th Intensive Course on Bioethics.
The library and information service web resource is a very useful source of information, where people can find quick links to resources on special topics; search for articles, documents, books and audio-visuals resources; request a custom library; find publication, organizations, etc; check news and find library support.
The Institute's Library and Information Services area, has implemented a new programme for the promotion of research and education in bioethics in developing countries, called International Bioethics Exchange Programme. IBEP permits to donate to libraries abroad the volumes of the Bibliography on Bioethics, in order to support and to promote the development of bioethics references in those countries. Through IBEP it is also possible to contribute to the National reference Center for Bioethics Literature at Georgetown University. Several countries have become participants in this project.

http://bioethics.georgetown.edu/

Global Forum for Health Research
GFHR

The Global Forum for Health Research (GFHR) was established as an independent international foundation in 1998, to promote health research to tackle the neglected diseases and conditions that cause ill health in developing countries and hinder social and economic development. Since its foundation, the GFHR has focussed its mission on helping to redress the 10/90 imbalance, in the recognition that, still to date, few of the world's resources for health research are directed to solving the health problems of developing countries.
The 2009 Forum will be held in Havana, Cuba, from 16-20 November 2009 and it will focus on "Innovating for the health of all". The Forum will gather health and science-related ministries, research institutions and academia, development agencies and foundations, non-governmental organizations, civil society, the private sector and the media.

http://www.globalforumhealth.org

Global Forum on Bioethics in Research
GFBR

The Global Forum on Bioethics in Research is an informal partnership established by organizations working in the field of ethics of research involving human beings in developing countries, functioning as a global platform for the sharing of information and expertise. It aims to facilitate the debate on different issues related to health research, in particular those relating to research conducted from the northern countries in the south. Starting from 1999, GFBR meets approximately annually. The last meeting has been organized in December 2008 in Auckland, New Zealand, while the next will be held in Santiago, Chile, in September 2009 and it will focus on conflict of interest in health research. The theme is the result of the reflection originated by the project "Latin American and European Ethical Regulation Systems of Biomedical Research" – EULABOR. The 2009 Forum will try to create awareness on this unresolved issue among all the stakeholders.
The main values of the GFBR embody the ethics of research conducted on human beings, in particular the respect of differences between many stakeholders (geographical, cultural, scientific), the importance of mutual learning, the need to build capacity in ethics of research in low income countries, the need to strengthen the partnership between north and south in research.
The Council on Health Research for Development (COHRED) hosts the GFBR Secretariat, which coordinates activities, performed to increase awareness on bioethics issues worldwide. It also organizes an international fellowship programme.

http://www.gfbronline.com

Global Ministerial Forum on Research for Health
Bamako

The Global Ministerial Forum on Research for Health held in November 2008 in Bamako, Mali, has been the result of 20 years of collaboration in promoting research and improvement for the health of the poor. In particular, the starting point has been the recognition that only a minimum part of research has been dedicated to neglected diseases or to health problems affecting poor and middle-income countries. During the previous Forums the discussion was established to ensure functioning health systems, to reduce inequality and social injustice.
The main objectives of the Bamako Forum were: strengthening leadership for health, development and equity; engage all relevant constituencies in research and innovation for health; increase accountability of research systems.
The Forum has been co-organized by COHRED, the Global Forum for Health Research, the Republic of Mali, UNESCO, the World Bank, WHO. Other key partners

in the organization of the event have been HRP – UNDP/UNFPA/WHO/World Bank Special Programme in Research Training in Human Reproduction and TDR – UNICEF/UNDP/World Bank/WHO Special Programme for Research and Training in Tropical Diseases.

http://www.bamako2008.org

Good Clinical Practices (GCP) Inspection Training Course

The course was delivered on 25-29 June 2007 in Harare, Zimbabwe for the first time and organized by WHO utilizing training material prepared by the Developing Countries' Vaccine Regulatory Network (DCVRN).
The objective of the course is mainly to give to participants the capacity: to plan, coordinate and conduct a GCP inspection; to identify observations and deviations; to take decisions on the basis of GCP standards; to report the outcome of the study to the sponsor clinical trial site. The instructional material development was done in collaboration with the National Department of Health, Medicines Regulatory Affairs in South Africa, National Agency of Drug and Food Control of Indonesia, the Collaborative Centre on Cold Chain Management in South Africa, University of Cape Town and the Ministry of Health in Turkey. The training course has been developed for 27 hours using different teaching methods: illustrated lectures, demonstrations, brainstorming, work in groups, role-plays, simulations and exercises.
Representatives from National Regulatory Authorities have participated in this course, coming from Botswana (1), Ethiopia (2), Gambia (1), Ghana (1), Malawi (2), Nigeria (1), Tanzania (1), Uganda (1), Zimbabwe (8), and Mozambique (1).

www.who.int/immunization_standards/vaccine_regulation/gtn_gcp_june07/en/index.html

Health Research Ethics Training Initiative in Egypt HRETIE

The Health Research Ethics Training Initiative in Egypt (HRETIE) is a project sponsored by the Fogarty International Centre of the NIH and conducted in collaboration with the Department of Epidemiology and Preventive Medicine of the University of Maryland School of Medicine.
The purpose of HRETIE is to promote sustainable research ethics capacity and career development in research ethics by institutions and individuals in Egypt.
The HRETIE includes a twelve months Certificate Programme, with two months stage at the University of Maryland and a ten months project to be carried out in

the trainees home countries. Based on the same criteria is the Special Joint Programme in Research Ethics, a six months programme for advanced training in research ethics
A programme for junior scientists, 1-3 days workshops and conferences are also organized in Egypt and in the Middle East countries.

http://medschool.umaryland.edu/hretie/

International Association of Bioethics IAB

The educational and scientific main objectives of the International Association of Bioethics are:

- To encourage contacts and the exchange of information among people working in bioethics and related fields all around the world;
- To promote mutual contacts and discussion of cross-cultural aspects in bioethics;
- To organize international conferences in bioethics;
- To promote the development of research and teaching in bioethics;
- To sustain free, open and reasoned discussion of bioethics issues.

The IAB's membership includes over 1000 individuals and institutions from over 40 countries and 10 regions.
The Tenth World Congress on Bioethics will be held on 28-31 July 2010 in Singapore on the theme "Bioethics in a Globalized World", while the Ninth one was organized in Rijeka, Croatia, on 2008 and was entitled "The Challenge of Cross-Cultural Bioethics in the 21st Century".
On the IAB website information are available on IAB International networks, opened to researchers interested in specific issues addressed by specific groups (Arts and Bioethics Network, Bioethics Education Network, Clinical Ethics Network, Definition of Death Network, Environmental Bioethics, Ethics and Intellectual Disability, International Network on Feminist Approaches to Bioethics, Genetics and Bioethics, International Network on Philosophy and Bioethics – INPAB, Public Health Ethics Network, Ibero-American Network, Ethical Aspects of Security and Surveillance Technologies – EAST Network).
On the web is also available the official newsletter of the Association.

http://www.bioethics-international.org

International Research Ethics Network for Southern Africa
IRENSA

The International Research Ethics Network for Southern Africa was founded in 2004 as a collaborative initiative of the University of Cape Town Centre for Bioethics and the John E. Fogarty International Centre of the US National Institutes of Health. IRENSA aims to develop and establish sustainable multidisciplinary expertise in international research ethics and bioethics in southern Africa, by assisting Research Ethics Committees in South Africa and neighbouring countries to build capacity in research ethics. This is achieved through the provision of specialized, post graduate level training in ethical, social and legal principles directed to a gender-balanced cadre of 48 developing-country scientists, academics, clinicians and Research Ethics Committee (REC) members. The training is designed to guide responsible conduct of research on vulnerable subjects in the cross-cultural context of medium and low-income countries and is carried out through the offering of a post graduate Diploma in International Research Ethics and a short course to train and update 75 members of RECs each year, some of whom are recruited into the Diploma program. This initiative aims to stimulate broader interest and training in research ethics for REC members and researchers and to develop a Southern Africa network of RECs. The 12-month nationally registered post-graduate Diploma comprises three, two-week on-site intensive educational activities, a home based practicum and a course guided reading programme between modules. Faculties come from the Universities of Cape Town, Stellenbosch, Toronto, Zimbabwe and Yaounde, the Ethics Institute of South Africa (EISA), University of London, Chicago University and Oxford University. Candidates are recruited from mid-career professionals who have potential to provide leadership in bioethics at their home institutions and in their home countries. They receive financial assistance at various degrees.
In 2009 IRENSA will host its 7th Annual Research Seminar.

http://www.irensa.org/

Islamic Educational, Scientific and Educational Organization
ISESCO
Islamic Body on Ethics of Science and New Technology
IBEST

The Islamic Educational, Scientific and Educational Organization was established in April 1978, on the occasion of the Ninth Islamic Conference of Foreign Ministers. The first article of the ISESCO Charter presents its main objectives, which are "To strengthen, promote and consolidate cooperation among the Member States and

consolidate it in the fields of education, science, culture and communication, as well as to develop and upgrade these fields, within the framework of the civilizational reference of the Islamic world and in the light of the human Islamic values and ideals".

IBEST, the Islamic Body on Ethics of Science and Technology is an ISESCO body that evaluates scientific researches and applications, in accordance with the Islamic principles and morals. It was established during the First Islamic Conference of Ministers of Higher Education and Scientific and Research, held in Saudi Arabia in October 2000.

Based on the Islamic Sharia, it aims to direct public Muslim opinion regarding some important ethical issues; to analyze scientific and technical progress; to contribute towards coordination and exchange of opinions among national committees on ethics of science and new technologies; to build Islamic consensus on ethical issues; to study issues related to medicine and biology such as: artificial insemination, cloning, environmental issues, informatics and other topical, crucial issues, in the light of the Islamic as well as the human ethical norms at large; to promote the insertion of ethics in teaching curricula, in order to underline the respect for ethical norms and principles.

Practically, IBEST work is to: set up databases, with national and international initiatives performed in Islamic countries; to face problematic ethical issue from an Islamic point of view; to investigate new and emerging ethical issues; to organize international conferences; to promote awareness on ethical issues with the teaching of ethics in educational and training programmes; to encourage the creation of ethics committees to review ethical concerns and research in Islamic countries; to conduct media campaign, publish guidelines, books, articles.

IBEST works in coordination with regional and international organizations and institutions, involved in the study of ethics of science and technology and closely collaborates with national ethics committee in its Member States.

http://www.isesco.org.ma/index.php?page=/Home

Islamic Medical Association of Northern America IMANA

The Muslim Medical Association was founded in 1967 during the annual meeting of the Muslim Students Association (MSA), as a branch of MSA. A year later during the first independent convention of MSA of USA and Canada, IMANA was established after the writing of a Constitution and the development of its logo.

IMANA aims to provide a forum and resources for Muslim physicians and people involved in health care, promoting Islam medical ethics and values in the community. It also aims to be a leader in national and international global health care, on the basis of the Islamic perspective.

The IMANA website hosts a section dedicated to ethics in which people can find

answers to many issues related to Islam and health care.

http://www.imana.org/index.html

Islamic Organization for Medical Sciences
IOMS

The Islamic Organization for Medical Sciences was established in 1984 with the aim to: promote the Islamic Religion and its view of health and treatments for physical and psychological diseases. It also aims to transmit the Islamic tradition and heritage in the health field, through comparative analysis between modern technological advances in health care and pioneer Muslim physicians studies; to find Islamic solutions for diseases, to discover alternative drugs or treatments according to the Islamic perspective; to cooperate with the international and national organizations, institutions and societies which are governed by the same principles of IOMS; to fund health centres worldwide, responding to the needs of the Muslim population; to allow the young generation to study the basis of the Islamic heritage, values, education, in particular in the field of Medicine; to promote Islamic moral values for medical professions; to coordinate activities in the health field in the Islamic world.

http://www.islamset.org/ioms/main.html

Kintampo Health Research Center, Ghana
KHRC

Kintampo Health Research Center is one of three field research centers of the Health Research Unit of Ghana Health Service. It was established in 1994 in order to become an African-based research center, the activities of which vary from biomedical research and human trials to district surveillance and study population. Its staff comprises researchers, social scientists, laboratory, data management and financial and accounting professionals. Its major objectives are to build capacities for health and health related personnel, to respond to population needs in health research, to improve quality health care and biomedical research, to ameliorate the status of people, to allow health professionals to better face the African health challenges.
The KHRC in collaboration with Malaria Vaccine Initiative and PPD, Inc. organized in April 2008 a training course on Good Clinical Practices (GCP). In May 2008, it has been awarded the 2008 Prince of Asturias Award for International Cooperation as a recognition of KHRC contribution to the fight against malaria in sub-Saharan Africa.

KHRC is part of the INDEPTH Network, an international organization involved in the demographic evaluation of populations and their health in developing countries.

http://www.ghana-khrc.org/

Middle East Research Ethics Training Initiative MERETI

The Middle East Research Ethics Training Initiative (MERETI) is a project sponsored by the Fogarty International Centre of the NIH and conducted in collaboration with the Division for international Health of the Department of Epidemiology and Preventive Medicine, University of Maryland School of Medicine, USA.
MERETI is part of the Global Ethics Education Initiative (GEEI) to enhance the research ethics capacity of countries. It is specifically targeted to Middle East countries and offers various educational programs in health research ethics, based on the international NIH curriculum that envisages a period of training in the USA and an on-site project to be carried out in the candidate's country of origin. The Certificate Programme in Health Research Ethics is a twelve month programme, in which trainees are hosted for two months in USA Universities to attend theoretical courses and practical experiences in reviewing research protocols or in attending ethics committee meeting or in making experiences in training of trainers. In the next ten months, trainees return to their home country to follow a project in research ethics relevant to their professional field.
Next to the main training programme, 1 to 3 days long workshops are available in institutions in the Middle East. To increase effective participation, usually workshop participants from other countries and US faculties are connected via live web transmission. The CITI training online courses are also available within the MERETI project.

http://medschool.umaryland.edu/Epidemiology/mereti.asp

New Partnership for Africa's Development NEPAD

The New Partnership for Africa's Development is a strategic framework for Africa's renewal, on the basis of a mandate given to five initiating Heads of State (Algeria, Egypt, Nigeria, Senegal, South Africa) by the Organization of African Unity – OAU. Its major aim is to develop an integrated socio-economic framework for Africa, in order to address the challenges faced by the African continent: to eradicate poverty, to guarantee sustainable growth and development, to stop the marginalization of Africa in the globalization process and to promote its integration into the global

economy, to quicken the empowerment of women.
NEPAD recognizes that one of the major challenges for African countries is to build efficient health systems. NEPAD is currently carrying out a project in collaboration with COHRED in order to develop African centers of excellence for research.

http://www.nepad.org

Pan-African Bioethics Initiative PABIN

The Pan-African Bioethics Initiative (PABIN) is a non-profit pan-African organization founded in 2001 with the aim to promote awareness and discussion on ethical issues across the African continent. It was established during a pan-African conference on health research, organized jointly by the WHO/TDR and the European Forum for Good Clinical Practice (EFGCP), following an initiative of the African Malaria Network Trust (AMANET). It is one of the regional fora of SIDCER, the Strategic Initiative for Developing Capacity in Ethical Review.
PABIN's main objective is to building capacity in order to ensure the existence of independent and in-country decision-making structures for health research, through the development of appropriate ethical review systems and GCP training.
PABIN has organized its third Conference in 2003, with participants coming from 14 African countries and international partners from Europe, USA, Canada and WHO, and over 100 invited delegates from Embassies, Non-Governmental Organizations and Civil Associations. The main issues discussed during the Conference were: guidelines and research practices; international guidelines and their application to Africa; underline the countries needs and the necessary protection of human rights in research; international research collaboration; quality assurance in ethics for research; determine quality in research; accreditation in health research; international cooperation in human subjects protection. The main decision taken during the meeting was the establishment of the national chapters of PABIN.
PABIN is collecting information on the ethical review capacities of the African continent, with its Survey on Ethical Review Committees in Africa, in order to ensure a better networking among African committees and with the aim to: circulate ethical issues of research conducted in Africa and prepare training material for local IRBs; facilitate contacts among different committees and organize training courses based on direct experiences; arrange workshops for EC members; help the communication and the share of information among ethics committees; develop standard operating procedures; organize courses on regulation and ethics; improve the work of the committees by funding and teaching.

http://www.pabin.org/Home.aspx

Research Center on Health, Cultures and Societies
CReCSS

The Research Center on Health, Culture and Societies was created as a for-years contract at the Paul Cézanne University in 2004. The agreement has been renewed until 2011.
The team, composed by professors, researchers, associated researchers and students, investigates the connection between biology and culture focusing on health, diseases and treatment, starting from an anthropological point of view (socio-cultural epidemiology, social anthropology, bio-cultural anthropology, ethno-medicine, human ecology, political anthropology of health, critical medical anthropology). The research project aims also to respond to present issues on public health, related to the conditions, social and cultural effects of different health systems, biomedicine and its extension to new social and geographical areas, with the development of five different research sections: Social Categorizations in Disease Treatment, Anthropology of Medicines and Therapeutic Objects, The Dynamics of Health Systems, Theories and Practices in Medical Anthropology.
It organizes also seminars and conferences such as "Séminaire Anthropologie de la Santé: de la Participation à la Recherche à la 'Co-Construction' d'un objet anthropologique – Les Rapport entre Chercheurs et Acteurs: le Cas des Champs de la Santé et de la Diversité", "Science Sociales et VIH-sida: Terrains, Méthodes, Dialogues"; "Santé et Mobilités au Nord et au Sud: Circulations des Acteurs, Evolutions des Pratiques"; "Anthropologie des Traitements Neotraditionnels du SIDA et Médicaments Emergents en Afrique de l'Ouest".
CReCSS is also the focal point for the Network on the Anthropology of Art in Resource-Poor Settings (NAARPS) and for the "Institut de Formation en Ecologie Humaine et Anthropologie –IFEHA". IFEHA is an Institute of the Faculty of Political Sciences, which assures post-graduate level training on Human Ecology and Anthropology.

https://mmsh.univ-aix.fr/crecss/index.htm

Research Methodology Training Course
RMTC

In 2003, the Centre for Social Science and Medicine (SOSMED) in collaboration with the Institute of Public Health, University of Dar Es Salaam, Tanzania, has offered a three weeks training course on Research Methodology. The training course was organized for people involved in health research and health related activities, in order to strengthen the research capacity of participants and to promote a holistic approach to health problems in developing countries. The main training areas of the course were: research proposal development, integrated qualitative and quantitative

research methods, data processing, analysis, presentation and interpretation, dissemination of results, research ethics.

http://www.afronets.org/eventview.php/98/

Roll Back Malaria Partnership
RBM

The Roll Back Malaria Partnership was launched in 1998 by WHO, UNICEF, UNDP and the World Bank in order to coordinate a global approach for the fight against malaria. After its funding, RBM has growth exponentially and it is currently including many partners such as malaria endemic countries, bilateral and multilateral development partners, the private sector, non-governmental and community-based organizations, foundations, research and academic institutions. Its major aim is to win over malaria by 2015, by respecting the malaria-related Millennium Development Goal. The work of RBM consists in sustaining prevention and the more effective treatments, promote research and investment in health systems and incorporate malaria control into all relevant sectors. RBM also works to increase partnerships both nationally and globally, in order to ensure the coordination of activities, to minimize duplicate and fragmentation and to guarantee the optimal use of resources. A key activity of RBM is to promote advocacy to ensure the awareness on the curse of malaria at national, regional and international level.
During the African Summit on Roll Back Malaria, held in Abuja, Nigeria, in 2000, which brought together forty-four African countries affected by malaria, African leaders signed a Declaration and a Plan of Action.
The African leaders engaged themselves to intensify the efforts against malaria mortality in Africa, through coordination among partners in order to synchronize actions at regional level for the implementation, monitoring and management of RBM, to implement measures at national level to achieve RBM objectives, to create an appropriate environment in African countries to allow increased participation of international partners. The leaders also set specific goals by 2005: at least 60% of those people presenting malaria symptoms will be subjected to appropriate treatment within 24 hours; at least 60% of people subjected to risk of malaria, will profit by protective measures to prevent infection; at least 60% of all pregnant women who are at risk to contract malaria will have access to chemoprophylaxis or presumptive intermittent treatment.
African leaders also decided to undertake those actions necessary to reform and ameliorate their national health system.

http://www.rollbackmalaria.org

Science with Africa

The Science with Africa is a joint initiative organized by the United Nations Economic Commission for Africa (UNECA) and the African Union, in order to ensure the growth of the African continent through innovation, research and development. The Conference "Science with Africa, Improving African participation in Global R&D", which was held in 2008, has been a basis to investigate how African science-based entities can enhance their collaboration and their participation in international science and research and development projects.

The main goals of this Conference were: to increase synergies among science organizations worldwide, promoting north-south collaboration, exchanging new technologies and improving the existence of excellence centers of R&D and partnerships; to address economic growth in Africa through the improvement of connections between international scientific programmes and business enterprises; to provide a framework that can support African economic progress.

As regards to health, it is described as a fundamental human right, which is vitiated by the differences among population in the enjoyment of progress in Science and Technology. Africa is still suffering of a heavy burden of diseases and the continent is affected by HIV/AIDS, tuberculosis, malaria. The conference has faced the problems connected to clinical trials and the development of new drugs for neglected diseases, which encounter many obstacles. Science with Africa aims to bring together all the stakeholders in order to build a framework in which clinical trials will develop; present the current initiatives in the African continent and future project for health in Africa; develop network in order to increase the cooperation among institutions; identify policies and strategies to permit the fight against major African health issues and to develop affordable, accessible and sustainable health technologies and treatment in order to guarantee equity in health; find policies and strategies to train and sustain national health care personnel and understand how new technologies can be improved for patients monitoring system and to permit better collection, management and dissemination of data in health field.

During the Conference a Round Table was dedicated to the Clinical Trials and the Development of Guidelines for Health Research in Africa, whose conclusions were as follows: Africa should develop its own guidelines for health research and ethics in research, and the Africa Union and national Government should work on the implementation of a model of bioethics law in collaboration with national, African and international policy makers, Africa should find its own standards. The group of experts also decided to organize a series of meetings and workshops to complete the process of implementation of common standards. At the First Pan-African Bioethics Congress, 2008, ethicists, experts, researchers, policymakers have met for the discussion on the draft of common guidelines and the model of a bioethics law.

https://www.uneca.org/ sciencewithafrica/main.html

South African Research Ethics Training Initiative SARETI

The South African Research Ethics Training Initiative is a consortium of University Faculties that offers a comprehensive, multi-disciplinary, Africa-based education and training programme in health research ethics. The partners to this initiative include the University of KwalaZulu-Natal (School of Psychology), the University of Pretoria (School of Medicine and School of Health Systems and Public Health), and the US Bioethics Institute at the Johns Hopkins University's Bloomberg School of Public Health. Collaborations with other African Countries, the Pan-African Bioethics Initiative (PABIN), the European Union, the USA and the UNAIDS Collaborating Center on Ethics, Law and Human Rights ensure a global perspective to its activities. The overall goal of the SARETI training programme is to strengthen Africa's institutional training capacity to achieve and support the building of African capacity and leadership for the ethical review of health research.

SARETI offers a series of training courses and programmes, in order to provide advanced, multi-disciplinary education in health research ethics to senior professionals in Africa whose work impacts on health research ethics:

- A Master Degree Programme with funding for 14 sponsored and self-funded trainees over a 4 year period;
- A Training Programme for self-funded Ethics Review Committee members (ERCTP);
- Short course attendance for self-funded applicants.

The courses provide trainees with multi-disciplinary theoretical and practical learning in research ethics in bio-medicine, public health, and the social and behavioral sciences, as well as philosophy, bioethics, human rights, law, research design and research methods. The aim of this approach is to provide trainees with practical learning in terms of institutionalizing ethics review of health research and skills in teaching health research ethics to others.

SARETI also offers a sub-specialization in the fields of public health ethics and ethics in social sciences. Short courses aim to provide training for Ethics Review Committee members in order to increase their capability.

A Support Programme offers continuous education for trainees in Africa-based universities and attendance to relevant health research ethics meetings, in order to foster institutional capacity to continuing health research ethics education, development and research and to extend the impact of SARETI programmes by facilitating networking of professionals in Africa. To this regard, SARETI funds one of the Master trainees to present his/her work at the Global Bioethics Forum or similar conference annually.

In October 2006, SARETI has organized the first Africa Health Research Ethics Symposium (AHRES) in Dakar, Senegal, in collaboration with other African Ethics organizations and with the support of the Wellcome Trust. Its major aim was to bring together the graduates of the SARETI programme, to increase the impact and networking potentials of the SARETI training programmes, to facilitate African

exchange in health research ethics and to strengthen Africa's perspective in this field. A similar symposium will be held in 2010, at the end of the second cycle (2007-2010) of SARETI's funding.

http://web.up.ac.za/sitefiles/File/healthsciences/SARETI/downloads/AHRES_Programme.pdf

South East Asia Infectious Disease Clinical Research Network SEAICRN

The South East Asia Infectious Disease Clinical Research Network was established in 2005 as a five-year collaborative partnership of hospitals and research institution based in Thailand, Vietnam, Indonesia and Singapore. It was founded by an international consortium, which includes the US National Institute of Allergy and Infectious Disease (NIAID) and the Wellcome Trust, while the University of Oxford, the Center for Tropical Medicine and the Nuffield Department of Medicine support it in technical and administrative issues.
SEAICRN major aims are to improve patient care and human health through the progress of scientific knowledge and clinical research and to enhance the capacity to conduct clinical research respecting the international standards. It is focused on clinical research with human participants and avian influence, but it would be interested in the future in working on other local diseases.
The network offers to scientists to participate in long and short-term scholarships, seminars and workshops in order to improve their capacity in quality clinical research.
In 2009 SEAICRN is developing the following training operational courses: Intensive Care Unit, Laboratory Safety, Pharmacology, Randomized Clinical Trial Sites (RCT); and academic training programmes: Doctoral Degree in Biomedical and Clinical Science, Scientific Writing Course, Statistics.
In June 2009 the Network will host its 4th Annual Meeting in Hanoi, Vietnam.

http://www.seaicrn.org/index.php?option=com_content&task=view&id=26&Itemid=26

Special Programme for Research and Training in Tropical Diseases TDR

The Special Programme for Research and Training in Tropical Diseases was established in 1975 by the United Nations Children's Fund (UNICEF), the United Nations Development Programme (UNDP), the World Bank and the World Health Organization (WHO). TDR is an independent programme that ensures scientific collaboration in coordinating, supporting and influencing global efforts to fight a series of diseases affecting mainly the poor and disadvantaged.

TDR major goal is to have scientific leaders managing the priority setting, research and development in those countries where diseases occur.
TDR bases its work on a strategic vision, which is build on three strategic directions:
- Stewardship for research on infectious diseases of poor populations, that is to permit to strengthen global and regional stakeholders dialogue and to encourage exchange and cooperation. Current key initiatives of this strategy are: TropIKA.net, a global web platform, which promotes sharing of knowledge in infectious diseases and public health, Disease Reference Groups -DRGs- and Thematic Reference Groups -TRGs- on infectious diseases in resource poor settings and related issues, Organization of regional and global stakeholders meetings, production of Global biennal Report on Infectious Diseases of Poverty, Advocacy for research on infectious diseases at international level.
- Empowerment of researchers and public health professionals, in order to create a leadership at any level, through training and research, doctoral and masters, short courses and diploma programmes, career development fellowships, regional initiatives, multilateral initiatives, research capability strengthening.
- Research on neglected priority needs through: products discovery and development, research on development and evaluation of interventions in real life settings, research to increase access to interventions.
TDR also publishes various publications on the issue of tropical diseases and a newsletter, TDRnews, is available on its website.

http://www.who.int/tdr/

Strategic Initiative for Developing Capacity in Ethical Review SIDCER

The Strategic Initiative for Developing Capacity in Ethical Review was established in 2002 and developed out of the capacity-building activities of WHO/TDR, in order to respond to the fundamental ethical gaps and challenges encountered in health research worldwide. As an international partnership, SIDCER focuses its activities in developing capacity in ethical review and good research practices. SIDCER is a network of independently established Regional Fora composed by ethical review committees, health researchers and invited partner organizations. The Regional Fora are composed of Asia and Western Pacific Countries (FERCAP - Forum for Ethical Review Committees in Asia and the Western Pacific), former Russian States (FECCIS - Forum for Ethics Committees in the Confederation of Independent States), Latin America (FLACEIS - Foro Latino Americano de Comités de Ética en Investigacion en Salud), Africa (PABIN - Pan-African Bioethics Initiative) and North America (FOCUS). SIDCER main objective is to ensure the protection for all research participants in health research worldwide, through the development of local capacities for ethical review of research and of policies on the ethics of research. On the basis of local differences, evidenced also by the existence of regional fora,

objectives of SIDCER are to foster competent, independent, in-country decision-making for the promotion of human research and to monitor the quality of ethical review globally. The strength of the SIDCER lies in its partnership model that fosters a grassroots (bottoms-up) approach placing primary responsibility and decision-making authority in the hands of the Fora that operate at the local, national, and regional levels. The dedication and commitment of the regional Fora is the primary factor driving the project. The emphasis on valuing local knowledge and cultural understanding contributes critically to the SIDCER's evolution and success.

http://www.sidcer.org

Training for Scholarship in Research Ethics University Malawi College of Medicine - Michigan State University

The graduate-level training program is jointly developed by the College of Medicine of the University of Malawi and the Michigan State University. This project aims to assure a proper training to people involved in research coming from Malawi and other African countries. The main objectives of this training programme are: to develop an indigenous community of experts in research ethics who can refer ethical issues to African setting; to attract African researchers towards an academic career on bioethics; to encourage a mutual dialogue between Africa and the USA on ethical issues which can become the basis for future collaborations.

This project aims to support the development of capacity in research ethics scholarship with the improvement of sustainable curricula in ethics for African universities, in order to allow talented students to consider academic career in bioethics; and the promotion of the publications of African students works, who will study research ethics in the African continent.

Four trainees are recruited among professionals working in universities or in institutional or governmental positions, having at least a medical degree or a Master degree or its equivalent. They must also seek support from their home institution. Selected participants are hosted at Michigan State University and take advanced-level courses in the area of research, assisted by a MSU mentor who assists in developing a feasible research project on African issues related to research. Once back in Malawi, the trainees continue to implement the project assisted by the Malawi University mentor. At the end, the trainee will be assisted both by the MSU mentor and the Malawi one in writing a final document on his research project. Trainees will be required to develop a course related to issues in research ethics, in collaboration with the two mentors.

Finally a conference is held in order to show the research results of the trainees.

https://www.medcol.mw/bioethics/index.html

TRREE for Africa

Training and Resources in Research Ethics Evaluation for Africa is a European and Developing Countries Clinical Trials Partnership - EDCTP - funded project. It is a web based training and capacity building initiative for the promotion of ethics in African research with human participants, which has been established in 2006 and expected to deliver the training on November 2008. Meanwhile the research material collected during the period, has been made available on the website on an on-going basis.
TRREE for Africa main objectives are: to increase knowledge and professional skills of people involved in research ethics evaluation, management and research partnership; to promote partnerships among African partners; to facilitate the circulation of information both in Africa and in Europe, in order to help the strengthening of African ethics research capacity.
TRREE for Africa is a free of charge bilingual programme (English and French), based on: e-learning, ethics training available on CD-Rom and on the web; e-resources, international, regional and national resources that can be found on the web.
TRREE for Africa tries to ensure the respect of the highest ethical standards in research for the protection of research participants. The e-training is open to everybody working in research: research ethics committees members, investigators, nurses, researchers, study coordinators, health authorities, funding agencies, political authorities, media and the patients, in order to ensure a deep awareness of research ethical issues.
A very useful document for the investigation of research ethics capacity in the African continent, is the TRREE for Africa Report: "Networking for Ethics on Biomedical Research in Africa (NEBRA)", which collected data on research ethics committees and regulations in many African countries.

http://www.trree.org/site/en_home.phtml

Tuskegee University, USA
National Center for Bioethics in Research and Health Care

Tuskegee University is an independent and state-related institution, engaged primarily in disciplines which require a strong relationship between education and work-force preparation in the sciences, professions and technical areas.
The National Center for Bioethics in Research and Health Care was established in 1999 as a sort of reimbursement from the US Government towards the city of Tuskegee, for a clinical research on Syphilis conducted from 1932 to 1972, involving mostly African American men, which has become an example of unethical research. Starting from these considerations and in collaboration with local, regional and

national institutions, Tuskegee University National Center for Bioethics in Research and Health Care tries to address ethical and human rights issues in science, technology and health and to evidence their impact on African-Americans.
Its main objectives are: to promote racial and ethnic diversity in bioethics, underlying them in public debates; to carry out research on bioethics and publish scholarship on bioethics and underserved populations; to improve awareness on bioethical issues of importance to underserved populations to students, scholars and media; to address inequity in health and health care and to develop training programmes; to support public policies for the improvement of health and health care for all Americans, without discriminations.

http://www.tuskegee.edu/Global/category.asp?C=34069&nav=menu200_1

UNESCO
Ethics Education Programme

UNESCO works in the field of bioethics since the '90s, when in 1997 it adopted the Universal Declaration on the Human Genome and Human Rights, which underlined in its 20th articles, the necessity of education in bioethics. In 1999 with the Declaration on Science and the use of scientific knowledge, UNESCO stated that science curricula should include science ethics: COMEST (UNESCO's World Commission on the Ethics of Scientific Knowledge and Technology), was established in 1998, to have a key role in strengthening this issue.
The importance of Ethics and its deep affiliation with UNESCO's mandate and work is evidenced in the Universal Declaration on Bioethics and Human Rights (2005), which on its Article 23 encourages States to stress the importance of the teaching of bioethics at any level. In 2003, during the 32nd UNESCO General Conference, Member States expressed the need to start and bear teaching programmes in ethics in every field, from bioethics to scientific and professional education.
On this basis, in 2004 UNESCO inaugurated its Ethics Education Programme. The first aim of this project is to increase the capacity of Member States in the ethics education area. The size of the related objectives requested the subdivision of the intervention areas: for the biennium 2004-2005 the activities have focused in East and Central Europe and for the 2006-2007 UNESCO focused on South-East Europe and the Arab Region (Gulf Region).
Since its involvement in promoting international reflection on the ethics of life sciences in the 1970s, UNESCO continues to build and reinforce linkages among ethicists, scientists, policy-makers and civil society to assist Member States in enacting effective policies on ethical issues in science and technology. UNESCO pursues its ethical mandate in the two primary work areas of Bioethics and Ethics of Science and Technology., through the work of the International Bioethics Committee (IBC) and the Intergovernmental Bioethics Committee (IGBC) that address the emerging ethical challenges via a multidisciplinary and pluralistic forum.

In the field of information diffusion, UNESCO is building the Global Ethics Observatory, four free databases that constitute a global repository of updated information on ethics institutions, experts, legislation, codes of conduct and teaching programmes around the world.
The Division on Ethics of Science and Technology is also the Secretariat for the Inter-Agency Committee on Bioethics, that reunites the relevant United Nations agencies and programmes and other international organizations.

http://portal.unesco.org/shs/en/ev.php

UNESCO ABC Project
Assisting Bioethics Committees

The Universal Declaration on Bioethics and Human Rights promotes the establishment of ethics committees at national, regional or institutional level, which have to be independent, multidisciplinary and pluralist. The realization of this issue emphasizes the role of UNESCO as an "international clearing house" for ethics.
Even if the existence of an ethics committee is one of the major guarantees for the respect of ethics in research, in the greater part of UNESCO 's Member States, they do not exist. For this reason, in 2007 UNESCO started its "ABC Programme", in order to support the establishment and functioning of bioethics committees. For the time being, the focus will be national bioethics committees.
Five committees have already been established in Madagascar, Togo, Ghana, Guinea, Gabon and other five countries are discussing the establishment of a national bioethics committee (Malawi, Mauritania, Jamaica, Cape Verde and Chad).

http://portal.unesco.org/shs/en/ev.php

US National Institute of Health
Bioethics Resources on the Web

The National Institute of Health (NIH) is part of the US Department of Health and Human Services and it is devoted to conduct and to support medical research primarily in the USA but also throughout the world.
The NIH Bioethics Resource on the Web is a very rich collection of links, documents, material on bioethics: education, research involving human subjects and animals, medical and health care in ethics, implications of applied genetics and biotechnology.

http://bioethics.od.nih.gov/index.html

US Office for Human Research Protections
OHRP

The Office for Human Research Protections is part of the United States Department of Health and Human Services and it protects the rights, welfare and wellbeing of human participants in research conducted or supported by the HHS, ensuring that such research is conducted in accordance with regulations.
OHRP offers clarification and guidance to institutions doing research, developing educational programmes and resources, promoting the protection of research subjects with innovative approaches. Nearly 10.000 institutions (universities, hospitals, research institutions) have formal agreements with OHRP in order to ensure the right application of regulations on human subjects protection.
OHRP has different divisions, which have the duty to promote different actions: the OHRP's Division of Compliance evaluates all written reports from institutions involved in investigations and determines what action needs to be taken for the protection of human subjects; the OHRP's Division on Education and Development is engaged in providing guidance both to individuals and institutions doing research, it also organizes national and regional conferences, it participates in professional, academic and association conferences, it prepares and spreads resource materials and assure its help to institutions; OHRP's Division of Policy and Assurances works to prepare policies and guidance documents and popularize them into the research community, it also manages the assurances of compliance; the Secretary's Advisory Committee on Human Research Protection, is the secretary's advisory body on issues related to human subjects protection; OHRP's director serves as the Executive Secretary for SACHRP, and the Office provides technical and logistical support to the Committee; OHRP is also involved in international activities, through the Office of the Director. This area of OHRP aims to ensure that ethical standards of human subjects protection are ensured also outside the USA, through training to institutions doing research abroad.

http://www.hhs.gov/ohrp/

Wellcome Trust

The Wellcome Trust was founded in 1936, as an independent charity fund and becoming the UK's largest non-governmental sponsor of biomedical research. It main purpose is to increase the well-being of people and animals involved in research and it pursues its objective in sponsoring medical research, both in the United Kingdom and abroad.
A big area of interest of the Wellcome Trust is Education on Ethics and Bioethics, with the organization of conferences, courses and workshops for scientists,

historians, ethicists, social scientists, teachers, healthcare professionals and policymakers. The Wellcome Trust is engaged also in promoting contemporary sciences in the curriculum, supporting teachers in their preparation of science education programmes and facilitating the relationship between young generations and biomedical issues. The fund also supports researchers in communicating their work.
The Wellcome Trust works in order to ensure the respect of ethical requirements in research, through the building of expertise for people involved.

http://www.wellcome.ac.uk/index.htm

West African Bioethics Training Programme
WAB

The West African Bioethics is a training programme based at the University of Ibadan, Nigeria, which provides postgraduate degree courses in bioethics both for English and French speaking people.
The multidisciplinary training programme in international research bioethics is designed for mid-career professionals who are members of health research ethics committees or institutional review boards/committees, lecturers or individuals nominated by their institutions to develop institutional education programs in bioethics, health research committee administrators and anybody who has an interest in research ethics.
The goal of this program is to create a cadre of individuals capable of serving at the highest levels in institutional health research ethics committees, administer health research ethics committees, train others in the principles of modern research ethics, conduct research in research ethics and provide ethics consultation. This postgraduate program aims to build capacity for the ethical review of health research and to strengthen the capacity of the Ethics Committees in institutions throughout West Africa. Furthermore, it aims to produce bioethics experts who can contribute to the global bioethics discourse from a West African perspective
The training is provided by faculty from University of Ibadan, the Dominican Institute and international experts in bioethics and it is designed in modules, in order to allow the participation to each short core-course. The core-programs include: informed consent, research ethics and ethics committees' functions and administration, culture, religion and ethics, research designs, research methods, teaching and writing methods in bioethics and ethics and research integrity. Non-core programs include: ethics in international collaborative research, ethical issues in reproductive and population health, negotiation and conflict resolution, health law and bioethics, human rights, law and bioethics, clinical bioethics, environmental ethics, ethics of research with children, ethics of community based research, bioethics and biotechnology, public health ethics, ethics of research in vulnerable populations and mass emergencies, ethics and social and behavioral

research, neuro-ethics, good clinical and laboratory practices.
WAB foresees also a limited number of scholarships for those students from West Africa who meet the criteria for admission at Ibadan University, through grants from the NIH, USA.
WAB also organizes free online Bioethics Training Programmes on GCP and "Students in Research" modules in collaboration with the Collaborative Institutional Training Initiative – CITI. In the recent past years, WAB has organized training course and conferences on different issues, such as the Six Weeks Intensive Course on Modern International Research Ethics (2007) and the African Health Research Ethics Symposium (2006).

http://www.westafricanbioethics.net/wabcms/

World Health Organization Ethics and Health

Within WHO, various Departments are involved in ethical issues related to medical research and regulatory mechanisms of medical research. The Department of Ethics, Equity, Trade and Human Rights, in the Information, Research and Evidence cluster (IER/ETH), created in 2002, advances the principles of dignity, justice, and security in health and oversees that these principles are incorporated into programmes and policies across WHO, to foster effective global, and national action based on these principles.
Through the U.N. Inter-Agency Committee on Bioethics, the unit also has liaison relations with the ethics offices of other United Nations agencies as well as governmental and nongovernmental organizations dealing with bioethics issues, such as FAO, ILO, UNHCHR, UNESCO, WIPO.
The ETH also provides the secretariat for the GFBR.

http://www.who.int/ethics/en/

WHO - Department of Research Policy and Cooperation

The Department of Research Policy and Cooperation is part of WHO's Information, Evidence and Research (IER) Cluster and it helps to reinforce the informational, scientific and ethical issues of health research. Its major aim is to ensure the development of health systems in poor resource settings. The main objectives of the department are: to encourage better use of evidence in health decision making and policy development; to strengthen health systems research; to promote good research practices through the coordination of mechanism, guidelines and

procedures; to support ethical standards in health research; utilizing health research to promote equity in health.
The Department is engaged in three areas of work: Research Quality and Transparency (International Clinical Trials Registry Platform – ICTRP, Guidelines Review Committee, Ethics Review Committee); Research Translation and Utilization (EVIPnet programme); Research Policy and Standards (WHO strategy on research for health).
Within the Department of Research Policy and Cooperation, the Research Ethics Review Committee (ERC), provides ethical review of all research that involves human participants and that is managed, funded or supported by WHO. Research projects range from basic sciences and clinical research to social sciences and epidemiological research.
Proposals are submitted to the ERC by the WHO Technical Officer responsible for the project. The Technical Officer works closely with the Principal Investigator in order to facilitate the ethics review.

http://www.who.int/rpc/about/en/

WHO – Research Ethics Training Course

The Research Ethics Training Course, an interactive online training course, is organized by the Department of Research Policy and Cooperation for researchers and their teams, research ethics committees, technical officers, policy makers and people interested in international health research. It is the e-training component of "The Research Ethics Training Project: Developing, Implementing and Evaluating a Training Module on Ethics in Public Health Research". The first two modules have been completed in 2007 (International Health Research Ethics: Complexities and Challenges; Promoting Health Research and Safeguarding Research Participants: Guidelines and Structures). Four additional modules are being developed to be offered in the course of 2008, taking into account the lessons learned from the two previous modules. The modules are: "Ethical Issues in informed consent", "Ethical challenges in study design", "Ethical challenges in social scientific health research", "Professional ethics". The project is the result of a collaboration between WHO and the University of Geneva.

WHO – Initiative for Vaccine Research

The WHO Initiative for Vaccine Research is administratively hosted within the WHO Department of Immunization, Vaccines and Biologicals and its major constituencies

are TDR (UNICEF/UNDP/World Bank/WHO/Special Programme for Research and Training in Tropical Diseases) and UNAIDS (the Joint United Nations Programme for HIV/AIDS). It has been established to guide, provide vision, enable, support, and facilitate the development, clinical evaluation and worldwide access to safe, effective and affordable vaccines against infectious diseases. Its main objectives are to manage knowledge, to provide guidance and advocacy through partnerships to quicken innovation for new vaccines and technologies, to support research and product development, to conduct a proper implementation of research, policies and strategies.
WHO/IVR tries to reinforce the capacity building in Good Clinical Practice and Bioethics, supported by TDR and UNAIDS. In addition to this, the WHO Research Ethics Review Committee (ERC) carries out the ethical review and assures the respect of participant's rights of research projects fully or partially funded by WHO, managed by WHO and in which WHO is partner or collaborator.
WHO/IVR also organizes workshops for GCP implementation and training, focusing on vaccine clinical investigators, HIV/AIDS and malaria vaccine investigators.
WHO/IVR has approved a Strategy for 2006-2009, which is available on WHO website and contains the activities, the strategies and the plan of action of this initiative.

http://www.who.int/vaccine_research/en/

WHO - Developing Countries Vaccine Regulators Network (DCVRN)

The Developing Countries Vaccine Regulatory Network was established in Bangkok, Thailand in 2004 to promote and support the strengthening of vaccine regulatory capacity of National Regulatory Agencies of participating (Brazil, China, Cuba, India, Indonesia, Republic of Korea, Russia, South Africa and Thailand.) and other developing countries. This initiative falls within the WHO Global Training Network of Vaccine Quality established goal to "ensure that 100% of vaccines used in all national immunization programmes are of assured quality" and is carried out within the WHO Dept of Immunization, Vaccines and Biologicals.
According to current legislation, there is no obligation by US, European and other countries NRAs to review clinical trials applications done outside their countries or if the products are only for export. As a consequence, GCP trial inspection are rarely performed in developing countries. In addition, developing countries NRAs are called to be primarily responsible for licensure of priority vaccines in their countries, when, in the past, they used to rely on the regulatory evaluation of the NRAs of the country of origin to assure quality.
In order to avoid disruption in both R&D of new vaccines and drugs as well as in their supply to developing countries, the WHO worked with EMEA to include an

article in the EU Regulation 726/2004, to establish a mechanism whereby the European Medicines Agency (EMEA) may give a scientific opinion, for the evaluation of certain medicinal products for human use intended exclusively for markets outside the Community.
With the increase in the number of new trials and new applications for licence in their markets, developing countries need to effectively regulate clinical trials taking place in their countries, to review clinical trials applications and to assess clinical data and product characteristics to respond to licence application. This is possible only if they build the necessary capacity to have the regulatory mechanism in place to perform in a timely manner, quality reviews of clinical trials of new vaccines and drugs that are carried out by themselves and/or by international sponsors.
The Network meets twice a year and provides a forum for discussion, advancement of knowledge and exposure to policies and procedures pertaining to evaluation of clinical trial proposals and data. In its seventh meeting, held in Bangkok, Thailand in November 2007, participants also discussed the development of FDA - IND-like systems for developing countries.
In December 2007, the Quality, Safety and Standards (QSS) team, within the IVB held a meeting on "Strengthening vaccine regulatory capacity: a 10-year review of progress, revision of NRA benchmarking system and a look to the future" at WHO/HQ in Geneva. Participants represented 25 countries and all of WHO regions. The EMEA, the PIC, the PICS and Canada also participated. Between 1997 and 2007, 86 countries reviewed their vaccine regulatory system, based on an institutional development plan (IDP). More than 1.000 personnel has been trained by the WHO's Global Training Network on Vaccine Quality, started in 1996. Self assessment tools have been developed and standardized and a database of experts for conducting assessments has been created with 400 entries. Assessed NRAs need to build an Institutional Development Plan (IDP) in order to follow up on the assessment, identify gaps and strengths, areas of development and training needs. More recently WHO has been working to reach a substantial harmonization of assessment procedures for national regulatory oversight of both vaccines and drugs, in order to facilitate the setting up of working standards in those countries where there is only one national authority to regulate both. The Programme now supports the UN vaccine prequalification system, which includes among its preconditions that a producing country have a fully assessed and functioning NRA.

http://www.who.int/immunization/en/

WHO - Afro Vaccine Regulatory Forum
AVAREF

The Afro Vaccine Regulatory Forum (AVAREF) was established in 2006, by WHO, following to the experiences of the DCVRN. The Forum was established during its first meeting, in Accra, Ghana, in September, 2006. NRAs and national ethics

committees or scientific advisory committees from Botswana, Burkina Faso, Cameroon, Ethiopia, Gabon, Gambia, Ghana, Kenya, Malawi, Mali, Mozambique, Nigeria, Rwanda, Senegal, Tanzania, Uganda, Zambia and Zimbabwe. Participating countries are target for clinical trials of priority vaccines such as HIV/AIDS, Malaria, Meningitis and Rotavirus. Experts from United States Food and Drug Administration (USFDA) and European Medicines Evaluation Agency (EMEA) took part in the meeting as well as cooperating partners such as the Program for Appropriate Technology for Health (PATH) and European and Developing Countries Clinical Trial Partnership (EDCPT). The new regulatory challenges posed by the USFDA regulation, that does not oblige manufacturers to submit the Investigational New Drug (IND) application for exports products and the recent change in the EU regulation (726/2004) that does not request licence for products used exclusively outside the EU, except for a scientific opinion to be requested under article 58 of the same regulation – created a crisis need for African NRAs and DRAs, that relied most exclusively on sponsor countries regulatory bodies, to urgently strengthen their role and capacity in both ensuring quality, safety and efficacy of vaccines and drugs to be use in Africa and to facilitate the introduction of new vaccines. In Africa, most countries that are target for clinical trials have very limited expertise and infrastructural capacity to carry out regulatory functions. Furthermore, in many cases, local DRAs do not have the regulatory framework in place to exert their authority in the regulation of the clinical trials.

According to one recent NRA surveys conducted by the WHO,

- 53 % of NRAs had limited or no capacity
- 37% had basic capacity
- 10% had moderate capacity.

The problems faced by most NRAs include among others:

- Inadequate legislation and regulations
- Inadequate appropriately qualified staff
- Inadequate and non-sustainable funding
- Lack of access to independent information

In October 2007, The WHO Regional Office for Africa and the Who Dept of Immunization Vaccines and Biologicals, QSS issued a Status Report on "Strengthening of Vaccine Regulatory Capacity in Africa". In the Report, a previous WHO surveys showed how 90% of DRAs in the African Region did not have the capacity to perform their regulatory functions, and therefore were unable (87% by their own admission) to ensure quality, efficacy and safety of drugs.

As a consequence to the above, in most developing countries, both unapproved and unregulated medicines are circulating on the markets and unapproved and unmonitored clinical trials are being conducted, with sometimes dire consequences for trial participants being subjected to serious health risks.

AVAREF was established to exchange information and expertise among regulators of countries that are target for clinical trials of priority vaccines, to promote collaboration with Ethics Committees, to reinforce links between regulators of trials and host countries.

AVAREF is based on the promotion of a regional approach to the NRAs creation and

strengthening. In fact, while producing countries need a permanent reviewing infrastructure to evaluate clinical trials applications and clinical data, target countries may not need to make an investment at the same level, except when a clinical trials is to take place. The Regional approach aims to establish regional advisory panels for regulatory consultations, that would assist NRAs of target countries with the adequate resources and expertise to assess clinical trials applications, monitoring and evaluation of registration dossiers. This network would serve as a source of expertise for countries that have to make regulatory decisions for which they are not prepared and as a forum where countries can discuss issues with peers as a means to build on the expertise available in the region and strengthen the capacity of weaker countries.

Based on the United Nations vaccine prequalification process, that implies a strict regulatory oversight by a functional NRA in the vaccine-producing country, WHO developed a programme to assess NRAs against defined benchmarks. These external assessments are carried out to identify gaps that are subsequently addressed in an Institutional Development Plan to improve capacity, which is supported by WHO's Global Training Network on Vaccine Quality.

The Institutional Development Plan (IDP) is important as a tool to prioritize activities, to promote advocacy and coordination between the different agencies involved in its implementation. Although African Ministers for health, at the 56th Session of the WHO Regional Committee for Africa, held in Addis Ababa in September 2006, committed to support NRAs IDPs in their countries, participating countries are still far from developing them. Some countries are still far from submitting their IDPs to WHO.

Some of the countries gave an overview of the various stages of IDP implementation and what they propose to do as follows:

• Cameroon needed to review and update IDP activities before implementation and strengthen capacity and collaboration between partners especially Ethics committee and the Pharmacy Department Gambia to use MRC to build capacity of NRA and seek added support for NRA, Regulatory guidelines to be put in place and finalize the regulatory issues in the Draft Regulations. Also advocate for government to provide funding for some activities of the IDP.

• Nigeria to request for support for joint reviews.

• Ethiopia- to review and update their guidelines.

• Cameroon- Operational research and funding of activities were already being done by the MOH.

• Ghana introduced a new system of pharmacovigilance and uses the University to provide expert opinion to the NRA.

Good clinical Practice (GCP) Inspection Training Courses are among the priorities of DCVRN and AVAREF for the implementation of IDPs. In Africa, it was held in June 2007, in Harare, Zimbabwe for the first time within the framework of the Developing Countries Vaccine Regulators Network A total of 19 representatives from National Regulatory Authorities and Ethics Committees have participated in the first course: Botswana (1), Ethiopia (2), Gambia (1), Ghana (1), Malawi (2), Nigeria (1), Tanzania (1), Uganda (1), Zimbabwe (8), and Mozambique (1).

The objective of the course was to ensure that participants would be able to develop the following competencies:
• plan, coordinate, and conduct a GCP inspection
• identify and classify observations and deviations
• arrive at regulatory decisions with regards to compliance of the study with GCP standards
• report the outcome to the sponsor/clinical trial site.
The training course lasted one working week and was structured into seven sessions (modules) of between 80 and 280 minutes each, using a variety of teaching methods, including illustrated lectures, demonstrations, brainstorming, work in smaller groups, readings, role plays, simulations and exercises.

http://www.who.int/immunization_standards/vaccine_regulation/africa_network/en/index.html

World Medical Association
WMA

The World Medical Association is an international organization founded in 1947, with the aim to represent physicians, to ensure their independence and to assure that their work would be conducted following the highest ethical standards and professional competence, especially after the atrociousness of the World War II. Approximately 80 National Medical Associations compose its membership. The main purpose of WMA is to serve humanity and to ensure the highest international standards in Medical Education, Medical Science, Medical Art and Medical Ethics and Health Care worldwide.
The best-known policy statement of WMA is the Declaration of Helsinki, adopted in 1964. After that, the DoH was revised many times, most recently in October 2008. With the Nuremberg Code it is probably the most important document on the protection of human participants in clinical research, even though, like the Code, it is not a binding instrument of international law.
The WMA's Ethics Unit was founded in 2003 to coordinate the WMA ethics activities. The main purpose of WMA is to ensure the respect of the highest ethical international standards: the Ethics Unit will assist WMA Council and standing committees in the implementation of those policies that are necessary to ensure the attainment of this objective. It is also a clearinghouse of ethics resources for National Medical Associations, their physician members and relevant stakeholders. The Ethics Unit works in collaboration with other international organizations involved in medical ethics and protection of human beings in health, in order to assure the coordination of different activities.

http://www.wma.net/e/index.htm

CHAPTER III

HEALTH RESEARCH IN DEVELOPING COUNTRIES

Poverty, Corruption and the Right to Health

The strong link between good health and a positive development has been amply demonstrated, not only with regard to individual human beings, but also as a measure of the prosperity of nations. As per the WHO definition, "health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity[1].

The enjoyment of good health not only depends on biological factors, but also on those social determinants that contribute to the full harmonious development of the single individual and of societies as a whole.

In the case of developing countries, strengthening of the health development agenda has become a paramount necessity for building a better future, where high percentages of malnutrition, maternal and child mortality and communicable diseases will be defeated.

Unfortunately, access to food, water sanitation, drug availability to fight and control infectious diseases and access to healthcare services are, for developing countries, priorities still far from being achieved, notwithstanding the positive impact of more coordinated effort in public-private funding of the recent years and the commitments set out in the 2000 United Nations Millennium Declaration.

To make an example of the impact of health problems on the economic growth of developing countries, the Roll Back Malaria Initiative, a private-public funding agency, has recently calculated that malaria has slowed economic growth in African countries by 1.3% per year. Over 35 years, as a result of the compounded effect, the GDP level for African countries is up to 32% lower than it would have been in the absence of malaria.

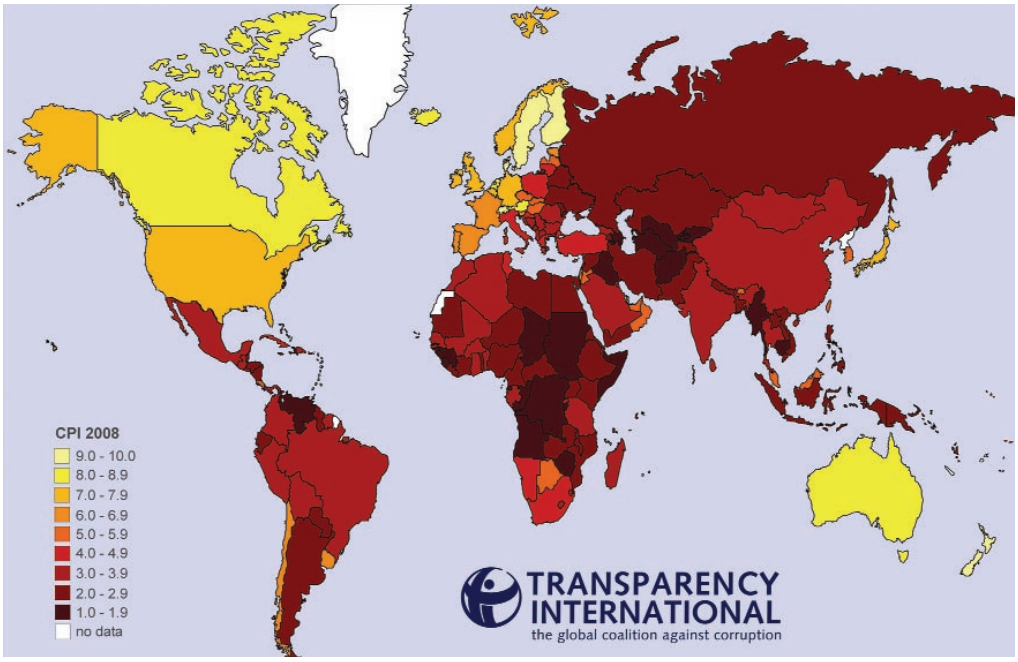
Another urgent issue is the still deep divide in terms of health and social inequalities between the North and the South. As also stipulated in the UN MDG, that directly addresses health issues in three out of its eight goals, this divide needs to be addressed by a double-sided effort: on the one side, wealthy nations should consider the relevant needs of poor countries, when allocating their financial resources to aid development. Too frequently, rich countries political agendas are hidden behind programmes that only minimally reflect poor countries development and health priorities. Particularly in the field of health research, programmes become ineffective if they are not supported by a strong philosophy of collaborative partnership and fail in their long term purpose, when people from poorer countries are perceived just

[1] Preamble to the Constitution of the World Health Organization as adopted by the International Health Conference, New York, 19-22 June, 1946; signed on 22 July 1946 by the representatives of 61 States (Official Records of the World Health Organization, no. 2, page 100) and entered into force on 7 April 1948.

as passive recipients or, worse, as instruments for exploitation. Developing countries, on the other hand, should concentrate all their efforts into strengthening good governance, by combating corruption within their public administration and by restoring trust in the judiciary and in the law enforcement powers as guardians of social stability and security. Finally, the efforts of South – South partnerships should be encouraged, as emerging market economies take the lead to sustainable change in their area of influence[2].

According to the 2008 Corruption Perception Index, measured by Transparency International, the difference in perceived levels of corruption in rich and poor countries remains as sharp as ever, with at the top, Denmark, new Zealand and Sweden scoring 9.3 (lowest level of perceived corruption) and at the bottom, Iraq, Myanmar (1.3) and Somalia scoring 1.0 (highest level of perceived corruption)[3]. In the survey, low CPI scores indicate that public institutions are heavily compromised and that social and political instability levels are high.

Table 1 – 2008 Corruption Perceptions Index



2 See for example, Brazil, that in 2006 announced a plan to launch a project to strengthen public-health research in Portuguese-speaking countries in Africa (http://www.scidev.net/en/news/brazil-to-boost-health-research-capacity-in-angola.html accessed on September 2008) and China's Development Fund for Africa, approved in 2006, which will provide US$5 billion over the next five years to assist African countries to achieve the MDGs through cooperation with China.

3 Transparency International, *Corruption Perception Index* 2008, http://www.transparency.org/news_room/in_focus/2008/cpi2008 (Accessed October 2008)

The equation between corruption and poverty is well documented in the literature and it shows that the poorest countries suffer most from the effects of corruption. "In the poorest countries, corruption levels can mean the difference between life and death, when money for hospitals or clean water is in play" declared Huguette Labelle, Chair of Transparency International, at the launch of the CPI Report in September 2008, considering the destabilizing effects of corruption and poverty "a humanitarian disaster".

When considering the right to health, social and political instability are factors that correlate closely with the degree of disparities in healthcare access and provision among countries. Bad governance, a weak judiciary system and corruption among public officials represent the main drain of resources from the development of education, healthcare and economy. In its 2008 Global Corruption Report[4], Transparency International calculated that "unchecked levels of corruption would add US $50 billion - or nearly half of annual global aid – to the cost of achieving the Millennium Development Goal on water and sanitation".

Transparency in financial management and strengthening the oversight of the public administration are essential to strengthen accountability of Governments. An independent judiciary is critical in promoting the rule of law and indirectly, donor and investor trust.

Countries that are not able to tackle the anticorruption reforms by themselves should rely on the technical assistance from developed countries in supporting accountability and institutional integrity, as a key requirement of the United Nations Convention against Corruption (UNCAC)[5]. Cooperation and technical assistance among countries is pivotal in the UNCAC, especially in the recovery of stolen assets and in the strategies against money laundering. Stolen assets currently held in foreign bank accounts are estimated to be equivalent to more than half of Africa's foreign debt. To this purpose, rich nations should engage in better and closely regulating their financial institutions and business enterprises, in order to effectively counter corruption and its devastating effects on the world's poorest individuals. Recovered assets from corruption could be used by developing countries to strengthen those areas where human rights principles lay down their foundation: education health and personal development.

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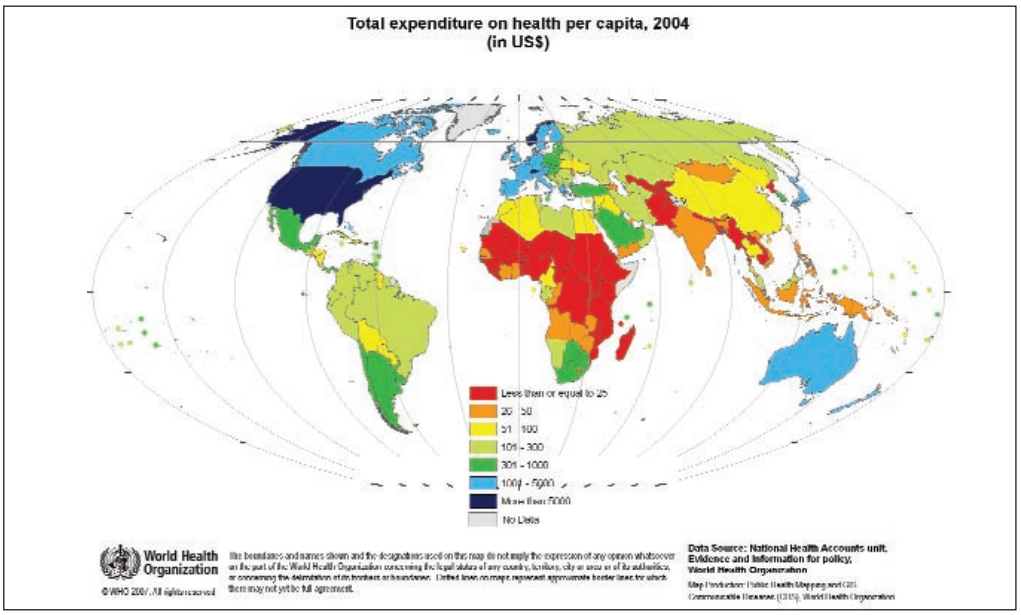
4 Transparency International, *Global Corruption Report*, 2008 http://www.transparency.org/publications/publications/global_corruption_report/gcr_2008 (Accessed October 2008)

5 UNODC – United Nations Office on Drugs and Crime, *United Nations Convention against Corruption*, 2004 (http://www.unodc.org/unodc/en/treaties/CAC/index.html accessed September 2008)

In the area of healthcare, the WHO shows that developing countries are still devoting a scarce percentage of their GDP to health expenditure.[6]

Table 2 – Total expenditure on health per capita, 2004



The WHO World Health Statistics for 2008[7] reports that most developing countries still fall below the 10% indicator for the general government expenditure on health as percentage of total government expenditure, in 2005. As it is immediately visible in table 2, the highest number of countries with low health resources is concentrated in sub-Saharan Africa. Isolated examples of virtuosity in this Region are Liberia, after the democratic elections, with 36.3%, Botswana with 18.2 and Malawi with 16.6 respectively. Burundi with 2.3%, Nigeria with 3.5% and Angola with 4.7% are the countries that engage less resources in public expenditure on health. In the Abuja Declaration, the result of a high level meeting of African Union Heads of State and Government held in 2000, participants had committed to reach the target of allocating at least 15% of the states' annual budget to the improvement of the health sector within a few years. However, according to a WHO statistic, per capita average expenditure on health in low-income countries in 2005 was US$ 16,00, while the corresponding figure for high-income countries reached US$ 2.672,00.

6 WHO, *The World Health Report*, *Primary Health Care – Now More Than Ever*, Geneva, 2008

7 WHO, *The World Health Statistics*, Geneva, 2008 (http://www.who.int/whosis/whostat/2008/en/ accessed October 2008)

In Africa, currently the region of the world which is most suffering from the consequences of poverty, disease and underdevelopment, about four million children under the age of five die annually, two-thirds from communicable diseases or diseases connected to poor hygienic conditions and to lack of clean water. Here, Malaria accounts for 80% of the global burden of diseases and remains the primary cause of death in children, even though relatively inexpensive interventions, such as insecticide-treated nets, and the artemisinin-based combination therapies have proven to drastically reduce morbidity and mortality.[8],[9]

In the above-cited WHO report for 2008, maternal mortality ratio, that indicates safety of pregnancy and childbirth, equals to 9 in developed countries, 450 in developing countries and 900 in sub-Saharan Africa, every 100.000 live births.

Thanks to the progresses of antiretroviral therapy, AIDS progression in currently under control in developed countries. Yet, in Sub-Saharan Africa, where, in 2007, more than three quarters (76%) of all AIDS-related deaths occurred and where more than two thirds (68%) of all people infected with HIV are living, these treatments are still not made easily accessible. According to UNAIDS, in developing and transitional countries, 9.7 million people are in immediate need of life-saving AIDS drugs; of these, only 2.99 million (31%) are receiving them. By the end of 2007, Africa accounted for 11.6 million AIDS orphans.

Table 3 - Regional statistics for HIV & AIDS, end of 2007

Region	Adults & children living with HIV/AIDS	Adults & children newly infected	Adult prevalence*	Deaths of adults & children
Sub-Saharan Africa	22.0 million	1,9 million	5.0 %	1,5 million
North Africa & Middle East	380,000	40,000	0.3 %	27,000
Asia	5 million	380,000	0.3 %	380,000
Oceania	74,00	13,000	0.4 %	1,000
Latin America	1.7 million	140,000	0.5 %	63,000
Caribbean	230,000	20,000	1.1 %	14,000
Eastern Europe & Central Asia	1.5 million	110,000	0.8 %	58,000
North America, Western & Central Europe	2.0 million	81,000	0.4 %	31,000
Global Total	33,0 million	2,7 million	0.8 %	2,0 million

Source: UNAIDS

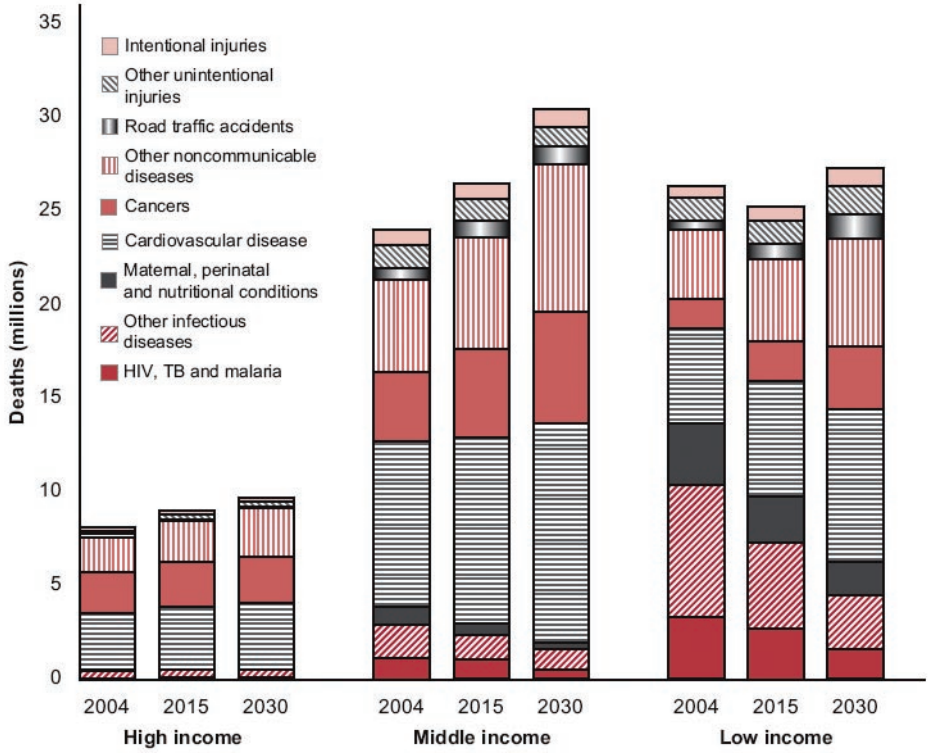
8 Bhattarai A. et al., *Impact of artemisinin-based combination therapy and insecticide-treated nets on malaria burden in Zanzibar*, PLoS Medicine, 2007, Vol. 4, No. 11, Pages 1784–1790

9 WHO, Global Malaria Program Surveillance, Monitoring, and Evaluation Unit, *Impact of long-lasting insecticidal-treated nets (LLINs) and artemisinin-based combination therapies (ACTs) measured using surveillance data, in four African countries, Preliminary report based on four country visits*, 2008

Unfortunately, the "10/90 gap" between the resources devoted to the health priorities of the developed countries and those of the developing countries[10] is still huge, even though the global scenario has partially changed. Since the '90s, when the term was coined, the total spending for health research in favour of developing countries has quadrupled; at the same time, many non-communicable diseases, typical of the wealthy nations, such as cardiovascular diseases, diabetes and cancer are now also experienced in developing countries.

The 2008 World Health Statistics, reports a progressive shifting in the global burden, from infectious diseases to non-communicable diseases, with chronic conditions being now the main cause of death globally. If the trend continues unhindered, in twenty years non communicable diseases will be responsible for three quarters of all deaths and developing countries would have to face, within a few years, the burden of both types of diseases.

Table 4 - Projected deaths by cause for high-, middle- and low-income countries



Source: The World Health Statistics 2008, WHO Geneva, 2008

[10]The 10/90 Gap is the expression created by the Global Forum for Health Research in 1999 to symbolize the disequilibrium in prioritizing funds for research devoted to the diseases of the poor and funds for the diseases of the rich, by which less than 10% of global spending on health research is directed to the health problems accounting for 90% of the world's disease burden.

It should be noted, however, that in Sub-Saharan Africa, more than 70% of the disease burden is still due to Group I diseases, communicable diseases; of these, up to one quarter can be attributed to HIV/AIDS.

The International Health Research Scenario

In 1998, the Commission on Health Research recommended developing countries to devote at least 2% of their national health budget to national research priorities and developed countries to allocate at least 5% of funding to strengthen health research and research capacity in developing countries. However, still a few governments in the developed world are securing this quota of their budget for health research into developing countries priorities and the same happens within developing countries.

In its latest report[11], The Global Forum for Health Research, shows that 2005 financial flows for health research are basically unchanged from the previous years, with pharmaceutical companies still being the biggest investors in health R&D, globally accounting for 48% of global expenditure (USD 60.6 billion). The for-profit companies are followed by the public sector, which accounted for 45% of overall expenditures (USD 56.1 billion). Not for profit organizations and foundations contributed with 7% (USD 9 billion).

R&D expenditure by PhRMA member companies[12] was estimated at US$44.5 billion in 2007 against a total industry expenditure of USD 58.8 billion. However, just 0.1% of that amount (US$25 million) was spent on R&D in Africa. Neglected diseases which are generally those relevant to low- and middle-income countries and are accounted among the communicable diseases, continue to be neglected in comparison to the budget devoted to non-communicable diseases which are relevant to high income countries. This happens in spite of the fact that, according to WHO, the global burden of communicable diseases, concentrated in low-and middle-income countries, is 13 times higher (if measured by the DALYs) than the global burden of non-communicable diseases, the main health concern of the developed world.

This inequality in research funding is reflected in the marketing of new medical products. Of the 1,233 drugs that reached the market between 1975 and 1997, only 13 were for tropical diseases.[13]

IMS Health[14] reports a steady growth in the R&D pipeline in 2007, especially in the number of products in Phase I and Phase II clinical development. At the end of 2006,

11 De Francisco, A. Matlin, S. (Eds.), *Monitoring financial flows for health research 2006*, *The changing landscape of health research for development*, Global Forum for Health Research, 2006

12 Pharmaceutical Research and Manufacturers of America, *PhRMA Annual Membership Survey*, 2006

13 Global Forum for Health Research, 2002

14 IMS – Intelligence Applied (Accessed at http://www1.imshealth.com/web/home/0,3153,64576068_63872702,00.html on December 2008)

about 2,075 molecules were in development, 7% more than the previous year and 35% more than 2003.

However, among the medicines being developed through biotechnology research, a very small share is directed to HIV/AIDS in comparison to other diseases, such as cancer. At the end of 2006, 34 candidate HIV vaccines were in pre-phase of human clinical trials in 19 countries. Overall, the contribution to global market growth by products launched from 2001 to 2005 reached $13.5 billion in 2006. Except for HIV/AIDS vaccine studies, almost all new drugs that entered the market were not relevant to low income countries diseases. Tuberculosis is a key example of how slow innovation can be in this area. Tuberculosis together with AIDS and Malaria get priority attention in all private-public funding initiatives. However, doctors are still working with therapies developed more than 40 years ago, which are creating more and more disease resistance, while diagnostic testing for tuberculosis is so old that it can detect just half of the infections.

Availability of medicines is also a worrisome aspect of the healthcare status in Africa: representing 14% of the world population, Africa accounts for just 1% of the world generic drugs market, with Europe and the United States representing respectively 11% and 5% of the world population and accounting for 30 and 45% of the world generic drugs market.

In the past decade, there has been a tremendous increase in the focus and the funding for research into diseases of developing countries but a lot remains to be done. Some of the initiatives that are active in tackling these problems include the Roll Back Malaria project (RBM), the US President's Emergency Plan for AIDS Relief (PEPFAR), the Global Fund to fight AIDS, Tuberculosis and Malaria and the William J. Clinton Presidential Foundation. Thank to these initiatives, the UNAIDS recently reported that the US$330 million available for HIV/AIDS initiative in 1996 has grown to $4.7 billion in 2003. Limitations of such initiatives are mostly connected with poor coordination, funding shortfalls and problems associated with limited personnel and health care infrastructure, which are historically weak points of the health care system of developing countries. In addition, while limitations in clinical and laboratory practices have received significant attention, a lot remains to be done to tackle the limitations in the field of bioethics expertise.

With the adoption of the UN Millennium Declaration and the Millennium Development Goals by its Member States, the United Nations gave a new momentum to the commitment to address the burden of poverty in the developing nations. MDG four five and six expressly deal with health and set specific objectives to fight communicable diseases. However, the US$8 billion committed by donors to address the needs of developing countries by 2003, represented less than one third of the actual need for US$27 billion, as estimated by the WHO[15].

15 WHO, Commission on Macroeconomics and Health, *Macroeconomics and health: investing in health for economic development*, Geneva, 2001

The Pharmaceutical Market Scenario

IMS Health reports a growth, in 2006, of the global pharmaceutical market of 7% equal to $643 billion and a forecast of a 5 to 6 % growth in 2008. Cancer drugs and biotech drive the market with each a quota of 20% global growth. In 2006, generics represented more than half of the volume of pharmaceutical products sold in seven key world markets — U.S., Canada, France, Germany, Italy, Spain, and the U.K., primarily due to the fact that many primary care classes of drugs are losing their patent rights and turning into generics. In 2006, North America, which accounts for 45% of global pharmaceutical sales, grew 8.3 percent to $290.1 billion, 5,4% more than the previous year. The five major European markets (France, Germany, Italy, Spain and the U.K.) experienced 4.4 percent growth to $123.2 billion, down from 4.8 percent growth in 2005, the third year of slowing performance. Sales in Latin America grew 12.7 percent to $33.6 billion, while Asia Pacific (outside of Japan) and Africa grew 10.5 percent to $66 billion. India was one of the fastest growing markets in 2006, with pharmaceutical sales increasing 17.5 percent to $7.3 billion.

According to IMS Health, the key dynamics that are shaping future market trends can be identified in a steady decline in drug treatment costs for many therapeutic areas, as generics replace brand name drugs, a move from primary care to specialty care medicines, the shift in growth from developed to developing market economies, the increased uncertainty over safety, pricing and market access and intellectual property issues.

"Pharmerging" countries, China, Brazil, Mexico, South Korea, India, Turkey and Russia, are expected to grow 12-13% in 2008-2009, mostly through generic production and a shift towards the production of drugs that tackle cardiovascular, diabetes and other chronic diseases. The market growth of emerging economies is however challenged by important safety and regulatory issues connected to criminal counterfeiting of products[16].

Other safety issues are connected to a more restrictive view of drugs approval mechanisms. After the recent scandals that involved two blockbuster products on the market, such as the anti-inflammatory Vioxx and the antidepressant Salin, the FDA has taken various measures to better control post marketing assessment of drug safety. In 2007 a Risk Communication Committee was established to improve alert to the public, based not only on medical evidence but also on the views of legislators and the judiciary. With the 2007 "Administration Amendment Act" the FDA is expected to implement more restrictions on patent approval, based on the request for more clinical evidence from investigators and sponsors and a slowing down of the approval mechanisms. Overall this will contribute to increase patient's protection but will also challenge the pharmaceutical industry ability to invest in new R&D projects targeted to the developing world.

16 UNICRI – United Nations Interregional Crime and Justice Research Institute, *Counterfeiting, A global spread, a global threat*, Turin, 2008

The conduct of clinical research of drugs has, of course, as its final objective, the marketing of a new product. Generally, newly patented drugs are marketed at high prices to regain the costs of R&D. According to the Tufts Centre for the Study of Drug Development[17] the average time for an experimental drug to reach the market is 10 to 15 years. Only 5 in 5.000 compounds that enter pre-clinical testing are admitted to human testing. Eventually, one of these 5 reach the market. On average, it costs US$1.3 billion for research, development and marketing of a new drug. With the growth of the market for generic medicines and the patents on bestselling drugs expiring, the pharmaceutical industry is facing new challenges in the development of innovative R&D products relevant to developing countries.

The TRIPS Agreement followed by the 2001 DOHA Declaration[18], and by the WTO Decision of 30 August 2003[19] have especially made the pharmaceutical industry cautious to invest into new R&D for developing countries, due to the fear of losing profits from being forced to sell at marginal costs. In the field of AIDS for example, the number of new compounds under development has strongly declined between 1998 to 2001 from 250 to 173.

Article 31 of the TRIPS Agreement, in particular, addresses the use of "compulsory licences" a number of mechanisms that allow governments or third parties authorized by the governments to use a patent, behind payment of royalties, without authorization of the right holder, for the production of medicines that have a national relevance or in a state of emergency. Together with "parallel importation", that allows countries to shop around for the best price of a branded drug on the global market, without permission from the patent holder, this mechanism has been actively used by emerging market economies such as India,

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17 Tufts Centre for the Study of Drug Development (Accessed at http://csdd.tufts.edu/Default.asp on December 2008)

18 The WTO's Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) allows governments and third parties authorized by governments to issue compulsory licences in specific circumstances, including public health emergencies, to use a patent without authorizaton by the right holder. This Agreement has paved the way to the production of generic versions of branded name drugs at much lower prices. However, the TRIPS Agreement also stipulates that the generics thus produced should be "predominantly" for the domestic market, thus limiting the amount that can be exported to countries with an insufficient domestic pharmaceutical base.

19 The DOHA Declaration on the TRIPS Agreement and Public health reaffirmed flexibility of TRIPS member states in challenging patent restrictions for better access to essential medicines and mandated WTO to find a solution, by the end of 2002, to the inability of some countries to use compulsory licenses to produce the needed medicines because they lacked the necessary manufacturing infrastructure, while those countries that had such capability were not permitted to export to them. For months, WTO member states cold not reach agreement on how to ease the importation restrictions, the debate being stalled by the US, under pressure from the pharmaceutical lobby. In August 2003, WTO member states decided to waive the TRIPS domestic consumption requirement under certain conditions to allow poor countries to import drugs produced under compulsory licence elsewhere. This provisional waiver was made into a formal amendment to the TRIPS Agreement in December 2005, despite criticism from health activists that its administrative requirements were so complex that no country had tried to use it.

Thailand, Brazil and partially South Africa, that can count on their national pharmaceutical base to manufacture generics. Developing countries with no manufacturing capabilities still rely mostly on direct negotiation for lower prices with pharmaceutical companies.

It should be noted, in fact, that, although the 2003 WTO Declaration was issued in order to facilitate export of medicines to those countries declaring a drug to be of national interest, but not being able to produce it themselves, the bureaucratic procedures for its implementation are so complex, that, at the end of 2007, only one country in Africa, Rwanda, had successfully implemented the decision by importing AIDS drugs generic versions from Canada. In addition, developing countries with pharmaceutical capabilities, like Kenya, feel the WTO Decision will eventually curb the growth of their own pharmaceutical industry, by forcing them to sell only to countries with declared sanitary emergency[20].

The implementation of the TRIPS Agreement is currently under scrutiny within the UN Sub-Ccommission on the Promotion and Protection of Human Rights, which, in a Resolution issued in 2000, had already recognized how the intellectual property regime embodied in the TRIPS was in conflict with the international human rights law, for the practical difficulties it raises in connection with both granting broader access to medicines for countries in need, and in the obstacles it puts to the development of new generic formulations for ARV treatments, in particular second line treatments.[21]

Logically, in a developing context, patenting issues have a direct influence over access to medicines. On the one side, pharmaceutical companies recognize the growing importance of emerging market economies and their potential as new drug markets. For example, already in 2000, Brazil ranked sixth in the global market sales for medicines consumption. On the other side, to protect their profits and products, pharmaceutical companies are forced to keep under control the potential for internal production of developing market economies.

In fact, when the TRIPS Agreement went into force, disputes focused on the use of compulsory licenses for import of generic versions of patented products. More recently, the focus has turned to preventing emerging economies from getting patenting grants. India, for example, is currently considered the "pharmacy of the developing world" as being the country where most of the generic versions of antiretroviral drugs are produced. In August 2007, an Indian High Court ruling upheld India's Patent Act against Novartis, a Swiss pharmaceutical company, that had sued the Indian government declaring its 2005 Patent Act uncostitutional and not granting enough protection to intellectual property. India recognizes patent

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20 Novak K., *The WTO balance act*, J. Clin. Invest., 2003, Vol. 112, No. 9, Pages 1269-1273

21 United Nations, Commission on Human Rights, Sub-Commission on the Promotion and Protection of Human Rights, *Resolution 2000/7 of 17 August 2000, Intellectual property and human rights*, UN Doc. E/CN.4/Sub.2/2000/7

only on innovative products. A patent on the same products, with different applications or a modification on a molecule already invented would not be granted under Indian law. Many developing countries governments and charity initiatives currently rely heavily on India for purchase of affordable drugs.

It is clear that pharmaceutical companies definitively prefer to reach an agreement with the governments for provision of their drugs at a set price, to prevent the issuing of compulsory licenses or grants, sometimes also pressuring their own governments to take steps. Recent episodes of undue pressure from donor countries that have strong pharmaceutical lobbies, on developing countries to prevent internal production of AIDS treatments are a typical example.[22]

There is plenty of evidence that compulsory licenses are drastically improving access to medicines that are dramatically crucial to developing countries, facilitating the long-term implementation and sustainability of national treatment plans. Some recent examples will illustrate this issue. In 2003, the Brazilian government issued a decree that would allow it to produce or import generic anti-AIDS drugs without the consent of companies holding the patent on those medications. Merck was the holder of most of the patents and apparently the Ministry had sought a reduction of more than 40%, but was offered by the company a maximum discount of 6.7%. Brazil and Merck eventually reached an agreement. In 2005, the Health Minister signed a decree declaring the patent of Kaletra in the public interest and appropriate for compulsory licensing. A subsequent settlement with Abbott reduced the price of Kaletra by 46%.

In 2005, the government of Brazil declared that they were considering issuing compulsory licenses to permit the manufacture of tenofovir (Gilead's brand name Viread). Gilead offered, in 2006, to reduce the price of Viread in Brazil by approximately 50% the price charged in the USA, still a high price, considering the difference in income and the high percentage of HIV positive people under treatment in the country. In August 2008, the Brazilian Government, pressured by civil society organizations, rejected Gilead's request for marketing authorization of tenofovir. This decision allows Brasil to produce or import a generic version of the drug at a reduced price, as it has happened in the recent past with other antiretrovirals,[23] their market price dropping by 80%, after emerging market economies started producing and selling their generic version. The Indian company Cipla is currently waiting for WHO prequalification to sell a version of tenofovir that would cost almost ten times less than the price Gilead is charging to Brazil[24].

Naturally, under international trade agreements, Brazil may not import from India the tenofovir produced under voluntary licence from Gilead. That is why granting

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22 For ex., in 2006, the US Department of State and the Trade Representative intervened with Thailand's decision to issue a compulsory licence on patents for the AIDS drugs efavirenz.

23 See South Africa.

24 $158 per patient per year, as compared to the $1.387 per patient per year, currently charged by Gilead to Brazil.

permission to emerging market economies to produce generics (WHO prequalifcation programme was created to this purpose) can make a huge difference in the long term sustainability of national treatment programmes.

In 2007, for example, Brasil replaced the branded version of efavirenz with a generic version produced by India, following a refusal by Merck to reduce the price. AP/Forbes calculated that, by adopting the generic version, Brazil would save $240 million by 2012, when Merck's efavirenz patent is due to expire[25].

Thailand also issued a compulsory license for purchasing of a WHO pre-qualified generic form of efavirenz from Ranbaxy, and the price dropped from 1400 baht per patient per month to 650 baht per month (~US $43 to US $20). The reduction in price is allowing Thai health authorities to treat an extra 20,000 patients. Prior to issuing a compulsory license in November 2006, only those suffering from the most severe side effects from another drug, nevirapine, received efavirenz. (As opposed to the US, where, in 2004, efavirenz was the most prescribed first-line ARV, representing 65% of all NNRTI prescriptions.)

Brazil and Thailand have stood out among developing countries for their efforts to expand treatment opportunities for AIDS patients. Brazil, which is the country with the highest percentage of HIV infections in Latin America, launched its programme for Universal Access to AIDS Treatment in 1996, currently directed to approx. 160.000 people. The programme, which is free through the national health system, includes 17 antiretrovirals, eight domestically produced in their generic version and nine imported brand-name drugs. It should be noted that just three of the branded-name drugs cost Brazil 63% of its total budget dedicated to purchasing AIDS drugs.

The European Union with the Regulation 816/2006 has issued guidance on the use of compulsory licenses of patents relating to the manufacture of pharmaceutical products for export to countries with public health problems and that lack sufficient manufacturing capacity. In line with the WTO 2003 Decision, it states that there are no limits on the scope of the disease and the use is extended to all medicinal products as defined in Directive 2001/83/EC. Compulsory licenses are mandatory and prior negotiation with right owners are waiwed in case of national emergency.

In Africa compulsory licenses are now starting to be used more commonly[26], although governments still rely heavily on donations or direct price-cut agreements with pharmaceutical companies[27].

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25 Efavirenz was sold by Bristol Myers Squibb in the USA for $15.67 per day. Merck, that was responsible for distribution of efavirenz in the developing countries, was selling it to Brazil for 1.59 per day. The generic price was approximately $.45 per day and falling as demand for the generic version would grow.

26 Packard Love J., *Recent examples of compulsory licensing of patents*, Research Note, 2007:2 (1)

27 Nevirapine for example is offered for free in 40 countries and Boehringer Hilgelheim has been providing its Viramune for free to countries to prevent mother to child transmission of HIV1, since 2000.

In Africa, especially in the Sub-Sahara, the problem of access to medicines and treatments due to unaffordable drug prices and the lack of necessary personnel and infrastructure reaches dramatic heights and is deeply intertwined with social and political issues, such as corruption and instability. In addition, awareness of intellectual property as a crucial means for the development of a knowledge economy is considered very poor in Africa, where intellectual property is widely consumed but not much created.[28] In addition, there is no awareness of the importance of patenting drugs within countries. Most national patent laws are very recent, but in Africa they are almost non existent. With the lack of national regulations, drug companies do not even file requests for patenting. In an article published by JAMA, authors analize the patenting status of 15 antiretroviral drugs in 51 african countries. They found that drugs were patented only in a few countries. Luckily, this did not correlate with access to medicines.[29]

Various strategies have been proposed to encourage research and development into vaccines and neglected diseases of developing countries at the same time broadening their access and affordability.[30] [31] The focus of the debate is how to create incentives for R&D in diseases relevant to developing countries, in a scenario that sees the pharmaceutical industry as being the biggest investor in R&D on the one side and, on the other the developing world covering a very little quota of the global market sales. Africa, for example, accounts for 14% of the word population but represents just 1% of the generic drug market sales and 0.4% of the global market sales. In comparison, Europe and the United States, representing respectively 11% and 5% of the world population, account for 30% and 45% of the world generic drug market. Only in 2006, the global pharmaceutical sales in North America were 5 times higher than in Africa. Even in the case of drug donations to developing countries, it is evident how the large profits from sales in the developed markets easily allow pharmaceutical companies to recover their costs[32]. It is important to note that emerging economies that try to open new markets for their generics, also assist African countries in starting local production of generics, as in the case of Zimbabwe, that started recently its own production of antiretrovirals with assistance from an Indian private company[33].

Advance market commitments have been proposed as an effective and low risk tool for investing in R&D into neglected diseases of the poor. Under such scheme,

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28 Nwauche E.S., *A development oriented intellectual property regime for Africa*, 11TH General Assembly of the Council for the Development of Social Science Research for Africa (CODESRIA), Maputo, Mozambique, 6-10 December 2005

29 Attaran, A., Gillespie-White L., Do *patents for antiretroviral drugs constrain access to AIDS treatment in Africa?*, JAMA, 2001, Vol. 286, Pages 1886-1892

30 Widdus R., White K., *Combating diseases associated with poverty. Financing strategies for product development and the potential role of public-private partnership*, Initiative on Public-Private, Partnerships for Health, 2004

31 Dionisio D., Cao Y., Hongzhou L. et al., *Affordable antiretroviral drugs for the under-served markets: how to expand equitable access against the backdrop of challenging scenarios?*, Current HIV Research, 2006, Vol. 4, No.1, Pages 3-20

32 Barton , J.H., *TRIPS and the global pharmaceutical market*, Health Affairs, 2004, Vol. 23, No. 3, Pages 146-154

33 Packard Love J., *Recent examples of compulsory licensing of patents*, Research Note, 2007:2 (1)

developed countries sponsors would commit themselves to buy a product at a minimum set price for a number of people. For additional purchases, the price would progressively drop. Should no suitable product be developed, no payment would be made. This type of R&D financing has been considered a viable instrument in the latest years and taken into consideration within the 2006 G8 policy implementation. By estimating the offer size which would make revenue similar to the revenues made from investiments in typical commercial pharmaceutical products, it has been shown that a commitment comparable in value to that would be a highly cost-effective way to address the main diseases affecting developing countries and reduce the risk related to developing new products.[34]

Voluntary licenses have been also explored as a means to allow developing countries to sustain their efforts to allow broader and cheaper production and access to medicines for their populations, especially in the case of antiretrovirals. Although they impose payment of royalties, these licenses are based on a direct agreement between the patent holder and the generic producer. In comparison to compulsory licences, they do not require any change in the national legislation and they include non exclusivity, access to the owner's data as well as permission for export. Voluntary licences are also useful for boosting technology transfer and for creating the conditions for developing countries to create their own pharmaceutical production infrastructure and home-based factories. South-South co-operation seems to be especially promising in this field as China and India, currently the biggest producers of generic drugs, are capable of selling at very affordable prices the active pharmaceutical ingredients to produce antiretrovirals to Sub Saharan countries and assist in building their plants. WHO could play an essential role in assisting the negotiation of this type of commercial deal in developing settings.[35]

The debate surrounding the need for protection of intellectual property rights are mainly challenging the industry's capacity and willingness to balance trade concern and protection of economic interests with the moral obligation that calls for facilitating the access to essential medicines, in settings where low resources are threatening the very existence of persons. In 2006, a group of countries presented to the UN General Assembly a programme, UNITAID, to establish an international drug purchase facility based on a patent pool to manage patent rights collectively in order to increase access and reduce prices of drugs for treatment of AIDS, malaria and tubercolosis. In October 2008, the United Nations Secretary-General met with seventeen of the world's research-based and generic pharmaceutical and diagnostic companies to review progress on strengthening efforts to expand access to HIV services in low- and middle-income countries. The meeting took place immediately after the high-level gathering on the Millennium Development Goals where Member

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34 Berndt E., Glennerster R. Kremer M. et al., *Advance Market Commitments for vaccines against neglected diseases: estimating costs and effectiveness*, Health Econ., 2007, Vol. 16, Pages 491-511

35 Dionisio D., *Profit rules and the right to appropriate antiretroviral treatments: suitability of incentive-bound WHO-mediated voluntary licenses for equitable long-term solutions*, WHO Intergovernmental Working Group on Public Health, Innovation and Intellectual Property (IGWG), Web-based public hearing, 1-15 November 2006.

States agreed to increase funding for research and development of essential drugs to treat AIDS and other diseases. According to UNAIDS, the number of people receiving antiretroviral treatment in low-and-middle income countries was 3 million at the end of 2007, but this figure represents only one-third of those who are in need of antiretroviral treatment.[36]

The Size and Type of Clinical Research in Africa

In the era of globalization, biomedical research involving human participants poses global challenges at many levels. In particular, a growing number of clinical research studies are being conducted in developing countries. Already in 2001, the United States Office of the Inspector General of the Department of Health and Human Services reported that the number of US sponsors conducting drug research abroad had increase 16 times in a decade, from 271 in 1990 to 4,458 in 1999.[37]

In our last access, in October 2008, Clinicaltrials .gov[38] listed 62.756 studies being carried out globally. Of these, Africa hosted 1425. Within this number, placebo controlled studies amounted to a total of 521.

Most of the studies that included placebo are interventional studies related to check the safety and the effectiveness of certain drugs in reducing the transmission of HIV between partners and from mother to child. Some others are related to the effectiveness of certain drug or product in preventing transmission.

Typical in this category are the trials that concern the testing of the effectiveness of vaginal gels to prevent HIV infection in high risk populations (generally sex workers). One, in particular, was a randomized, double-blind, placebo-controlled trial of cellulose sulfate[39], an HIV-entry inhibitor formulated as a vaginal gel, conducted in 2005 in Benin, Uganda, South Africa and India, involving 1398 women at high risk for HIV infection, which was terminated prematurely due to the evidence in the interim findings, that the cellulose sulfate gel did not prevent HIV infection and may have, in fact, increased the risk of HIV acquisition. This is a typical case where many ethical, legal and human rights issues are at stake and the effective protection of participants' rights, especially after completion of the trial, is

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36 Source: UNAIDS (Accessed at http://www.unaids.org/en/default.asp on December 2008)

37 Rehnquist J., *The globalization of clinical trials. A growing challenge in protecting human subjects*, Office of Inspector General, Department of Health and Human Services, United States, September 2001, OEI-01-00-00190.

38 http://clinicaltrials.gov (accessed October 2008)

39 Van Damme L., Govinden R., Mirembe F.M. et al., *Lack of effectiveness of cellulose sulfate gel for the prevention of vaginal HIV transmission*, N.Engl. J. Med., 2008, Vol. 359, No. 5, Pages 463-472

Table 5 - Total studies registered in clinicaltrials.gov as of October 2008

Region Name	No. of studies
World	62756
Africa	1425
Central America	1055
East Asia	3569
Japan	978
Europe	14226
Middle East	2121
North America	38128
Canada	5067
Mexico	845
United States	35400
North Asia	1007
Pacifica	1984
South America	1717
South Asia	893
Southeast Asia	981

Table 6 - Total number of placebo controlled studies registered in clinicaltrials.gov as of October 2008

Region Name	No. of studies
World	15043
Africa	521
Central America	324
East Asia	929
Japan	297
Europe	3920
Middle East	614
North America	8854
Canada	1560
Mexico	385
United States	8161
North Asia	477
Pacifica	711
South America	643
South Asia	368
Southeast Asia	304

very critical and difficult to ensure.

The Tenofovir Oral HIV Prophylaxis Trials[40], sponsored by the CDC and conducted in the United States, Botswana and Thailand provide another example of the critical issues surrouding clinical trials conduct. The trials, initiated in the USA and Thailand in 2005 and in Botswana in 2007 were supposed to last from four to six years. The studies were designed as an interventional, randomized, double blind and placebo controlled of pre-exposure prophylaxis, or PrEP, for HIV prevention. The study hypothesis tested the safety and efficacy of oral daily administration of the antiretroviral drug tenofovir disoproxil fumarate used alone or in combination with emtricitabine to prevent HIV transmission among three populations at high risk for infection: heterosexuals in Botswana, injection drug users in Thailand, and men who have sex with men (MSM) in the United States. The study envisaged a total enrollment of 4,000 participants divided as follows: 1,200 in Botswana, 2,400 in Thailand and 400 in the USA. The study design was also different among the sites. The Botswana and Thailand study tested the safety and the efficacy of the therapy, while the USA was an extended safety trial. Similar PrEP trials were also conducted in 2004 in Ghana, Cameroon, Nigeria and Cambodia by Family Health International (FHI), with funding from the Bill and Melinda Gates Foundation to show that tenofovir as a preventive drug was both safe and acceptable for use by HIV-negative individuals. Except for the study in the USA, all the tenofovir trials have been progressively terminated or halted and put under scrutiny at various stages due to pressure from civil society, patient's organizations and the media.

Although the efficacy of antiretrovirals has been shown to effectively reduce HIV transmission from infected mothers to their children during labor and delivery and in newborns by 50% as well as to reduce the risk of infection from accidental exposure in health workers by 80%, only data from animal studies are currently available that show tenofovir and tenofovir plus emtricitabine are effective in reducing the transmission of HIV-like viruses after a single exposure in healthy animals.

Tenofovir was approved in the USA in 2001 (brand name Viread®) for the treatment of HIV infection, while the combination pill tenofovir plus emtricitabine (together, known as the brand name Truvada®) was approved in 2004. According to the CDC, more than 200,000 HIV infected people currently use these drugs worldwide. Currently, tenofovir (and the combination pill) is considered the best candidate for preventive HIV therapies in high risk infection settings, due to its safety profile, with a relatively low level of side effects and a slow development of resistance, as compared to other antiretrovirals. The oral administration, once a day, with or without food, make it the most current convenient to use also in difficult clinical settings.

All the cited tenofovir PrEP studies had undergone review and approval by sponsor

[40] http://www.cdc.gov/hiv/resources/factsheets/prep.htm (accessed in October 2008)

IRBs and local RECs to ensure scientific and ethical validity and community involvement was established, by creating community advisory boards. Informed consent was obtained in the language of choice and explained that trial participation was not going to protect participants from HIV infection, Consent was, in some cases, preceded by the administration of a comprehension test.

All participants were to receive risk-reduction counselling and other prevention services (condoms and STD testing in sites where risk was related to sexual behaviour; methadone treatment programmes and bleach to clean needles in the case of injecting drug users). Participants infected during the trial received confirmatory testing, post-test counselling and assistance in enrolling in local HIV care programmes[41]. However, post-trial access to therapies was not clearly defined.

The reasons for the termination of the tenofovir studies are various. In each of the sites, activists raised concerns over heavy violations of human rights and ethical issues. In Thailand for example, the activists accused the sponsors of neglecting the participants' rights, for not providing clean syringes and for not following up in post-trial treatment. Sponsors claimed that clean needles were not provided, consistently with the drug national policy, in both the sponsoring and the hosting country. The Thai government was heavily criticized for the total absence of harm reduction policies in its policy that leads to widespread human rights abuses against IDUs.

In the Cambodia trial, activists groups forced the Ministry of health to stop the trial, and the protest became dramatic at the 2004 AIDS Conference in Bangkok, where activists attacked and closed the Gilead's Booth, accusing the investigators of providing inadequate prevention counseling, in order that participants would understand the repercussion of their participation, especially that participation in the trial would not protect them from getting infected by HIV or any other infection. Also participants faced a lack of pre- and post-test HIV counseling, and those who seroconverted or experienced adverse events were not provided with adequate medical services and insurance.

The Cameroon trial was also terminated and an independent inquiry commissioned by the Ministry of health was necessary to resume it, due to concerns raised about the complete inadequacy of prevention counselling, with a ratio of 5 counsellors for 400 participants and due to the absence of any agreement for provision of treatment after completion of trial. In addition, suspicions were raised that investigators were intentionally allowing participants in the placebo arm to become infected with the HIV virus, in order to raise evidence of the efficacy of the tenofovir.

Along the same line, on March 11, 2005, the Nigerian study was also terminated earlier, this time voluntarily by FHI due to the fact that local researchers failed to reach "the necessary standard" previously established to comply with the study.

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41 Botswana was one of the first countries in Africa to establish an antiretroviral therapy programme, beginning in 2002 and expanding across the whole country. AIDS treatment is offered free of charge within the national health system.

The Botswana study was terminated and volunteering participants were transferred to another study submitted in 2007 as a tenofovir/emtricitabine safety-efficacy PrEP study.

The concerns of the activists in all the tenofovir trials were mostly related to the protection of those participants who became positive to the HIV virus during the trials and whether they would have access to the state of the art antiretroviral therapy if and when needed. In addition, as prescribed by the DoH, the use of placebo against tenofovir did not represent the provision of the best prophylactic intervention available. In the case of the studies that involved female prostitutes (as in Nigeria and Cameroon) for example, the best prophylactic intervention would have been, next to adequate safe sex education and counselling, at least the provision of female condoms, in addition to male condoms, given the already little influence women prostitutes are likely to have on their clients regarding the use of condoms[42]. Being the primary endpoint of the study the number of new infections, it is difficult in these conditions not to see a conflict of interest between the investigators' necessity to meet their primary endpoint data and the need to protect and safeguard the human rights and health of participants.

According to Singh and Mills, "the rapidly collapsing tenofovir trial network shows that a lack of communication between activists, participants, and researchers can lead to suspicion, speculation, and, ultimately, damaging outcomes"[43]. The authors propose that also in the field of medical research the strategy of "preventative diplomacy" should be applied, where a conflict is kept from worsening by addressing it before or as it emerges, rather than when it has already escalated. In this type of conflict resolution mechanism, it is important to maintain a proactive strategy, not a reactive one, when dealing with relevant constituencies. In this way the concept of "collaborative partnership" would not remain just abstract theory but would be seen in action, and find its real application in the constructive involvement of all stakeholders groups, the investigator and the sponsor, in the decision making process, in addressing mutual interests and concerns and in the sharing of responsibilities along the way. Among the instruments that may be used to prevent the trial suspension due to escalating conflicts the authors include the establishment of early warning mechanisms (such as a community liaison officer), fact finding missions, confidence-building measures, such as the inclusion of activist groups in community advisory boards, engaging the media, education (particularly on important issues such as therapeutic misconception, compensation for study-related injuries, and post-trial benefits). According to the authors, the ultimate goal for all the people involved in the tenofovir trials was and still is to find an effective preventative agent against HIV infection. To this end, an effort is necessary in this situation where all stakeholders raise above particular interests and

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42 *Nigeria: Trial of tenofovir as a prophylactic against HIV suspended*, IRIN, Humanitarian News and Analysis, UN Office for the Coordination of Humanitarian Affairs
http://www.irinnews.org/Report.aspx?ReportId=53630 (accessed October 2008)

43 Singh JA, Mills EJ., *The Abandoned Trials of Pre-Exposure Prophylaxis for HIV: What Went Wrong?*, PLoS Med, 2005, Vol. 2, No. 9: e234

actively engage at all stages of the trials, to ensure that scientific validity goes along with respect of the human rights, health and well-being of the participants. Currently, with more than 30 AIDS vaccines that have failed to reach even phase 1 and just two currently being on pre-human phase trial, a PrEP pill would not certainly solve the AIDS pandemic and its estimated toll of 5 million new infections per year. However, if delivered alongside counseling, safe sex education, condoms and clean needles, a preventive agent would be a powerful tool for doctors around the world to fight the virus spreading, especially in those countries that are poorly resourced but most affected. That is why responsible media reporting, responsible conduct by investigators and sponsors to ensure the safeguard of ethical standards and actions by activists, based on informed opinion and communication are necessary to prevent premature cessation of a promising drug.

Unfortunately, other examples dramatically illustrate what can happen when biomedical research is conducted under unethical standards that take advantage of poor governance, lax legislation and a very precarious health care system.[44] Generally, this type of research is based on the application of double standards of care, as well as on a failure to consider aspects of distributive justice, especially in regards to post trial benefits, such as access to medicines or compensation for injuries deriving from the trial[45].

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44 Schipper I., Weyzig F., *Briefing paper on ethics in clinical trials, #1: Examples of unethical trials*, Stichting Onderzoek Multinationale Ondernemingen (SOMO) in collaboration with WEMOS, 2006

45 See as recent examples, the Pfizer trial of the drug Trovan in Nigeria or the Crixivan trial by Merck in Guatemala.

The Capacity for Education and Research on Health in Africa

The Algiers Ministerial Conference, held in June 2008, in preparation for the Global Ministerial Forum on Research for Health held in Bamako, Mali, in November 2008 was a promising initiative for a joint political action among African health ministers to improve health in Africa. Its key outcome was the 'Algiers Declaration', a list of 22 actions that Ministers agree to implement before the end of 2009. The actions are intended to strengthen national health research and information systems, foster African scientific knowledge and ensure that the contribution of health research to improve health in the region are delivered through the optimization of investments. A series of very important instruments are cited as a base for commitment, that have been adopted in recent years, such as the United Nations Millennium Declaration on Development (2000), the Abuja Declaration (2000), the Mexico Declaration (2004), the Paris Declaration (2005), the Accra Declaration (2006), the African Union Health Strategy (2007), and the Ouagadougou Declaration (2008).

In the whole document, the ethical issues are given great importance. The Ministers of health of the African countries consider "critical" the need to inform and protect human participants to research and commit themselves by the end of 2009 to 1) establish governance structures to promote ethics and increase public trust in research; 2) create sub regional centres of excellence that will focus on disease surveillance, public health laboratories and quality control of food and drugs 3) establish appropriate mechanism for scientific and ethical oversight of health research, including clinical trial regulation, sensitization of the people on their role, rights and obligations in matters of health research 4) develop a critical mass of focal persons and well trained national researchers 5) support the translation of research results into policy and action by creating appropriate mechanisms and structures, including promoting networks of researchers, decision-makers and policymakers for evidence-based public health action.

The Conference aimed to bring an African common voice and vision to the Bamako meeting. Ministers committed to increase the financial means dedicated to health in the African countries, which are currently accounting for an average 8% of the countries budget against the target of 15% set in the Abuja Declaration, to try to overcame the factors that hinder the development of health research, such as economic and political instability, inadequate public funding and lack of common political strategies.

In Algiers, together with establishing adequate funding, the Ministers discussed the necessity to set Africa's own priorities for health research and foster the North-South dialogue, in order to ensure that the health agenda of the developed world donors is not imposed on the Continent's research priorities.

Setting research priorities through information sharing, networking and training of professionals and policy makers should, in fact, be coupled with the need to encourage not only international collaboration but also South-South collaboration.

This type of collaboration is still scarce but is growing in importance and its main value is that it can provide a clearer perspective on Africa's health priorities and on the targets for research investment. South-South collaboration can also greatly help to strengthen the academic and scientific environment that is currently extremely inadequate and under-resourced in Africa[46]. New opportunities for South-South collaboration are offered by the emerging economies of Brazil, China, India and South Africa in the form of university scholarships and research collaboration activities.

One of the commitment of the Algiers Declaration, to build centres of excellence at the sub-regional level, is both welcome and challenging given the current situation in Africa, that accounts for only five universities among the world's top 500 (four in South Africa and one in Egypt)[47] and only one National Foundation, the South African National Research Foundation. In the recent years, a series of initiatives have been taken to strengthen the capacity for science and technology innovation in developing countries, and in particular Africa. At the 2007 African Union Summit of 2007 in Ethiopia, 53 African leaders approved regional cooperation strategies for the promotion of science and technology, with particular reference to biotechnology, proclaiming 2007 the year of African scientific innovation[48]. African leaders pledged money to increase investment in science and technology. Ghana, Kenya, Rwanda Tanzania, Zambia, Malawi are among the countries that are currently making the biggest efforts in investing more resources in this field. In 2006, Nigeria announced plans to launch a science foundation with a US$5 billion endowment; in the same year, Uganda received a US$25 million loan from the World Bank to support science and technology, including the creation of centres of scientific excellence, based on Uganda's successful efforts to build its own capacity in public health and agriculture. Developed countries are still the main investors into this promising trend. The Report "Our Common Interest" prepared in 2005 by the Commission for Africa, a UK initiative presented at the Gleneagles G8 summit[49], calls on G8 countries to provide US$5 billion to help rebuild Africa's universities and an additional US$3 billion to help establish centres of scientific excellence in Africa. Even though the G8 member countries unanimously pledged to support these recommendations, to date, only US$160 million has been authorized for the creation of networks of centres of excellence proposed by NEPAD (the AU's New Partnership for Africa's Development). The World Bank and several private foundations have supported projects in developing countries for the training of young scientists.

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46 Wagner C. S., Brahmakulam I., Jackson B., Wong A., Yoda T., *Science and Technology Collaboration: Building Capacity in Developing Countries?*, RAND Corporation, March 2001

47 *The Top 500 World Universities*, *Academic Ranking of Top World Universities 2007*, Institute of Higher Education, Shanghai Jiao Tong University, 2007

48 Hassan, M.H.A, *Sunlight and shadows in the South*, TWAS Newsletter, 2007, Vol. 19 No. 1

49 Commission for Africa, *Out Common Interest*, 11 May 2005
(http://www.commissionforafrica.org/english/report/introduction.html#report, accessed September 2008)

The need for African countries to invest in capacity building in scientific and technological innovation is the more urgent as more young scientists leave their home countries to find more rewarding professional careers and a climate of social stability and security.

The so-called Africa "brain drain" is becoming a serious trend with 20,000 professionals lost each year since 1990, according to IOM and increased dependence on foreign expertise, with more than 150,000 expatriates being hired at a cost of US $4 billion per year[50]. The United Nations Economic Commission for Africa (UNECA) states that "emigration of African professionals to the West is one of the greatest obstacles to Africa's development." The loss of investments from higher education is also a dramatic problem, since graduates in African universities leave or fail to return home at the end of their studies. In Ghana, a loss of approx. £35 million in training investment only for health professional was recorded over 4 years (1998-2002) as compared to the UK that, by hiring Ghanaian doctors, saved £65 million in health costs. In Ghana, between 1986 and 1995, 61% of the students of one medical school had left to migrate to developed countries.[51] 600 to 700 Ghanaian physicians were practicing in the USA alone in 2005, a figure that represents roughly 50% of the total population of doctors in Ghana.

Brain drain is creating an increasing dramatic situation especially in the health sector, where the shortage of health professionals is putting at risk an already weak health delivery system. High income countries sustain their high percentage of health care workers, which is currently ten times higher than the minimum WHO standard of 20 physicians per 100,000 people, by recruiting medical graduates from middle and low income countries through recruitment agencies and specialized corporations that use very aggressive strategies, including advertising in local newspapers, establishing offices that offer recruitment workshops, personal email to health workers. Offers of employment include legal assistance with immigration, the coverage of relocation expenses and guaranteed earnings twenty times higher than the average in their countries. In contrast, two thirds of the 47 Sub-Saharan African countries fall short of the minimum World Health Organization (WHO) standard. In Sub-Saharan countries, there is an average of 1 physician for every 8000 people and in some countries, like Malawi, the physician–population ratio is 0.02 for every 1000 (1 per 50.000).

The impossibility for health workers to provide for the minimum health care services in a setting already burdened with the highest rates of communicable diseases and with insufficient infrastructure is reflected in the high mortality rate

50 Tebeje A., *Brain drain and capacity building in Africa*, The International Development Research Centre, 2005

51 Dovlo, D., Nyonator, F., *Migration of Graduates of the University of Ghana Medical School: A Preliminary Rapid Appraisal*, Human Resources for Health Development Journal (HRDJ), 1999, Vol. 3, No. 1, Pages 34-37

that afflicts these countries. Mills and coll.[52] argue that the active recruitment of health workers from sub-Saharan countries should be considered as a crime under international law, due not only to its magnitude, but also to its being a widespread phenomenon that is causing social alarm, contributing to the dilapidation of essential health care infrastructure and provoking a future dire public health crisis.

While supporting the health care workers rights to expatriate in order to find a better chance for career development and better life conditions, high income countries should try to compensate low income countries for the loss of their professional manpower.

Currently, more than 35% of the total official development assistance from developed countries to Africa is spent on expatriate professionals. Due to that, recent international law and instruments call for active recruitment of health workers to stop[53] and set the minimum standard for compensation of loss in the form of contribution to the betterment of the health structure of the delivering country. Governments affected by the loss of health personnel also have a primary responsibility to address the reasons for migration and to use incentives to retain their professional workforce, through the improvement of local conditions. High income countries on their side could contribute with repatriation grants, building and staffing of clinics and health delivery infrastructures and training initiatives.

African governments have recently taken a common position on this phenomenon, by considering the African Diaspora part of their development efforts[54]. The New Partnership for Africa's Development (NEPAD) calls for the establishment of a reliable, continental database to determine the magnitude of the problem of brain drain and to create the necessary conditions to curb it. Among the latest initiatives, the United Nations backed project "Reversing Brain Drain into Brain Gain for Africa" consists of the installation of the first computing grid at Cheikh Anta Diop University in Dakar as part of a joint initiative by the UN Educational, Scientific and Cultural Organization (UNESCO), Hewlett-Packard and the Grid Computing Institute of France's National Centre for Scientific Research (CNRS). This will be the first sub-Saharan African component of the grid infrastructure created in 2004 by the European Union that joins colleges in five African countries.

Other initiatives regard the strengthening of the presence of African research reporting in the international publishing arena. Currently, at the level of scientific research reporting, the total contribution of the developing countries to the world's scientific publication is 22%, of which 1.4% is represented by countries in Africa,

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52 Mills E.J., Schabas W.A., Volmink J. et al., *Should active recruitment of health workers from sub-Saharan Africa be viewed as a crime?*, The Lancet, 2008, Vol. 371, No. 9613, Pages 685-688

53 WMA Ethical guidelines for the international recruitment of physicians, the WHO task force against the brain drain, the Commonwealth Code of practice for the international recruitment of health workers.

54 In July 2001, the Organization for African Unity – the former African Union (AU) - adopted a resolution urging its Member States "to develop strategies for utilizing the scientific and technological know-how and skills of the African Diaspora for the development of the continent." and to consider the African Diaspora as the sixth region of Africa, after North, South, East, West and Central Africa.

with South Africa and Egypt accounting for more than half of the continent's whole percentage[55]. Recently, editors from the most prestigious scientific journals have launched The "African Medical Journal Partnership Project"[56] organized by the US Fogarty International Centre and the National Library of Medicine (NLM), to foster capacity building in medical publishing in Africa and to assist African Journal develop their capacity to attract scientific research reporting by matching their journals with African journals.

The Capacity for the Ethical Review of Research in Africa

Closely interrelated to the necessity to strengthen education and research within developing countries health systems is the necessity to foster and sharpen the ethical capacity for evaluating health research, in view of the recent and massive increase in pharmaceutical research globally. High quality capacity for biomedical research review is a key component of health development that should always keep into account the cultural, social and economic context of the country where research is conducted. Unethical research leads to failure in delivering useful interventions and decreases public trust in research.

As pointed out in an Editorial in the NEJM published in 2001, there is also a growing need for transparency in the sponsorships of clinical trials, especially in countries with poor regulatory infrastructure, and in the ability to evaluate such sponsorships in ethical terms[57]. Still, to date, against the growth in international research, there has been no commensurate investment in the development of ethics review capacity and infrastructure in the developing world.

Research inspections based on the international guidelines and on good clinical practice (GCP inspections) assure clinical trial data reliability and guarantee the patient's rights. These requirements are necessary for the scientific and ethical assessment of the research protocol and for the subsequent medicinal marketing authorisation. The reliability of research protocols and investigational sites also derives from many factors, the most important being a regular and systematic inspection, analysis and evaluation by Research Ethics Committees (REC). Data resulting from multinational clinical trials performed in many countries are utilised for the purpose of marketing authorisation. Clinical data obtained from Countries with high qualitative level of GCP inspection systems are considered by National Regulatory Authorities more reliable.

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55 Hassan, M.H.A., *Collaboration requires a strong home base*, 14 May 2008 (http://www.scidev.net/en/science-and-innovation-policy/south-south-cooperation/opinions/collaboration-requires-a-strong-home-base.html, accessed September 2008)

56 Tillet T., *Global collaboration gives greater voice to African journals*, Environmental Health Perspectives, 2005, Vol. 113, No. 7, Pages A452-A454

57 *Sponsorship, authorship and accountability*, Editorial, NEJM, 2001, Vol. 345, No. 11, Pages 825-827

In Africa, the scarcity of trained bioethicists and of the capacity for advanced institutional training is hindering the development of a genuine leadership that can direct in the creation of an African philosophy of research ethics, focused on problems that affect Africa directly.

These general considerations are necessary to understand the complex background against which the work of Research Ethics Committees (REC) in developing countries is set. Previous review and approval of a research protocol by an independent ethical committee is in fact a recognized international ethical standard for research with human participants. A competent review of research is necessary to address ethical concerns. Review of research proposals by an ethical committee does not guarantee that the trial will be conducted in an ethical manner, especially if no subsequent follow-up monitoring activities are carried out. However, it helps to ensure that the substantive ethical concerns raised by the study protocol are addressed within their peculiar context, at the same level of importance as that of scientific considerations.

It is evident that the role of RECs is fundamental in ensuring the protection of the dignity, the rights, the safety and well-being of participants to clinical research. For this reason, more efforts should be put in ensuring their institutional creation and establishment as well as in building their capacity for ethical review.

Only recently, globalisation of research has increased the need for more efforts in building the capacity for ethical review in developing countries. A series of initiatives, coordinated primarily by UNESCO[58], WHO[59] and TDR[60] are aimed not only to strengthen ethics curricula and to increase access to training for individual members of RECs, but are also directed to assist in the creation and formal establishment of national and institutional RECs.

At the European Union level, the activities of EDCTP in working in partnership with developing countries has been notable for the variety of approaches and the amount of funding devoted to raising the understanding of the value of ethics in clinical research.

At the national level, the United States Government and US private foundations, such as the Bill and Melinda Gates Foundation, have been very active in promoting the ethical training of RECs, through University exchange programmes or internet-based courses.

Africa, for its particular placement within the developing context, is the continent that possibly raises the highest number of challenging issues in this field. Composed of 53 States, Africa is home to 34 of the 49 least developed countries in the world.

58 UNESCO -United Nations Educational, Scientific and Cultural Organization, UNESCO – ABC Project "Assisting Bioethics Committees", 2006

59 See WHO – World Health Organization, Ethics and Health Department Unit (http://www.who.int/ethics/about/en/index.html),

60 See SIDCER, the "Strategic Initiative for Developing Capacity in Ethical Review" (http://www.sidcer.org/new_web/index.php)

Political and social instability, as well as poor governance and corruption are slashing the continent with frequent war crises and severely hindering its development. In the health field, Africa is still the continent that invests less of its national resources in building its health sector and in fighting endemic diseases, of which malaria, HIV and tuberculosis are the ones that receive the most attention from the international community in terms of research investment.

In 2001, the WHO Regional Office for Africa (WHO-AFRO) had expressed concern that some studies conducted in the Region were not subject to ethical review. In 2004, an article published on the Journal of Medical Ethics[61] revealed that one quarter of the studies conducted in developing countries were not subject to any form of ethical evaluation. In a study that assessed the ethical review process in Sudan, published in the same year, a questionnaire submitted to 95 researchers, revealed that only 30 had submitted their proposals to a REC for review and 61 had never submitted any proposal for ethical review.[62]

In 2003, WHO-AFRO carried out a study among the 48 Member States to determine which one did not have a national REC. The study[63] revealed that of the 28 Member Countries that responded to the questionnaire, only 18 confirmed the existence of an official REC. 10 countries did not have a REC, but reported to have some form of ethical review mechanism, mostly consisting in ministry of health officers selected ad hoc to review proposals. REC composition also varied significantly. Most of them were composed of public health professionals from the ministry of health or universities. Out of 26 countries, 22 indicated that ethical approval of research was required. It is important to note that the protection of human rights, safety and health of participants to research poses important challenges in the remaining 4 countries that indicated ethical approval was not required. In addition to that, even in those countries that reported requirements for ethical approval, the study could not determine what proportion of protocols were actually approved before being implemented and, most of all, what proportion of approved studies were actually monitored by RECs during the cycle, design, data collection, analysis and dissemination of results.

Other recent studies that report on the existence and on the functioning of RECs [64] [65] have tried to establish, without difficulty, whether research ethics committees are not only in place, but capable to carry out their functions.

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61 Hyder A.A., Wali S.A., Khan A.N. et al., *Ethical review of health research: a perspective from developing countries researchers*, J.Med. Ethics, 2004, Vol. 30, Pages 68-72

62 Elsayed D.E.M., *Assessment of the ethical review process in Sudan*, Developing World Bioethics, 2004, Vol. 4, No. 2, Pages 154-159

63 Kirigia J.M., Wambebe C., Baba-Moussa A., *Status of national research bioethics committees in the WHO African Region*, BMC Medical Ethics, 2005, Vol. 6:10

64 NEBRA - Networking for Ethics on Biomedical Research in Africa Science and Society, *Final Report: networking for ethics on biomedical research in Africa (NEBRA)*, NEBRA, 2006

65 Milford C., Wassenaar D. et al., *Resources and needs of research ethics committees in Africa: preparation for HIV Vaccine Trials*, IRB Ethics and Human Research, 2006, Vol. 28, No. 2, Pages 1-9

In a study published in 2007[66], the structure and functioning of RECs was investigated in a sample group of 12 RECs from 9 African Countries: the DRC, Ghana, Kenya, Nigeria, South Africa, Sudan, Tanzania, Zambia and Zimbabwe. In this group, only 4 RECs were established for a recognized need for independent review. The others were either sponsored by the US government under a US funded research project or established ad hoc for international collaboration projects. Composition varied, but as observed in other studies[67], only the oldest RECs recognized the importance of lay members and gender balance. Insufficient ethical training was a strong limitation as it created a disproportionate focus on the examination of the scientific aspects. Insufficient funding for operational activities such as organization of meetings and having an established secretariat was also a major cause for concern. Other important concerns were related to the difficulties in guaranteeing the independence of RECs, when the balance needs to be established between the institutional efforts to attract international funding, which can bring jobs medicines and intellectual prestige to a community[68] and the need to protect human beings from the risk of exploitation. In this respect, many have expressed concerns that developing countries may become the preferred choice for sponsors that shop for the easiest REC, to submit difficult protocols that would not be normally approved in developed countries.

The need for ethical review is as important as the need for scientific review: well grounded programmes can fail due to ethical problems that were not foreseen or not handled with the necessary skills when they were raised. To this purpose, next to REC members training, it is important to foster the capacity for ethics training of clinical researchers. Effective protection of research participants starts with preparation of a protocol that takes into account the ethical integrity of research.

It is now globally recognized by the international community that all efforts should be directed to reinforce the following areas on the way to the establishment of efficient inspection and evaluation systems in biomedical research:

1) Adequate education and training. This is the most serious problem for REC, that can jeopardize the entire inspection and review processes. All subsequent issues are connected or derive from the necessity to establish on-going educational curricula on ethics in research. Ideally, a quality assurance system (accreditation) should be set up for research institutions. This system would include the continuing assessment, improvement and auditing of REC activities.

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66 Kass N., Hyder A.A., Ajuwon A., Appiah-Poku J., Barsdorf N. et al., *The structure and function of research ethics committees in Africa : a case study*, PLOS Med, 2007, Vol. 4, No. 1, e3

67 Moodley K., Myer L., *Health research ethics committees in South Africa: 12 years into democracy*, BMC Medical Ethics, 2007, Vol. 8, No. 1

68 Kilama W.L., *Equipping Africa's researchers for global collaboration*, Science and Development Network, 2003

2) Promoting independence from political, institutional professional and market influences. Composition, decision-making procedures and financial resources need to be protected from any type of conflict of interest, that can generate within the institution due to hierarchical and peer influence, or when the sponsor of the research is the same institution conducting the review.

3) Promoting proper balance in internal composition and constitution. A balanced professional, age and gender distribution is essential to promote independency of ethical review, community research awareness and to counter corruption.

4) Challenge corruption in any shape and degree. Corruption and counterfeiting thrive in an environment of poor governance and exacerbated by poverty. (victimization of professionals, when they act as whistleblowers, trying to secure the integrity of research in ways that offend vested interests, illegal trial results and drugs marketing, infringement of trust in doctor-patient relationship, medical frauds, research abuses, ghost-written articles and reports, unexplained deaths in research studies).

5) Encourage the developing of national standard operating procedures and ethical guidelines, integrating international research expectations into national practices. In this way a broadening of the scope of REC would be attained, so that its activities would not be limited to legally bound research, i.e. only for trials submitted to the approval of National Drug Regulatory Agencies.

6) Foster the creation, promotion and support of independent, multidisciplinary and pluralistic RECs, through training and exchange of techniques and methodologies among countries, to improve harmonization according to GCP standards of inspections and ethical evaluation methodologies in the assessment of the results of clinical trials for the purpose of marketing authorization, with particular stress on the protection of human rights and respect of ethical standards and the prevention and control of counterfeiting and corruption phenomena.

7) Promote the process of international harmonization in the application of the good clinical practices and standards, by fostering awareness of biomedical ethics issues among legislators and policy makers and by assisting in the formulation of specific legislation for the protection of human participants in biomedical research.

CHAPTER IV

THE STATE OF LEGISLATION REGARDING ETHICS IN BIOMEDICINE AND ETHICAL REVIEW CAPACITY IN AFRICA, END OF 2008

Introduction

International principles governing research ethics are embodied in the Declaration of Helsinki[1]. Promulgation of international standards have also been set in other instruments, such as the CIOMS guidelines[2] and the ICH[3], while operating procedures are set out by WHO, TDR and UNAIDS.[4 5 6]

Recently, the UNESCO Universal Declaration on Bioethics and Human Rights[7] has provided a strong tool for governments to include biomedical ethics in the legislative agenda by bringing the attention to the close interconnection between human rights, ethical values and the protection of participants in clinical research.

Although international ethical standards lay down the general boundaries of ethical acceptability, they are considered limited in scope by the fact that they do not provide sufficient direction on the implementation of such standards and on their practical application, such as payment of research subjects or providing access to beneficial interventions once research is over.[8]

In addition, international standards are limited by their voluntary compliance i.e. they do not have the force of law and do not foresee procedures for enforcement of penalties against violations or offences. As a result, interpretation of fundamental ethical concepts of clinical research, such as "standard of care", "informed consent" or "distributive justice" have been challenged at various levels, due to the difference between the substantive validity of the principles underlying them and their procedural application. This becomes more pregnant when we turn to developing settings, where the lack of adequate control and legislation and the quality of the

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1 World Medical Association, *World Medical Association Declaration of Helsinki Ethical Principles for Medical Research Involving Human Subjects*, 1964 Amended in 1975; 1983; 1989; 1996; 2000; 2002; 2004; 2008

2 CIOMS – Council for International Organizations of Medical Sciences, *International ethical guidelines for biomedical research involving human subjects*, 2002

3 International Conference on Harmonisation of Technical Requirements for Registration of Pharmaceuticals for Human Use, *ICH E6 – Guidelines for Good Clinical Practice*, 1996

4 World Health Organization, *Handbook for Good Clinical Research Practice (GCP). Guidance for Implementation*, 2005

5 World Health Organization, *Operational guidelines for ethics committees that review biomedical research*, 2000

6 UNAIDS – Joint United Nations Programme on HIV/AIDS, *Ethical considerations in HIV preventive vaccine research*, 2000

7 UNESCO – United Nations Educational, Scientific and Cultural Organization, *Universal Declaration on Bioethics and Human Rights*, 2005

8 Lavery J., *The challenge of regulating international research with human subjects*, SciDevNet, Policy Briefs, June 2004

health care become critical issues. The debate over the article by Lurie and Wolfe[9] that discusses the ethical acceptability of the trials on the prevention of HIV perinatal transmission,[10] [11] [12] as well as the most recent debates on the trials of surfactants in Latin America[13] [14] can be considered perfect examples of how generalised principles can give way to opposite interpretations, when applied to limited-resource settings.

In addition to that, as clinical research identifies more and more with international multicentric trials, we are faced with the rising of a dangerous relativism that tends to direct the consensus on the basic principles that characterized bioethical thinking on human experimentation in the past, towards more utilitarian considerations (the international consensus vs the international principles). The United States, for example, announced, in 2004, that clinical research sponsored by US government would be subject only to US rules and regulations, no matter where it was being conducted. Apart from the critical issues raised by the legitimacy of applying national regulations trans-nationally[15], it is important to stress out that these regulations, that are still rooted in international principles, do not apply to private companies, which are currently the biggest investors in global health R&D and are mostly concentrated in the United States[16].

Many examples of abuses of international ethical guidelines in the conduct of biomedical research in developing countries, particularly in the most disadvantaged ones, such as Sub-Saharan Africa, pose the urgent need for the development of appropriate legislation and regulation. This legislative framework can provide clear guidance on the role of Research Ethics Committees and on critical issues such as standard of care, informed consent and what happens when research is over, especially as more and more research is conducted by foreign sponsors, who may rely on standards that have limited or no application in developing settings or who are reluctant to consider even rudimentary local statutes and guidelines.

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9 Lurie P., Wolfe S.M., *Unethical trials of interventions to reduce perinatal transmission of the human immunodeficiency virus in developing countries*, New Engl. J. Med., 1997, Vol. 337, No. 12, Pages 853-856

10 Varmus H., Satcher D., *Ethical complexities of conducting research in developing countries*, New Engl. J. Med., 1997, Vol. 337, No. 14, Pages 1003-1005

11 Angell M., *The ethics of clinical research in the third world*, New Engl. J. Med., 1997, Vol. 337, No. 12, Pages 847-849

12 Ijsselmuiden C.B., *Ethics of placebo-controlled trials of zidovudine to prevent the perinatal transmission of HIV in the Third World*, N. Engl. J. Med., 1998, Vol. 338, No. 12, Pages 838-841

13 Robert J. Temple, *Benefit to trials participants or benefit to the community? How far should the Surfaxin trial investigators' and sponsors' obligations extend?*, in: Lavery J.V., Grady C., Wahl E.R., Emanuel E.J.(Ed.), *Ethical issues in international biomedical research*, Oxford University Press, 2007, Pages 155-159

14 Lurie P., Wolfe S.M., *The developing world as the "answer" to the dreams of pharmaceutical companies: the Surfaxin story*, in: Lavery J.V., Grady C., Wahl E.R., Emanuel E.J.(Ed.), *Ethical issues in international biomedical research*, Oxford University Press, 2007, Pages 159-170

15 Dubois W., *New drug research, the extraterritorial application of FDA regulations and the need for international cooperation*, Vanderbilt J. of Transnational Law, 2003, Vol. 36, Pages 161-207

16 De Francisco, A. Matlin, S. (Eds.), *Monitoring financial flows for health research 2006. The changing landscape of health research for development*, Global Forum for Health Research, 2006

In the following pages we describe a research study that UNICRI carried out in 2008, in collaboration with the Italian Medicines Agency, to analyze the situation in Africa, as regards the existence of specific national legislation or guidelines on the protection of human participants in biomedical research and the presence of research ethics committees within the countries.

Methods

Within the framework of a research project in collaboration with the Italian Medicines Agency on the ethical and legal issues of biomedical research in developing countries, UNICRI research staff prepared a country information sheet for each African country, containing three questions, that aimed to investigate: 1) the existence of national specific legislation on ethics of biomedical research with human participants; 2) the existence of national specific guidelines or standard operating procedures (SOPs) concerning ethics in biomedical research with human participants; 3) the presence of national or institutional research ethics committees reviewing biomedical research with human participants.

Three responses were possible to these questions:

- YES, if enough evidence was to be found, to justify a positive response;
- NO, if enough evidence was to be found, to justify a negative response;
- NOT AVAILABLE, if the information collected was not sufficient to formulate a positive or a negative response.

Criteria to respond to the three questions were set as follows:

1) With regard to the first question, a positive response entailed the actual existence of national specific legislation on bioethics or specifically concerning ethics of biomedical research. This means that a negative response was given to this question if protection of human beings in research was only included in the Constitution or appeared cited in judicial codes and laws.

2) With regard to the second question, a positive response was given only if a country had ad hoc guidelines and/or SOPs regarding the ethical aspects of research and not just national guidelines regarding biomedical research with human beings.

3) With regard to the third question, it was decided to make no differentiation between national or institutional research ethics committees, i.e. governmental committees or committees within universities, research institutions, hospitals etc. due to the difficulty to investigate this issue in this type of study. As a consequence, a positive response entailed the presence of any one of these types of RECs. This choice was dictated by the fact that Africa, like many other developing countries has

not yet developed a uniform model for RECs[17] [18]. Typologies of committees that review the ethical aspects of biomedical research are different in terms of composition, internal regulation and are influenced by the differences in the cultural and historical heritage of the nations. A more in-depth research will be needed to collect data on the type and functions of RECs within the various countries.

Two different approaches, based on the analysis of primary and secondary sources of information were used to collect the information and data necessary to respond to the three questions, based on the above established criteria.

Primary sources of information included:

1) Country information sheets were circulated randomly, mostly by email, to individual experts, ministries of health, ministries of research, national research foundations in the 53 African States.

2) Meetings were organized with the Council of Europe, the European Commission, international experts, international organizations such as COHRED and WMA and United Nations Agencies and Programmes, such as the UNESCO Division on Science and Technology and the WHO Ethics and Health, Department of Ethics, Equity, Trade and Human Rights, to gain information from those constituencies directly involved in the issue of ethics in biomedical research.

3) Participation to international and regional conferences.

Secondary sources of information included:

1) Internet searches performed on the following databases:
the UNESCO GEOBs, the Harvard School of Public Health database and the International Compilation of Human Subjects Research database of the Office for Human Research Protection at the Dept. of Health and Human Services of the United States of America, the "Survol de la législation en matière de recherche en santé dans quelques pays d'Afrique" of the University of Neuchâtel.

2) Internet searches also regarded websites of NGOs, private foundations, scientific databases (PloS, PUBMED, MEDLINE), specialised scientific journals websites and governmental websites. The documents collected were organized, based on the type, in Excel spreadsheets, in order to create the following databases: Legislation,[19]

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17 *CASE STUDY – Choosing a Research Ethics Committee system amongst the existing models? Critical decision of a middle income country (Chile)*, (http://www.mies.mf.vu.lt/gfbr/docs/1.doc) (accessed july 2008)

18 Doppelfeld E., *Harmonization of research ethics committees – are there limits?*, Japan Medical Association Journal, 2007, Vol. 50, No. 6, Pages 493-494[19] Laws, Decrees, National Constitutions, Codes, Internal Regulations of Committees, Professional Ethics Regulation and Codes of Conduct, downloaded and collected from different sources: Council of Europe, World Medical Association, European Commission, European Parliament, National Governments, Departments and Ministries of Health, National Medical Syndicates and through emails sent by experts.

19 Laws, Decrees, National Constitutions, Codes, Internal Regulations of Committees, Professional Ethics Regulation and Codes of Conduct, downloaded and collected from different sources: Council of Europe, World Medical Association, European Commission, European Parliament, National Governments, Departments and Ministries of Health, National Medical Syndicates and through emails sent by experts.

Scientific Articles,[20] Guidelines,[21] Reports[22] Miscellaneous.[23] An additional database, denominated General Bibliography, was created to collect all the scientific material mentioned above. A list of experts and organizations, contacted during the research study, was also set up.

The documents and information collected were analyzed in order to respond to the questions in the country information sheets. The relevant documents pertaining to each country were also included in the country information sheets as bibliographical references.

Responses to the three questions on the country information sheets were verified step by step, as data collection proceeded through the analysis of the sources of information. In case of insufficient information, the country information sheets were left uncompleted or totally empty.

Data were collected over a period of 12 months (December 2007- November 2008), while country information sheets were completed during the period between May and November 2008. The data obtained in the country information sheets were entered in Excel spreadsheet and subsequently exported for data analysis.

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20 Scientific Journals websites: The Lancet, British Medical Journal, the New England Journal of Medicine, Indian Journal for Medical Research, Journal of Women's Health and Gender Based Medicine, the Journal of the American Medical Association, Schizophrenia Bulletin, Epidemiological Reviews, American Journal of Public Health, African Journal of Neurological Sciences, Health Care Annals, American Journal for Tropical Medicine and Hygiene, Sudanese Journal of Public Health, BMC Medical Ethics, Oxford University Press, International Journal of Surgery, Nature, Plos Medicine, Journal International de Bioéthique, Malaria Journal; free-resource websites for physicians and specialized websites: Medscape, Society for Women's Health Research, US National Cancer Institute website, ORWH- Office of Research on Women's Health, FDA – Food and Drug Administration, Pacific Bridge Medical, NIH Clinical Center- US National Institute of Health, Repère Médical, WARA-West African Research Association, WARC- West African Research Center, Bioethics Forum, Reseau Senegalais Droit Ethique et Santé, CEBACORES- Centro de Estudo de Bioética Polo Acores, SARETI- South African Research Training Initiative, IRCM- Centre de Bioéthique, IRD- Institut de Recherche pour le Développement, SCIDEVNET- Science and Development Network; International Organizations and NGOs websites: WHO, UNESCO, UNAIDS, COHRED- The Council on Health Research for Development, HRETIE- Health Research Ethics Training Initiative in Egypt and emails sent by experts.

21 Downloaded and collected from different sources: ICH, WHO ,WHO TDR, WHO SIDCER, CIOMS, UNESCO, EFGCP- European Forum for Good Clinical Practice, PhARMA- Pharmaceutical Research and Manufacturers of America, NIH- US National Institute of Health, Ministries of Health and National Ethics Committees.

22 Downloaded and collected from different sources: National Ethics Commitees, National Departments of Health, Universities, UNESCO, UNHRO, EGE- European Group on Ethics in Science and New Technologies, Nuffield Council on Bioethics, NEBRA- Networking for Ethics on Biomedical Research in Africa Science and Society, SOMO- Centre for Research on Multinational Corporations, WEMOS Foundation- Health for all, Nationaler Ethikrat, Centerwatch, Consumers International, SARETI – South African Research Ethics Training Initiative, COHRED- The Council on Health Research for Development, Global Forum for Health Research.

23 Downloaded and collected from different sources: National Governments, National Ethics Committees, Universities, EMEA- European Medicine Agency, PABIN- Pan African Bioethics Initiative, IBEST-Islamic Body on Ethics of Science and Technology, ISESCO- Islamic Educational, Scientific and Cultural Organization, UNECA, EURETH.NET- European Information Ethics in Medicine and Biotechnology, Office for Human Research Protections- U.S. Department of Health and Human Sciences, UNAIDS, UNESCO, Global Forum for Health Research, NLM- US National Library of Medicine of the National Institute of Health, National Institutes of Health Office of Extramural Research- US Department of Health and Human Services, FPMA- International Federation on Pharmaceutical Manufacturers and Associations, EFPIA- European Federation of Pharmaceutical Industries and Associations, Institut Pasteur, Fogarty AIDS International Training Program (AITRP), COHRED- The Council on Health Research for Development JPMA- Japan Pharmaceutical Manufacturers Association, PhRMA- Pharmaceutical Research and Manufacturers of America, FERCAP- Forum for Ethical Review Committees in Asia & Western Pacific, European, INSERM – Institut National de la Santé et de la Recherche Commission, ICJME- International Committee of Medical Journal Editors, Harvard School of Public Health, A+Science, Outsourcing Pharma, AMILCAR INTERNATIONAL CRO- Advice in Medical Investigation and Logistic for Communication and Research, DFID- Department for International Development, IDRC, Wellcome Trust, SAAVI - South African AIDS Vaccine Initiative and emails sent by experts.

In order to calculate the percentage of countries for which data were obtained (analyzed countries) and countries for which no data were obtained (not analyzed countries) as well as the extent to which the three questions had been answered, the country information sheets were counted and divided into three categories: fully completed, partially completed and totally empty. This last category refers to those countries for which no response was given to any of the three questions.

During the analysis, a problem was posed for those countries, which are currently working on a national legislation on ethics in biomedicine. These countries have been included in the list of analyzed countries if they already have some sort of biomedical research framework or institutions. Otherwise they were included in the list of not analyzed countries if they did not appear to have any regulations on biomedical research or any reported ethical review activity. This was the case for Malawi and Mauritius, which are currently working on the drafting of a national legislation on ethics in biomedicine and in the setting up of a national research ethics committee, but at very different levels and degrees of implementation.

The analysis of data aimed to calculate the prevalence of response to the three questions on the country information sheets: 1) the existence of national specific legislation on the protection of human participants in clinical research; 2) the existence of national specific guidelines or standard operating procedures on ethics in clinical trials; 3) the presence/absence of national or institutional ethics committee reviewing biomedical research with human participants.

Results

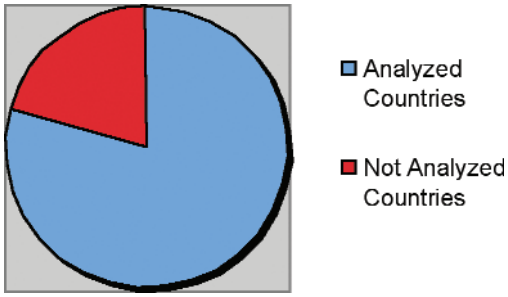
Information was received directly from 10 countries: Egypt, Malawi, Mauritius, Morocco, Nigeria, Senegal, South Africa, Tanzania, Togo, Tunisia. All other country information sheets were completed through the analysis of the documents collected, from the responses of experts meetings and from databases queries.

Of the 53 African countries analyzed, information was obtained for 42 countries (79,3%). The remaining 11 countries (20,7%) were left out of the analysis due to the fact that not enough evidence was found to respond to the three questions on the country information sheet.

Table 1. Number of analyzed and not analyzed countries

	Number of African countries	%
Analyzed	42	79,3
Not analyzed	11	20,7
Total	53	100 %

Figure 1. Percentage of analyzed and not analyzed countries

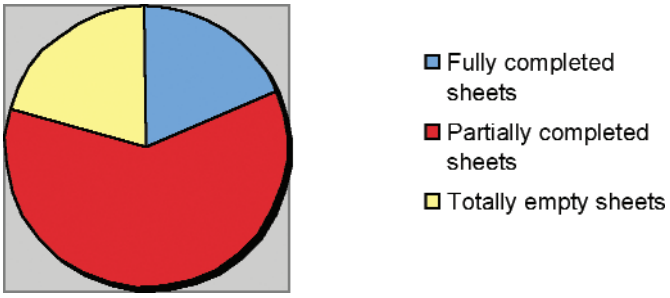


Based upon the above distinction, an analysis of data was carried out to identify the percentages of completed country information sheets, based on the responses to the three questions: 10 country information sheets (18,9%) resulted fully completed, 32 (60,4%) resulted partially completed and 11 sheets (20,7%), corresponding to the not analyzed countries, remained totally empty.

Table 2. Country information sheets completion rate

	No.	%
Fully completed sheets	10	18,9 %
Partially completed sheets	32	60,4 %
Totally empty sheets	11	20,7 %
Total	53	100 %

Figure 2. Percentage of country information sheets completion rate



Finally, the analysis was performed to identify the prevalence rates of response to the three questions contained in the country information sheets, by considering only the group of countries (N.42) with totally and partially completed sheets.

The results on this group of countries, were as follows:

1) With regard to the first questions, 4 countries (9,5%) have national specific legislation on ethics in biomedical research, 9 countries (21,5%) do not have any legislation and for 29 countries (69,0%) not enough evidence was found to formulate a response.

2) With regard to the second question, 8 countries (19,1%) have national specific guidelines or standard operating procedures (SOPs) concerning ethics in clinical research, 5 countries (11,9%) do not have guidelines and for 29 (69,0%) no evidence was found to formulate a response;

3) With regard to the third question, 31 countries (73,8%) have national or institutional research ethics committees that review biomedical research with human participants, 10 countries (23,8%) do not have any formal ethical review mechanism, for one country (2,4%) not enough evidence was found to formulate a response.

Table 3 summarizes the country responses given to the three questions contained in the country information sheet.

Table 3. Results of responses to the three questions of the study in the group of the 42 analyzed countries

Questions	YES	NO	N/A	%YES	% NO	% N/A
1) National specific legislation on ethics in biomedical research	4	9	29	9,5%	21,5%	69,0%
2) Guidelines and/or SOPs concerning ethics in research	8	5	29	19,1%	11,9%	69,0%
3) National/Institutional Bioethics Committees that review ethics of biomedical research with human participants	31	10	1	73,8%	23,8%	2,4%

Figure 3. Percentages of responses to the three questions of the study in the group of 42 analyzed countries

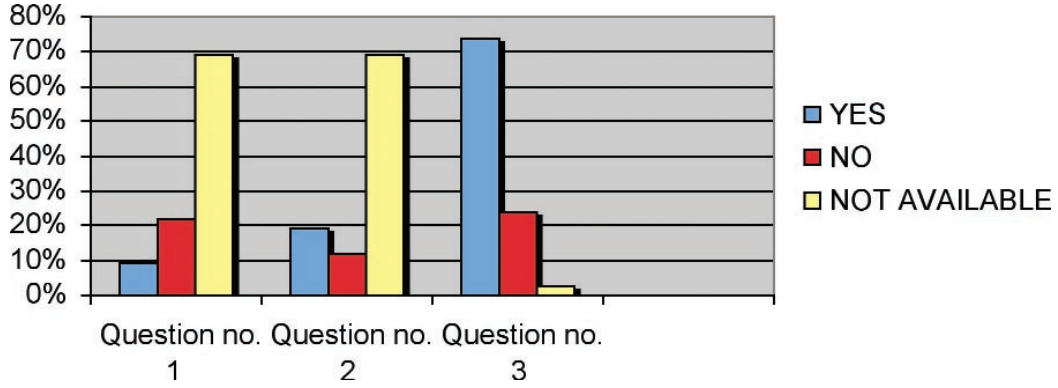


Table 4 (p. 149) shows the responses to each question by the 42 analyzed countries. Table 5 (p. 150) lists the not analyzed countries. The information sheets of the 42 analyzed countries can be consulted at pp. 151-205.

Conclusions of this Survey

Results in this study appear to be in line with the current literature. Like in other studies, a negative correlation exists between the high percentage in the presence of research ethics committees that review biomedical research with human participants and the low percentage in the existence of a specific legislative framework.

The high percentage of countries in Africa that still do not appear to have specific legislation for the protection of human participants in biomedical research requires special attention. The creation and strengthening of the legislative platform on ethics and human rights of biomedical research should be set as a priority issue in the agenda of those national governments in Africa that are still lacking the basic provisions in this field.

In those countries where guidelines for good clinical practices have been developed, corresponding legislation is needed to enforce them into law. In fact, when there is a lack of specific legislation, guidelines are followed on a voluntary basis and conflict of interest can easily arise.[24]

In addition, results of studies that investigate the functioning of RECs, show that even in those countries where adequate legislation exists, such as in South Africa,

[24] Mudur G., *India plans to audit clinical trials*, 2005, BMJ 331:1044

there can be considerable differences in the effectiveness in which local ethics committees deliver their functions. Consequently, even where national standards and guidelines exist to assess the quality of RECs, their influence on the actual quality of clinical trials remains yet to be clearly determined.

To conclude, there is testimony of a flourishing of RECs in Africa, not sustained, however, by the necessary legislative framework. All stakeholders and the international community at large need to strengthen their role in promoting the importance of ethical review of biomedical research in a number of ways: by promoting GCP guidelines application, by promoting training activities for both investigators and RECs and by promoting ethical and human rights sensitisation among policy makers, judges and governmental officials, in order to facilitate the inclusion of these themes in the legislative agenda.

This is essentially a descriptive study, mostly based on indirect information. Because only a small group of national governments and country experts responded directly to the questionnaire, most of the country information sheets were completed by collecting and analyzing information retrieved from the internet and from specialized databases. Due to these reasons, it is difficult to establish whether the high number of countries that resulted in lacking specific legislation or guidelines on ethics of human experimentation, were actually so or whether this is due to a lack of updated information in their institutional websites.

Another issue that was not possible to verify in our research study is represented by the type and structure of RECs within the countries. Due to the initial choice to restrict the country information sheet to three questions, limitation of data collection has not allowed to establish whether ethical review of biomedical research is conducted by local, national or institutional committees, such as universities and hospitals committees or by both.

It would be important to investigate this aspect more deeply, as another important debate regards the type and structure an ethical review system should have within a developing setting.[25] Institutional Review Boards have been set up in various countries in Africa, but their functioning and sustainability is constantly challenged by financial restrictions as well as considerations related to their independence, limited scope and real effectiveness. Ad hoc Institutional Review Boards may not be able to deliver their functions properly, when reviewing research that is done within the same institutions. According to S.J. Chima, the African Union could have a role in establishing legislation and directives on biomedical research similar to those developed by the European Union, which are binding for all Member States but can be adapted to the laws and internal exigencies of each country. Specific national and regional policies on research, reflecting local exigencies and realities, could be subsequently developed by each State to assist local ethics committees to find the

25 Coleman C. H., Bouësseau M.C., *Strengthening Local Review of Research in Africa: Is the IRB Model Relevant?*, BMC Med Ethics, 2006, Vol. 1, No. 2, Pages 39-58

appropriate guidance in order to deal with critical issues and to deliver their functions appropriately[26].

Conclusions and Recommendations

As we have discussed throughout this book, training, organizational funding and independence are the key factors for the development of RECs in Africa. However, a strong political commitment is also needed to create the necessary research governance mechanism, such as specific laws and legislation, guidelines and common standards, as well as monitoring mechanisms for external auditing of RECs functioning.

The current and future increase of international clinical trials in Africa, for diseases that rank low in its health priorities and that may take advantage of weak regulatory systems and lower costs, necessitates measures to increase the African pool of expert bioethicists, who can develop original guidelines, to respond appropriately to the implementation of the research projects and make a real impact on the decision making, that is still mostly done in the sponsor countries.

The creation of a genuine ethical working environment at the level of researchers and reviewers is urgent to ensure that corruption and lack of transparency and accountability towards violations are identified and institutionally approached.

To this purpose, it would be also important to reinforce the culture of ethics and legality of biomedical research with human participants among policy makers and judges, in order to strengthen the knowledge base and decision making powers on these themes and to ultimately reinforce the national normative capacity, the rule of law and the prevention and control of criminal offences.

The sensitization of policy makers would facilitate the inclusion of the ethical and legal issues of biomedical research with humans in a sustainable political agenda and promote the issuing of specific legislation in this field, based on the development needs of the countries.

The increase on the awareness by judges and magistrates on the themes of ethics and legality of biomedical research with human participants would integrate these issues in the everyday legal and judicial practice and increase the institutional capacity to respond and tackle the issues that can arise in clinical trials with human participants, with particular regard to vulnerable population, including women and minors.

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26 Chima, S.J., *Regulation of Biomedical Research in Africa*, British Medical Journal, 2006, Vol. 332, Pages 848–851

The diffusion of GCP Inspectorates and Ethical Review Boards, in developing countries would help in promoting the respect of international ethical and legal standards in the research trials with human participants, aligned with the adoption of strategies to verify the accuracy of clinical trial results and to confront related ethical, juridical and penal aspects as described above.

The promotion of the international harmonization in the application of the Good Clinical Practices is important to facilitate the process of their inclusion in the national legislations; this would also contribute to increase knowledge and foster awareness of the phenomenon and assist developing countries in strengthening capacity in dealing with ethical and legal issues of clinical research.

Finally, it is important to increase knowledge and diffusion of the United Nations and international legal and ethical instruments concerning the harmonization of the technical, administrative and legislative procedures, for the correct application of the guidelines and the good practices in the conduct of clinical trials with human participants through trainings, conferences and awareness campaigns.

Table 4 - Summary of the analyzed country information sheets

Country	National specific legislation on ethics in biomedical research	Guidelines and/or SOPs concerning ethics in biomedical research	National/Institutional Bioethics Committees that review ethics of biomedical research with human participants
Algeria	NO	NO	YES
Angola	NO	NO	YES
Benin	N/A	N/A	YES
Botswana	N/A	NO	YES
Burkina Faso	N/A	N/A	YES
Burundi	N/A	N/A	NO
Cameroon	N/A	N/A	YES
Cape Verde	N/A	N/A	NO
Chad	N/A	N/A	NO
Congo	N/A	N/A	NO
Côte d'Ivoire	N/A	N/A	YES
Democratic Republic of Congo	N/A	N/A	YES
Egypt	NO	N/A	YES
Equatorial Guinea	N/A	N/A	NO
Ethiopia	NO	YES	YES
Gabon	N/A	N/A	YES
Gambia	N/A	N/A	YES
Ghana	NO	NO	YES
Guinea	N/A	N/A	YES
Guinea Bissau	N/A	N/A	NO
Kenya	YES	YES	YES
Lybia	N/A	N/A	YES
Malawi *	N/A	N/A	YES
Mali	N/A	N/A	YES
Mauritania	N/A	N/A	NO
Mauritius **	N/A	N/A	N/A
Morocco	NO	N/A	YES
Mozambique	N/A	N/A	YES
Nigeria	YES	YES	YES
Rwanda	N/A	N/A	YES
Sao Tome and Principe	N/A	N/A	NO
Senegal	YES	YES	YES
Seychelles	N/A	N/A	YES
South Africa	YES	YES	YES
Sudan	NO	NO	YES
Swaziland	N/A	N/A	NO
Tanzania	NO	YES	YES
Togo	N/A	N/A	NO
Tunisia	NO	N/A	YES
Uganda	N/A	YES	YES
Zambia	N/A	N/A	YES
Zimbabwe	N/A	YES	YES
Tot. 42	YES 4 NO 9 NOT AVAILABLE 29	YES 8 NO 5 NOT AVAILABLE 29	YES 31 NO 10 NOT AVAILABLE 1

** According to direct information from a country expert, Malawi is currently preparing a Draft Law regulating clinical trials.*

******* *Based on governmental information, Mauritius is currently undergoing Parliamentary discussions on a Draft Bill on clinical trials and on the establishment of a National Ethics Review Committee.*

Table 5 - List of not analyzed countries

Central African Republic
Comoros
Djibouti
Eritrea
Lesotho
Liberia
Madagascar
Namibia
Niger
Sierra Leone
Somalia
Tot. 11

ALGERIA	
National specific legislation on ethics in biomedical research	NO
Guidelines and/or SOPs concerning ethics in research	NO
National/Institutional Bioethics Committees that review ethics of biomedical research with human participants	YES

Sources:

1) Elkebir F.Z., *L'état de la bioéthique en Algérie*, CEBACORES - Centro de Estudo de Bioética Polo Açores, 2005, Pages 347-350 (Accessed on 24 July 2008 at http://cebacores.net/pdf/testemunhos/elkebir.pdf)

2) Email from Pr. Abid L., Department of General and Oncological Surgery, Bologhine Hospital, Algiers, Algeria

3) Kirigia J. M., Wambebe C., Baba-Moussa A., *Status of national research bioethics committees in the WHO African region*, BMC Medical Ethics, 2005, Vol. 6:10 (Accessed on 21 August 2008 at http://www.biomedcentral.com/1472-6939/6/10)

4) Ossoukine A., *Le Comité d'Ethique algérien face à la concurrence bureaucratique et religieuse*, Journal International de Bioéthique, 2007, Vol. 18, No. 1-2, Pages 167-176 (Accessed on 7 October 2008 at http://www.iales.org/doc_membres/article%20OSSOUKINE.pdf)

5) République Algérienne Démocratique et Populaire, Ministère de la Santé de la Population et de la Reforme Hospitalière, *Arrêté n. 387 du 31 Juillet 2006 relatif aux essais cliniques*, 2006 (Accessed on 24 July 2008 at http://www.santetropicale.com/SANTEMAG/algerie/arrete_n_387.pdf)

6) Tazi A., *Les Comités d'Éthique au Maroc et dans la région: États des lieux et enjeux*, 2005 (Accessed on 24 July 2008 at http://www.emro.who.int/morocco/docs/fr/EL.pdf)

7) UNESCO – United Nations Educational, Scientific and Cultural Organization, *Global Ethics Observatory*, (Accessed on 30 September 2008 at http://www.unesco.org/shs/ethics/geo/user/?action=select&lng=en&db=)

ANGOLA	
National specific legislation on ethics in biomedical research	NO
Guidelines and/or SOPs concerning ethics in research	NO
National/Institutional Bioethics Committees that review ethics of biomedical research with human participants	YES

Sources:

1) Email from Costa I., Local Project Coordination, Justice, Protection and Ethics, UNICRI Office in Luanda, Angola

2) Gaudiano M. C., Di Maggio A., Cocchieri E., Antoniella E., Alimonti S., Valvo S., *Medicines informal market in Congo, Burundi and Angola: counterfeit and sub-standard antimalarials*, Malaria Journal, 2007, Vol. 6:22 (Accessed on 16 October 2008 at http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=1810297)

3) Kirigia J. M., Wambebe C., Baba-Moussa A., *Status of national research bioethics committees in the WHO African region*, BMC Medical Ethics, 2005, Vol. 6:10 (Accessed on 21 August 2008 at http://www.biomedcentral.com/1472-6939/6/10)

BENIN	
National specific legislation on ethics in biomedical research	N/A
Guidelines and/or SOPs concerning ethics in research	N/A
National/Institutional Bioethics Committees that review ethics of biomedical research with human participants	YES

Sources:

1) COHRED - The Council on Health Research for Development, *Health Research for Development in Benin – a summary*, 2000 (Accessed on 8 July 2008 at http://www.cohred.org/main/CommonCategories/content/645.pdf on July 8)

2) neBRA – Networking for Ethics on Biomedical Research in Africa, *Final Report, Annex 3 - Benin, draft law, (version 3)*, 2006 (Accessed on 8 July 2008 at http://www.trree.org/site/en_nebra.phtml)

3) neBRA – Networking for Ethics on Biomedical Research in Africa, *Final Report*, 2006 (Accessed on 8 July 2008 at http://www.trree.org/site/en_nebra.phtml)

4) République du Benin, *Arrêté N° 4150 MSPSCF/DC/SA du 2 Octobre 1997 portant attributions, organisation et fonctionnement de la Direction des Pharmacies et des Laboratoires (DPHL),* Journal officiel de la République du Bénin, 15 Août 1998, N° 16 (Accessed on 13 November 2008 at http://www.who.int/idhl-rils/results.cfm?language=french&type=ByCountry&strRefCode=B%C3%A9nin&strTopicCode=XVA)

5) République du Benin, *Constitution*, *Texte du 11 Décembre 1990* (Accessed on 13 November 2008 at http://www.bj.refer.org/benin_ct/cop/assemble/constitution/constitution.html)

6) République du Benin, *Décret N° 94-145 du 26 mai 1994 portant attributions, organisation et fonctionnement du Ministère de la Santé*, Journal officiel de la République du Bénin, 1er Novembre 1994, N° 21, Pages 717 à 723; ibid., 15 Mars, 1995, N° 6, Pages 171-176

7) République du Benin, *Décret N° 97-632 du 31 Décembre 1997 portant modalités d'enregistrement des médicaments à usage humain en République du Bénin,* Journal Officiel de la République du Bénin, 15 Juillet 1998, N° 14

8) UNESCO – United Nations Educational, Scientific and Cultural Organization, *Global Ethics Observatory*, (Accessed on 30 September 2008 at http://www.unesco.org/shs/ethics/geo/user/?action=select&lng=en&db=)

BOTSWANA	
National specific legislation on ethics in biomedical research	N/A
Guidelines and/or SOPs concerning ethics in research	NO
National/Institutional Bioethics Committees that review ethics of biomedical research with human participants	YES

Sources:

1) Harvard School of Public Health, *Global Research Ethics Map: Botswana*, 2006 (Accessed on 8 July 2008 at https://webapps.sph.harvard.edu/live/gremap/view.cfm?country=Botswana)

2) Kirigia J. M., Wambebe C., Baba-Moussa A., *Status of national research bioethics committees in the WHO African region*, BMC Medical Ethics, 2005, Vol. 6:10 (Accessed on 21 August 2008 at http://www.biomedcentral.com/1472-6939/6/10)

3) Republic of Botswana, Ministry of Health, Drug Regulatory Unit, *Drug Regulatory Unit*, (Date unknown), (Accessed on 28 August 2008 at http://www.moh.gov.bw/index.php?id=284)

4) University of Botswana, *University of Botswana Policy on Ethics and Ethical conduct in Research*, 2004 (Accessed on 8 July 2008 at http://www.ub.bw/documents/Ethics_Policy_RD04_05H.pdf)

5) WHO – UNAIDS HIV Vaccine Initiative, *HIV/AIDS Vaccine Country Profile*, 2005 (Accessed on 25 August 2008 at http://www.who.int/vaccine_research/diseases/hiv/aavp/botswanafinal.pdf)

BURKINA FASO	
National specific legislation on ethics in biomedical research	N/A
Guidelines and/or SOPs concerning ethics in research	N/A
National/Institutional Bioethics Committees that review ethics of biomedical research with human participants	YES

Sources:

1) Kirigia J. M., Wambebe C., Baba-Moussa A., *Status of national research bioethics committees in the WHO African region*, BMC Medical Ethics, 2005, Vol. 6:10 (Accessed on 21 August 2008 at http://www.biomedcentral.com/1472-6939/6/10)

2) neBRA – Networking for Ethics on Biomedical Research in Africa, *Final Report*, 2006 (Accessed on 8 July 2008 at http://www.trree.org/site/en_nebra.phtml)

3) République du Burkina Faso, Assemblé des Députés du Peuple, *Loi N° 23/94/ADP du 19 mai 1994 portant code de la santé publique*, 1994 (Accessed on 13 November 2008 http://www.refer.sn/rds/IMG/pdf/CODESANTEBURKINA.pdf)

4) République du Burkina Faso, *Banque des Donnés Juridiques du Burkina*, (Date unknown), (Accessed on 13 November 2008 at http://www.legiburkina.bf/)

5) République du Burkina Faso, *Constitution*, *Texte du 2 Juin 1991, Version révisée* (Accessed on 13 November 2008 at http://www.legiburkina.bf/)

6) République du Burkina Faso, *Décret portant Code de Déontologie des Médecins du Burkina Faso,* 1997 (Accessed on 23 November 2008 at http://www.sante.gov.bf/SiteSante/textes/medecins.pdf)

7) République du Burkina Faso, *Plan général et Extraits du Code la Santé publique du Burkina Faso relatifs à l'éthique*, 1994 (Accessed on 8 July 2008 at http://www.refer.sn/rds/IMG/pdf/CODESANTEBURKINAETHIQUE.pdf)

8) République du Burkina Faso, President du Faso et President du Conseil des Ministres, *Décret n° 2005-100/PRES/PM/MPDH du 23 Février 2005 portant création, attributions, composition et fonctionnement du comité interministériel des droits humains et du droit international humanitaire*, 2005 (Accessed on 8 July 2008 at http://www.who.int/idhl-rils/idhl/BF05003.pdf)

9) UNESCO - United Nations Educational, Scientific and Cultural Organization, *Global Ethics Observatory*, (Accessed on 30 September 2008 at http://www.unesco.org/shs/ethics/geo/user/?action=select&lng=en&db=)

10) WHO - UNAIDS HIV Vaccine Initiative, *HIV/AIDS Vaccine Country Profile*, 2005 (Accessed on 25 August 2008 at http://www.who.int/vaccine_research/diseases/hiv/aavp/BurkinaFaso.pdf)

BURUNDI	
National specific legislation on ethics in biomedical research	N/A
Guidelines and/or SOPs concerning ethics in research	N/A
National/Institutional Bioethics Committees that review ethics of biomedical research with human participants	NO

Sources:

1) COHRED - The Council on Health Research for Development, *Health Research for Development in Burundi – a summary*, 2000 (Accessed on 8 July 2008 at http://www.cohred.org/main/CommonCategories/content/648.doc)

2) Gaudiano M. C., Di Maggio A., Cocchieri E., Antoniella E., Alimonti S., Valvo S., *Medicines informal market in Congo, Burundi and Angola: counterfeit and sub-standard antimalarials*, Malaria Journal, 2007, Vol. 6:22 (Accessed on 16 October 2008 at http://www.biomedcentral.nih.gov/articlerender.fcgi?artid=1810297)

CAMEROON	
National specific legislation on ethics in biomedical research	N/A
Guidelines and/or SOPs concerning ethics in research	N/A
National/Institutional Bioethics Committees that review ethics of biomedical research with human participants	YES

Sources:

1) COHRED - The Council on Health Research for Development, *National Health Research Priorities Cameroon*, (Date unknown), (Accessed on 24 July 2008 at http://www.cohred.org/HealthResearchWeb/insidepages/africa/cameroon.htm)

2) COHRED - The Council on Health Research for Development, *Resource Flows for Health Research in Cameroon and Tanzania*, Research into Action, 2003, No. 31, Pages 6-7 (Accessed on 24 July 2008 at http://www.cohred.org/main/CommonCategories/content/742.pdf)

3) COHRED - The Council on Health Research for Development, *What factors influence national health research agendas in low and middle income countries? Perspectives of health research stakeholders from six countries and 11 international agencies*, 2006 (Accessed on 24 July 2008 at http://www.cohred.org/publications/recordpapers/COHRED%20RP5%20FactorsInfluencingNationalHealthResearchAgendas.pdf)

4) Kirigia J. M., Wambebe C., Baba-Moussa A., *Status of national research bioethics committees in the WHO African region*, BMC Medical Ethics, 2005, Vol. 6:10 (Accessed on 21 August 2008 at http://www.biomedcentral.com/1472-6939/6/10)

5) neBRA – Networking for Ethics on Biomedical Research in Africa, *Final Report*, 2006 (Accessed on 8 July 2008 at http://www.trree.org/site/en_nebra.phtml)

6) neBRA – Networking for Ethics on Biomedical Research in Africa, *Final Report, Annex 5: Cameroon - Decree creating the Ethics Committee,* 2006 (Accessed on 24 July 2008 at http://www.trree.org/site/en_nebra.phtml)

7) République du Cameroun, *Constitution, Texte du 2 Juin 1972, Version révisée* (Accessed on 13 November 2008 at http://unpan1.un.org/intradoc/groups/public/documents/CAFRAD/UNPAN002989.pdf

8) République du Cameroun, *Décret n° 2005/091 du 29 mars 2005 portant organisation du Ministère de la Recherche Scientifique et de l'Innovation*, 2005 (Accessed on 18 November 2008 at http://www.spm.gov.cm/showtexte.php?idtexte=102&lang=fr)

9) République du Cameroun, *Décret n° 98/405/PM du 22 Octobre 1998 fixant les modalités d'homologation et de mise sur le marché des produits pharmaceutiques*, 1998 (Accessed on 18 November 2008 at http://www.spm.gov.cm/showtexte.php?idtexte=102&lang=fr)

10) République du Cameroun, Ministère de la Santé and COHRED - Council on Health Research for Development, *Cameroon Strong National Health Research Systems Enable Success Of Health Sector Reform Cameroon and COHRED work supports better evidence for the health sector and better donor alignment with national priorities*, 2007 (Accessed on 24 July 2008 at http://cohred.org/Assests/PDF/CameroonCOHREDFINAL.pdf)

11) Sama M.T., *Situation Analysis of Health Research in Cameroon, A Historical Perspective*, COHRED - The Council on Health Research for Development, 2000 (Accessed on 24 July 2008 at http://www.cohred.org/main/CommonCategories/content/512.pdf)

12) UNESCO - United Nations Educational, Scientific and Cultural Organization, *Global Ethics Observatory*, (Accessed on 30 September 2008 at http://www.unesco.org/shs/ethics/geo/user/?action=select&lng=en&db=)

13) WHO – UNAIDS HIV Vaccine Initiative, *HIV/AIDS Vaccine Country Profile*, 2005 (Accessed on 25 August 2008 at http://www.who.int/vaccine_research/diseases/hiv/aavp/cameroon.pdf)

CAPE VERDE	
National specific legislation on ethics in biomedical research	N/A
Guidelines and/or SOPs concerning ethics in research	N/A
National/Institutional Bioethics Committees that review ethics of biomedical research with human participants	NO

Sources:

1) Kirigia J. M., Wambebe C., Baba-Moussa A., *Status of national research bioethics committees in the WHO African region*, BMC Medical Ethics, 2005, Vol. 6:10 (Accessed on 21 August 2008 at http://www.biomedcentral.com/1472-6939/6/10)

CHAD	
National specific legislation on ethics in biomedical research	N/A
Guidelines and/or SOPs concerning ethics in research	N/A
National/Institutional Bioethics Committees that review ethics of biomedical research with human participants	NO

Sources:

1) Kirigia J. M, Wambebe C., Baba-Moussa A., *Status of national research bioethics committees in the WHO African region*, BMC Medical Ethics, 2005, Vol. 6:10 (Accessed on 21 August 2008 at http://www.biomedcentral.com/1472-6939/6/10)

CONGO	
National specific legislation on ethics in biomedical research	N/A
Guidelines and/or SOPs concerning ethics in research	N/A
National/Institutional Bioethics Committees that review ethics of biomedical research with human participants	NO

Sources:

1) Gaudiano M. C., Di Maggio A., Cocchieri E., Antoniella E., Alimonti S., Valvo S., *Medicines informal market in Congo, Burundi and Angola: counterfeit and sub-standard antimalarials*, Malaria Journal, 2007, Vol. 6:22 (Accessed on 16 October 2008 at http://www.biomedcentral.nih.gov/articlerender.fcgi?artid=1810297)

2) Kirigia J. M., Wambebe C., Baba-Moussa A., *Status of national research bioethics committees in the WHO African region*, BMC Medical Ethics, 2005, Vol. 6:10 (Accessed on 21 August 2008 at http://www.biomedcentral.com/1472-6939/6/10)

3) neBRA – Networking for Ethics on Biomedical Research in Africa, *Final Report*, 2006 (Accessed on 8 July 2008 at http://www.trree.org/site/en_nebra.phtml)

4) République du Congo, *Constitution, Texte du 20 Janvier 2002* (Accessed on 18 November 2008 at http://www.izf.net/upload/Guide/Congo/Constitution_congo.pdf)

5) UNESCO - United Nations Educational, Scientific and Cultural Organization, *Global Ethics Observatory*, (Accessed on 30 September 2008 at http://www.unesco.org/shs/ethics/geo/user/?action=select&lng=en&db=)

COTE D'IVOIRE	
National specific legislation on ethics in biomedical research	N/A
Guidelines and/or SOPs concerning ethics in research	N/A
National/Institutional Bioethics Committees that review ethics of biomedical research with human participants	YES

Sources:

1) République de Côte d'Ivoire, *Constitution, Texte du 23 Juillet 2000* (Accessed on 18 November 2008 at www.chr.up.ac.za/hr_docs/constitutions/docs/CoteD'ivoire(english%20summary)(rev).doc)

2) UNESCO - United Nations Educational, Scientific and Cultural Organization, *Global Ethics Observatory*, (Accessed on 30 September 2008 at http://www.unesco.org/shs/ethics/geo/user/?action=select&lng=en&db=)

3) WHO – UNAIDS HIV Vaccine Initiative, *HIV/AIDS Vaccine Country Profile*, 2005 (Accessed on 25 August 2008 at http://www.who.int/vaccine_research/diseases/hiv/aavp/CotedIvoire.pdf)

DEMOCRATIC REPUBLIC OF CONGO	
National specific legislation on ethics in biomedical research	N/A
Guidelines and/or SOPs concerning ethics in research	N/A
National/Institutional Bioethics Committees that review ethics of biomedical research with human participants	YES

Sources:

1) Kirigia J. M., Wambebe C., Baba-Moussa A., *Status of national research bioethics committees in the WHO African region*, BMC Medical Ethics, 2005, Vol. 6:10 (Accessed on 21 August 2008 at http://www.biomedcentral.com/1472-6939/6/10)

2) neBRA - Networking for Ethics on Biomedical Research in Africa, *Final Report*, 2006 (Accessed on 2 October 2008 at http://www.espace-ethique.org/fr/documents/NEBRA/Rapport_NEBRA_2006.pdf)

3) UNESCO - United Nations Educational, Scientific and Cultural Organization, *Global Ethics Observatory*, (Accessed on 30 September 2008 at http://www.unesco.org/shs/ethics/geo/user/?action=select&lng=en&db=)

EGYPT	
National specific legislation on ethics in biomedical research	NO
Guidelines and/or SOPs concerning ethics in research	N/A*
National/Institutional Bioethics Committees that review ethics of biomedical research with human participants	YES

**The research is based on International Ethics Guidelines, the EU Guidelines, the US Guidelines and others http://medschool.umaryland.edu/enrec/guidelines.asp*

Sources:

1) Arab Republic of Egypt, *Constitution, Art. 43*, 1971 (Accessed on 12 November 2008 at http://www.egypt.gov.eg/english/laws/constitution/default.aspx)

2) Arab Republic of Egypt, Minister of Health and Population, *Egyptian Medical Syndicate, Profession Ethics Regulations issued by the Resolution of the Minister of Health and Population No. 238/2003*, 2003 (Accessed on 17 December 2008 at http://www.ems.org.eg/images/leha_eng.doc)

3) Email from Dr. Shehata M., Member of the National Research Ethics Committee

4) Email from El-Setouhy M., MD, Professor, Department of Community, Environmental and Occupational Medicine, Vice Chair of the Research Ethics Committee, Faculty of Medicine, Ain Shams University, Abbasia, Cairo, Egypt, CO-Director of the Health Research Ethics Training Initiative in Egypt (HRETIE)

5) Kandeel N., Elnemer A., Kassem H., Moustafa N., El-Setouhy M. Silverman H., *Developing Research Ethics Committees: Implications for Global Health*, HRETIE - Health Research Ethics Training Initiative in Egypt, (Date unknown), (Accessed on 24 July 2008 at http://medschool.umaryland.edu/hretie/docs/Kandeel_2006_Forum_Paper.pdf)

6) Khalil S. S, Silverman H. J., Raafat M., El-Kamary S., El-Setouhy M., *Attitudes, understanding, and concerns regarding medical research amongst Egyptians: A qualitative pilot study*, BMC Medical Ethics, 2008, Vol. 8:9 (Accessed on 24 July 2008 at http://www.biomedcentral.com/content/pdf/1472-6939-8-9.pdf)

7) HRETIE – University of Maryland School of Medicine, Health Research Ethics Training Initiative in Egypt, *Egyptian Enhancing Research Ethics Committees in Egypt, Guidelines for Standard Operating Procedures SOPs*, (Date unknown), (Accessed on 27 August 2008 at http://medschool.umaryland.edu/enrec/docs/Standard%20Operating%20Procedures%20(SOPs).pdf)

8) HRETIE – University of Maryland School of Medicine, Health Research Ethics Training Initiative in Egypt, *Egyptian Network of Ethics Committees (ENREC), Directory,*

Research Ethics Committees in Egypt, (Date unknown), (Accessed on 27 August 2008 at http://medschool.umaryland.edu/enrec/directory.asp)

9) HRETIE – University of Maryland School of Medicine, Health Research Ethics Training Initiative in Egypt, *Egyptian Research Ethics Committees Standard Operating Procedures*, (Date unknown), (Accessed on 27 August 2008 at http://medschool.umaryland.edu/enrec/docs/Best%20Practice%20SOPs%20for%20Egypt.pdf)

10) UNESCO – United Nations Educational, Scientific and Cultural Organization, *Global Ethics Observatory*, (Accessed on 30 September 2008 at http://www.unesco.org/shs/ethics/geo/user/?action=select&lng=en&db=)

12) WHO/EMRO - World Health Organization Regional Office for the Eastern Mediterranean, UNESCO - United Nations Educational, Scientific and Cultural Organization, *First Regional Meeting of National Bioethics Committees,* Cairo 5/7 May 2007 (Accessed on 30 September 2008 at http://unesdoc.unesco.org/images/0015/00152805e.pdf)

13) WHO/EMRO - World Health Organization Regional Office for the Eastern Mediterranean, *National Health Research System Mapping in the Eastern Mediterranean Region, A study of ten Countries*, 2008 (Accessed on 17 December 2008 at http://www.emro.who.int/dsaf819.pdf)

EQUATORIAL GUINEA	
National specific legislation on ethics in biomedical research	N/A
Guidelines and/or SOPs concerning ethics in research	N/A
National/Institutional Bioethics Committees that review ethics of biomedical research with human participants	NO

Sources:

1) Kirigia J. M., Wambebe C., Baba-Moussa A., *Status of national research bioethics committees in the WHO African region*, BMC Medical Ethics, 2005, Vol. 6:10 (Accessed on 21 August 2008 at http://www.biomedcentral.com/1472-6939/6/10)

ETHIOPIA	
National specific legislation on ethics in biomedical research	NO
Guidelines and/or SOPs concerning ethics in research	YES
National/Institutional Bioethics Committees that review ethics of biomedical research with human participants	YES

Sources:

1) Aseffa A., *Role of PABIN and ETBIN in promoting the National Health Research Ethics Review System*, PABIN – Pan-African Bioethics Initiative, Secretariat, 2000 (Accessed on 24 July 2008 at http://www.estc.gov.et/Role%20of%20PABIN%20and%20ETBIN%20in%20promoting%20the%20National%20Research%20Ethics%20Review%20System.pdf)

2) Balcha F., *Role and Responsibility of Research Stakeholders in Promoting Ethical Health Research in Ethiopia,* Institute of Pathobiology, Addis Ababa University, (Date unknown), (Accessed on 24 July 2008 at http://www.estc.gov.et/Role%20and%20Responsibility%20of%20Research%20Stakeholders%20in%20Promoting%20Ethical%20Health%20Research%20in%20Ethiopia.pdf

3) COHRED – Council on Health Research for Development, *Health Research in Ethiopia, A country overview*, 2000 (Accessed on 24 July 2008 at http://www.cohred.org/main/CommonCategories/content/643.pdf)

4) Federal Democratic Republic of Ethiopia, Ethiopian Science and Technology Commission, National Health Science and Technology Council, Health Department, *National Health Research Ethics, Review Guideline, Consultation Workshop Proceedings*, 2005 (Accessed on 24 July 2008 at http://www.estc.gov.et/consultation%20workshop%20proceeding.pdf)

5) Federal Democratic Republic of Ethiopia, Ethiopian Science and Technology Commission, National Health Science and Technology Council, Health Department, *Ethiopia National Health Research Ethics Review Guideline*, 2005 (Accessed on 24 July 2008 at http://www.estc.gov.et/Ethics%20Guideline.pdf)

6) Gedif T., *Assessment of Ethics Review Application submitted in the period b/n June 1995/mid May 2004,* Federal Democratic Republic of Ethiopia, Health Department Ethiopian Science and Technology Commission, (Date unknown), (Accessed on 24 July 2008 at http://www.estc.gov.et/Assessment%20of%20Ethics%20Review%20Applications%20submitted%20in%20the%20period%20b.pdf)

7) Kirigia J. M., Wambebe C., Baba-Moussa A., *Status of national research bioethics committees in the WHO African region*, BMC Medical Ethics, 2005, Vol. 6:10 (Accessed on 21 August 2008 at http://www.biomedcentral.com/1472-6939/6/10)

8) Mengistie G., *Health research ethics and law in Ethiopia*, (Date unknown), (Accessed on 24 July 2008 at http://www.estc.gov.et/HEALTH%20RESEARCH%20ETHICS%20AND%20LAW%20IN%20ETHIOPIA%20BY.pdf)

8) Muleta M., *Ethical Review system in Ethiopia*, (Date unknown), (Accessed on 24 July 2008 at http://www.estc.gov.et/Research%20Ethical%20Review%20system%20in%20Ethiopia.pdf)

10) Petros B., *Biomedical Research and Ethics in Ethiopia, A Keynote Address,* (Date unknown), (Accessed on 24 July 2008 at http://www.estc.gov.et/Biomedical%20Research%20and%20Ethics%20in%20Ethiopia.pdf

11) Teka T., *Ethiopian Health Research Ethics Application and Review Process,* Federal Democratic Republic of Ethiopia, Ethiopian Science and Technology Commission, (Date unknown), (Accessed on 24 July 2008 at http://www.estc.gov.et/Ethiopian%20Health%20Research%20Ethics%20Application%20and%20Review%20Process.pdf)

12) UNESCO – United Nations Educational, Scientific and Cultural Organization, *Global Ethics Observatory*, (Accessed on 30 September 2008 at http://www.unesco.org/shs/ethics/geo/user/?action=select&lng=en&db=)

13) WHO – UNAIDS HIV Vaccine Initiative, *HIV/AIDS Vaccine Country Profile*, 2005 (Accessed on 25 August 2008 at http://www.who.int/vaccine_research/diseases/hiv/aavp/ethiopia_profile.pdf)

GABON	
National specific legislation on ethics in biomedical research	N/A
Guidelines and/or SOPs concerning ethics in research	N/A
National/Institutional Bioethics Committees that review ethics of biomedical research with human participants	YES

Sources:

1) neBRA – Networking for Ethics on Biomedical Research in Africa, *Final Report*, 2006 (Accessed on 8 July 2008 at http://www.trree.org/site/en_nebra.phtml)

2) République Gabonaise, *La Constitution*, 2000 (Accessed on 18 November 2008 at http://www.icrc.org/ihl-nat.nsf/162d151af444ded44125673e00508141/6f4cd4f89319afcbc1256da4004d9717/$FILE/Constitution%20Gabon%20-%20FR.pdf)

3) UNESCO – United Nations Educational, Scientific and Cultural Organization, *ABC PROJECT - 1st Preparatory Meeting on the Establishment of a National Ethics Committee in Gabon,* 2007 (Accessed on 24 July 2008 at http://unesdoc.unesco.org/images/0015/001559/155952E.pdf)

4) UNESCO – United Nations Educational, Scientific and Cultural Organization, *Global Ethics Observatory*, (Accessed on 30 September 2008 at http://www.unesco.org/shs/ethics/geo/user/?action=select&lng=en&db=)

GAMBIA	
National specific legislation on ethics in biomedical research	N/A
Guidelines and/or SOPs concerning ethics in research	N/A
National/Institutional Bioethics Committees that review ethics of biomedical research with human participants	YES

Sources:

1) Ali N., Hill C., Kennedy A., Ijsselmuiden C., *What factors influence national health research agendas in low and middle income countries? Perspectives of health research stakeholders from six countries and 11 international agencies, Country perspectives: Cameroon, Philippines, Cuba, The Gambia, Lao PDR, Nicaragua*, COHRED - The Council on Health Research for Development, 2006 (Accessed on 24 July 2008 at http://www.cohred.org/publications/recordpapers/COHRED%20RP5%20FactorsInfluencingNationalHealthResearchAgendas.pdf)

2) Clarke M., Collinson A., Faal H., Gaye A., Jallow M., Joof-Cole A., McAdam K., Schim van der Loeff M., Thomas V., Whittle H., Gambia Government/Medical Research Council Joint Ethical Committee, *Ethical issues facing medical research in developing countries,* The Lancet, 1998, Vol. 351, No. 9098, Pages 286-287 (Accessed on 8 July 2008 at http://download.thelancet.com/pdfs/journals/0140-6736/PIIS0140673697123066.pdf)

3) Kirigia J. M., Wambebe C., Baba-Moussa A., *Status of national research bioethics committees in the WHO African region*, BMC Medical Ethics, 2005, Vol. 6:10 (Accessed on 21 August 2008 at http://www.biomedcentral.com/1472-6939/6/10)

4) Mulholland K., Hilton S., Adegbola R., Usen S., Oparaugo A., Omosigho C., Weber M., Palmer A., Schneider G., Jobe K., Lahai G., Jaffar S., Secka O., Lin K., Ethevenaux C., Greenwood B., *Randomised trial of Haemophilus influenzae type-b tetanus protein conjugate for prevention of pneumonia and meningitis in Gambian infants*, The Lancet, 1997, Vol. 349, No. 9060, Pages 1191-1197 (Accessed on 24 July 2008 at http://download.thelancet.com/pdfs/journals/0140-6736/PIIS0140673696092677.pdf?clusterid=thelancet&mis=.pdf)

5) neBRA – Networking for Ethics on Biomedical Research in Africa, *Final Report,* 2006 (Accessed on 8 July 2008 at http://www.trree.org/site/en_nebra.phtml)

6) Republic of the Gambia, *Constitution, Adopted on 8 August 1996, entered into force in January 1997, last amended in 2001* (Accessed on 18 November 2008 at http://www.chr.up.ac.za/hr_docs/constitutions/docs/The%20GambiaC(english%20summary)(rev).doc)

GHANA	
National specific legislation on ethics in biomedical research	NO
Guidelines and/or SOPs concerning ethics in research	NO
National/Institutional Bioethics Committees that review ethics of biomedical research with human participants	YES

Sources:

1) COHRED - The Council on Health Research for Development, *Identifying capacities: country analysis Ghana and Uganda*, 1999 (Accessed on 9 July 2008 at http://www.cohred.org/main/CommonCategories/content/542.pdf)

2) Federal Republic of Nigeria, Ministry of Health and Republic of Ghana, Ministry of Health with support of WHO and TDR, High Level Ministerial Meeting on Health Research in Africa 8-10 March 2006, Abuja, Nigeria, *Communique High Level Ministerial Meeting*, 2006 (Accessed on 15 November 2008 at http://www.hlmresearchdev.org/)

3) Federal Republic of Nigeria, Ministry of Health and Republic of Ghana, Ministry of Health with support of WHO and TDR, High Level Ministerial Meeting on Health Research in Africa 15-17 June 2006, Accra, Ghana, *Health Research for Disease Control and Development*, 2006 (Accessed on 15 November 2008 at http://www.hlmresearchdev.org/)

4) Harvard School of Public Health, *Global Research Ethics Map*, 2006 (Accessed on 9 July 2008 at https://webapps.sph.harvard.edu/live/gremap/view.cfm)

5) Kintampo Health Research Centre, Ghana Health Service, *Annual Report 2006*, 2007 (Accessed on 9 July 2008 at http://www.ghana-khrc.org/ann_reports/khrc_annualrep2006.pdf)

6) neBRA – Networking for Ethics on Biomedical Research in Africa, *Final Report*, *Annex 9 - Ghana Health Service Committee*, 2006 (Accessed on 9 July 2008 at http://www.trree.org/site/download.php?f=c3e6dd7bd3c9d7e90444cb8645f3d044)

7) neBRA – Networking for Ethics on Biomedical Research in Africa, *Final Report*, *Annex 10- Ghana, SWOP NMIR*, 2006 (Accessed on 9 July 2008 at http://www.trree.org/site/download.php?f=64dc02c492c3727e8f112991ae128e89)

8) neBRA – Networking for Ethics on Biomedical Research in Africa, *Final Report*, *Annex 11- Ghana, Navrongo Health Research Center IRB:SOP*, 2006 (Accessed on 9 July 2008 at http://www.trree.org/site/download.php?f=6bcdfe38342ada2cd4dc3e800f26fa69)

9) neBRA – Networking for Ethics on Biomedical Research in Africa, *Final Report*, 2006 (Accessed on 8 July 2008 at http://www.trree.org/site/en_nebra.phtml)

10) Republic of Ghana, Food and Drugs Board, *Guidelines for the registration of vaccines in Ghana,* (Date unknown), (Accessed on 17 July 2008 at

http://www.fdbghana.gov.gh/pdf/drugs/REGISTRATION%20OF%20VACCINES%20IN%20GHANA.pdf)

11) Republic of Ghana, *Ghana AIDS Commission*, (Date unknown), (Accessed on 18 November 2008 at http://www.ghanaids.gov.gh/gac/index.php)

12) Republic of Ghana, Ghana Health Service, *Annual Report*, 2007 (Accessed on 9 July 2008 at http://www.ghanahealthservice.org/includes/upload/publications/GHS%202007%20Annual%20Report.pdf)

13) Republic of Ghana, Ghana Health Service, *Code of Ethics*, (Date unknown), (Accessed on 9 July 2008 at http://www.ghanahealthservice.org/aboutus.php?inf=Code%20of%20Ethics)

14) Republic of Ghana, Ghana Health Service, *Health Research Unit Annual Report*, 2003 (Accessed on 17 July 2008 at http://www.ghanahealthservice.org/includes/upload/publications/HRU%20Report%202003.pdf)

15) Republic of Ghana, *Ghana National Drug Policy*, 2004 (Accessed on 17 July 2008 at http://www.healthinternetwork.com/countries/gha/publications/Ghana_National_Drug Policy_2nd_Edition.pdf)

16) Republic of Ghana, *The Constitution of the Republic of Ghana*, 1992 (Accessed on 18 November 2008 at http://www.parliament.gh/book/export/html/60)

17) WHO – World Health Organization, UNAIDS HIV Vaccine Iniziative, *HIV/AIDS Vaccine Country Profile*, 2005 (Accessed on 25 August 2008 at http://www.who.int/vaccine_research/diseases/hiv/aavp/Ghana.pdf)

GUINEA	
National specific legislation on ethics in biomedical research	N/A
Guidelines and/or SOPs concerning ethics in research	N/A
National/Institutional Bioethics Committees that review ethics of biomedical research with human participants	YES

Sources:

1) Kirigia J. M., Wambebe C., Baba-Moussa A., *Status of national research bioethics committees in the WHO African region*, BMC Medical Ethics, 2005, Vol. 6:10 (Accessed on 21 August 2008 at http://www.biomedcentral.com/1472-6939/6/10)

2) neBRA – Networking for Ethics on Biomedical Research in Africa, *Final Report*, 2006, (Accessed on 8 July 2008 at http://www.trree.org/site/en_nebra.phtml)

3) République de Guinée, Assemblée Nationale de la République de Guinée*, Loi L/97/021/An portant Code de Santé Publique,* 1997 (Accessed on 19 November 2008 at http://www.refer.sn/rds/IMG/pdf/_CODESANTEGUINEE.pdf)

4) République de Guinée, *Loi Fondamentale, Texte du 1er Janvier 1990*, (Accessed on 19 November 2008 at http://droit.francophonie.org/df-web/displayDocument.do?id=15833)

5) UNESCO – United Nations Educational, Scientific and Cultural Organization, *Global Ethics Observatory*, (Accessed on 30 September 2008 at http://www.unesco.org/shs/ethics/geo/user/?action=select&lng=en&db=)

GUINEA BISSAU	
National specific legislation on ethics in biomedical research	N/A
Guidelines and/or SOPs concerning ethics in research	N/A
National/Institutional Bioethics Committees that review ethics of biomedical research with human participants	NO

Sources:

1) Kirigia J. M., Wambebe C., Baba-Moussa A., *Status of national research bioethics committees in the WHO African region*, BMC Medical Ethics, 2005, Vol. 6:10 (Accessed on 21 August 2008 at http://www.biomedcentral.com/1472-6939/6/10)

KENYA	
National specific legislation on ethics in biomedical research	YES
Guidelines and/or SOPs concerning ethics in research	YES*
National/Institutional Bioethics Committees that review ethics of biomedical research with human participants	YES

** The guidelines are legally binding as they have been promulgated through acts of Parliament*

Sources:

1) COHRED-The Council on Health Research for Development, *AIDS and HIV in Kenya: an issue of economic development*, Research into Action, 2000, No. 20, Pages 2-3 (Accessed on 9 July 2008 at http://www.cohred.org/main/CommonCategories/content/599.pdf)

2) COHRED - The Council on Health Research for Development, *Can communities influence national health research agendas? A learning process leading to a framework for community engagement in shaping health research policy, Country experiences: Bolivia, Cambodia, India, Kenya, Pakistan, Tajikistan, Zimbabwe*, 2006 (Accessed on 9 July 2008 at http://www.cohred.org/publications/recordpapers/COHREDRP3Communities.pdf)

3) COHRED - The Council on Health Research for Development, *Essential National Health Research in Kenya*, 1998 (Accessed on 15 November 2008 at http://www.cohred.org/main/CommonCategories/content/525.pdf)

4) COHRED - The Council on Health Research for Development, *Kenyan Consultative Process on Health Research – A summary*, 2000 (Accessed on 9 July 2008 at http://www.cohred.org/main/CommonCategories/content/657.pdf)

5) COHRED - The Council on Health Research for Development, *Research capacity strengthening: creating demand for research in Kenya*, 2001 (Accessed on 9 July 2008 at http://www.cohred.org/main/CommonCategories/content/702.pdf)

6) DFID – Department For International Development, IDRC – International Development Research Center and Wellcome Trust, *Health research capacity strengthening initiative, Kenya and Malawi*, 2006 (Accessed on 9 July 2008 at http://www.idrc.ca/uploads/user-S/11656062041DFID-IDRC-WT_HRCS_Aug06.pdf)

7) Harvard School of Public Health, *Global Research Ethics Map*, 2006 (Accessed on 8 July 2008 at https://webapps.sph.harvard.edu/live/gremap/view.cfm)

8) Kirigia J. M., Wambebe C., Baba-Moussa A., *Status of national research bioethics committees in the WHO African region*, BMC Medical Ethics, 2005, Vol. 6:10 (Accessed on 21 August 2008 at http://www.biomedcentral.com/1472-6939/6/10)

9) Langlois A., *The UNESCO Universal Declaration on Bioethics and Human Rights: Perspectives from Kenya and South Africa*, Health Care Anal, 2008, Vol. 16, Pages 39-51

(Accessed on 9 July 2008 at http://www.springerlink.com/content/p655787h217h0236/fulltext.pdf)

10) Molyneux C.S., Peshu N., Marsh K., *Trust and informed consent: insights from a community members on the Kenyan coast*, Social Science and Medicine, 2005, Vol. 61, Pages 1463-1473

11) Pandit J.M., *Kenya… on the move for Drug Quality, Safety and Efficacy*, Republic of Kenya, Ministry of Health, Pharmacy and Poison Board, 2007 (Accessed on 26 August 2008 at http://www.who-umc.org/graphics/14031.pdf)

12) Patel V., *Clinical Trials in Kenya*, Stichting Onderzoek Multinationale Ondermingen (SOMO), 2006 (Accessed on 26 August 2008 at http://somo.nl/html/paginas/pdf/Kenya_clinical_trials_2006_EN.pdf)

13) Republic of Kenya, Ministry of Health, *Kenya National Guidelines for Research & Development of HIV/AIDS Vaccine*, 2005 (Accessed on 9 July 2008 at http://www.iavi.org/file.cfm?fid=31372)

14) Republic of Kenya, Ministry of Health, Pharmacy and Poison Board, *Guideline for the National Pharmacovigilance System in Kenya*, 2007 (Accessed on 9 July 2008 at http://www.pharmacyboardkenya.org/assets/files/Pharmacovigilance%20Guideline.pdf

15) Research-Africa, *Kenyan Science and Technology System, A brief profile*, (Date unknown), (Accessed on 9 July 2008 at http://www.research-africa.net/media/pdf/Kenya-ST.pdf)

16) UNESCO – United Nations Educational, Scientific and Cultural Organization, *Global Ethics Observatory*, (Accessed on 30 September 2008 at http://www.unesco.org/shs/ethics/geo/user/?action=select&lng=en&db=)

17) Wasunna M., *Challenges and institutional constraints on bioethics development in Africa,* Kenya Medical Research Institute, 14th Session of the International Bioethics Committee, 2007 (Accesssed on 15 November 2008 at http://portal.unesco.org/shs/en/files/10961/11818103761African_perspectives_-_Wassuna.pdf/African%2Bperspectives%2B-%2BWassuna.pdf)

18) WHO – UNAIDS HIV Vaccine Initiative, *HIV/AIDS Vaccine Country Profile Kenya*, 2005 (Accessed on 25 August 2008 at http://www.who.int/vaccine_research/diseases/hiv/aavp/Kenya_profile.pdf)

LYBIA	
National specific legislation on ethics in biomedical research	N/A
Guidelines and/or SOPs concerning ethics in research	N/A
National/Institutional Bioethics Committees that review ethics of biomedical research with human participants	YES

Sources:

1) UNESCO – United Nations Educational, Scientific and Cultural Organization, *Global Ethics Observatory*, (Accessed on 30 September 2008 at http://www.unesco.org/shs/ethics/geo/user/?action=map&lng=en&db=)

2) WHO/EMRO - World Health Organization Regional Office for the Eastern Mediterranean, UNESCO - United Nations Educational, Scientific and Cultural Organization, *First Regional Meeting of National Bioethics Committees,* Cairo 5/7 May 2007 (Accessed on 30 September 2008 at http://unesdoc.unesco.org/images/0015/00152805e.pdf)

MALAWI	
National specific legislation on ethics in biomedical research	N/A*
Guidelines and/or SOPs concerning ethics in research	N/A
National/Institutional Bioethics Committees that review ethics of biomedical research with human participants	YES

** According to direct information from a country expert, Malawi is currently preparing a draft law regulating clinical trials.*

Sources:

1) COHRED - The Council on Health Research for Development, *Getting Research into Policy and Practice in Malawi: The experience of the National TB Control Programme*, Research into Action, 2000, No. 19, Page 5 (Accessed on 9 July 2008 at http://www.cohred.org/main/CommonCategories/content/600.pdf)

2) COHRED - The Council on Health Research for Development, *Malawi – Prioritised health research in support of the National Health Plan*, *Research into Action*, 2001, No. 25, Pages 4-5 (Accessed on 9 July 2008 at http://www.cohred.org/main/CommonCategories/content/711.pdf)

3) DFID – Department For International Development, IDRC – International Development Research Center and Wellcome Trust, *Health research capacity strengthening initiative, Kenya and Malawi*, 2006 (Accessed on 9 July 2008 at http://www.idrc.ca/uploads/user-S/11656062041DFID-IDRC-WT_HRCS_Aug06.pdf)

4) Harvard School of Public Health, *Global Research Ethics Map*, 2006 (Accessed on 9 July 2008 at https://webapps.sph.harvard.edu/live/gremap/view.cfm)

5) Kirigia J. M, Wambebe C., Baba-Moussa A., *Status of national research bioethics committees in the WHO African region*, BMC Medical Ethics, 2005, Vol. 6:10 (Accessed on 21 August 2008 at http://www.biomedcentral.com/1472-6939/6/10)

6) Mtunthama N. et al., *Malawians permit research broncoschopy due to perceived need for healthcare*, Journal of Medical Ethics, 2008, Vol. 34, Pages 303-307 (Accessed on 17 December 2008 at http://jme.bmj.com/cgi/content/full/34/4/303)

7) UNESCO - United Nations Educational, Scientific and Cultural Organization, *ABC Project, Meeting to discuss the establishment of the National Bioethics Committee in Malawi*, 2007 (Accessed on 17 December 2008 at http://unesdoc.unesco.org/images/0015/001528/152854e.pdf)

8) UNESCO – United Nations Educational, Scientific and Cultural Organization, *Global Ethics Observatory*, (Accessed on 30 September 2008 at http://www.unesco.org/shs/ethics/geo/user/?action=select&lng=en&db=)

MALI	
National specific legislation on ethics in biomedical research	N/A
Guidelines and/or SOPs concerning ethics in research	N/A
National/Institutional Bioethics Committees that review ethics of biomedical research with human participants	YES

Sources:

1) Kirigia J. M, Wambebe C., Baba-Moussa A., *Status of national research bioethics committees in the WHO African region*, BMC Medical Ethics, 2005, Vol. 6:10 (Accessed on 21 August 2008 at http://www.biomedcentral.com/1472-6939/6/10)

2) neBRA – Networking for Ethics on Biomedical Research in Africa, *Final Report*, 2006 (Accessed on 8 July 2008 at http://www.trree.org/site/en_nebra.phtml)

3) UNESCO – United Nations Educational, Scientific and Cultural Organization, *Global Ethics Observatory*, (Accessed on 30 September 2008 at http://www.unesco.org/shs/ethics/geo/user/?action=select&lng=en&db=)

MAURITANIA	
National specific legislation on ethics in biomedical research	N/A
Guidelines and/or SOPs concerning ethics in research	N/A
National/Institutional Bioethics Committees that review ethics of biomedical research with human participants	NO

Sources:

1) Kirigia J. M, Wambebe C., Baba-Moussa A., *Status of national research bioethics committees in the WHO African region*, BMC Medical Ethics, 2005, Vol. 6:10 (Accessed on 21 August 2008 at http://www.biomedcentral.com/1472-6939/6/10)

MAURITIUS	
National specific legislation on ethics in biomedical research	N/A*
Guidelines and/or SOPs concerning ethics in research	N/A**
National/Institutional Bioethics Committees that review ethics of biomedical research with human participants	N/A***

** The draft of the Clinical Trial Bill is at present the subject of discussions by health professionals and the authorities concerned. The final version will be submitted to Parliament for approval.*

*** The guidelines are included in the abovementioned legislation*

**** For the time being, a National Ethics Committee based at the Ministry of Health & Quality of Life serves as an Advisory Body. Up to now, clinical trials on human subjects have not been conducted in Mauritius.*

Sources:

1) Email from Dr. Mohith J.C., Executive Director, Mauritius Institute of Health

2) Kirigia J. M, Wambebe C., Baba-Moussa A., *Status of national research bioethics committees in the WHO African region*, BMC Medical Ethics, 2005, Vol. 6:10 (Accessed on 21 August 2008 at http://www.biomedcentral.com/1472-6939/6/10)

3) Republic of Mauritius, Ministry of Health and Quality of Life, http://www.gov.mu/portal/site/mohsite (Accessed on 26 August 2008)

4) UNESCO – United Nations Educational, Scientific and Cultural Organization, *UNESCO ABC Project, Preparatory mission on the establishment of National Bioethics Committee in Mauritius, 5-11 August 2007* (Accessed on 9 July 2008 at http://unesdoc.unesco.org/images/0015/001528/152832e.pdf)

MOROCCO	
National specific legislation on ethics in biomedical research	NO
Guidelines and/or SOPs concerning ethics in research	N/A
National/Institutional Bioethics Committees that review ethics of biomedical research with human participants	YES

Sources:

1) A+Science, *A+ Science initiates Clinical trial symposium held in Morocco*, 2008 (Accessed on 9 July 2008 at http://www.a-plusscience.com/index.cfm/en/news/latest_news2/?archive&prid=32)

2) Barnes K., *Morocco vying for clinical trial attention*, Outsourcing pharma.com, 2006 (Accessed on 9 July 2008 at http://www.outsourcing-pharma.com/news/ng.asp?id=71392-ppd-morocco-clinical-trials)

3) Hassar M., *Recherche en santé*, Institut Pasteur du Maroc, Pharmacologie Clinique, 2005 (Accessed on 9 July 2008 at http://www.emro.who.int/morocco/docs/fr/RS.pdf)

4) Hassi H., *Recherches cliniques, Le Maroc encore à la traîne*, L'Economiste, 2008 (Accessed on 9 July 2008 at http://www.leconomiste.com/print_article.html?a=83390)

5) R.K., *L'éthique de la recherche scientifique, Le Maroc n'est pas doté d'un arsenal juridique qui encadre cette activité*, Lematin.ma, 2007 (Accessed on 5 Septembre 2008 at http://www.lematin.ma/Actualite/Journal/Article.asp?idr=116&id=76421)

6) Royaume du Maroc, Ministère de la Sante, *Circuit du médicament au sein de L.N.C.M.,* (Date unknown), (Accessed on 5 Septembre 2008 at http://www.sante.gov.ma/Departements/DMP/lncm/circuitsmedic.htm)

7) Royaume du Maroc, Ministère de la Santé, *Division de la Direction du Médicament et de la Pharmacie,* (Accessed on 5 Septembre 2008 at http://www.sante.gov.ma/Departements/DMP/lncm/lncmpresenta.htm)

8) Tazi A., *Les Comités d'Éthique au Maroc et dans la région: États des lieux et enjeux*, 2005 (Accessed on 9 July 2008 at http://www.emro.who.int/morocco/docs/fr/EL.pdf)

9) UNESCO - United Nations Educational, Scientific and Cultural Organization, *Global Ethics Observatory*, (Accessed on 30 September 2008 at http://www.unesco.org/shs/ethics/geo/user/?action=select&lng=en&db=)

10) WHO/EMRO – World Health Organization Regional Office for the Eastern Mediterranean, *Colloque National de Bioéthique, Atelier de Formation à l'éthique de la recherche, Recommendations,* Faculté de Médecine et de Pharmacie de Fès, Fès 8-11 Juin 2005 (Accessed on 9 July 2008 at http://www.emro.who.int/morocco/docs/en/Recommandations.pdf)

11) WHO/EMRO - World Health Organization Regional Office for the Eastern Mediterranean, UNESCO - United Nations Educational, Scientific and Cultural Organization, *First Regional Meeting of National Bioethics Committees,* Cairo 5/7 May 2007 (Accessed on 30 September 2008 at http://unesdoc.unesco.org/images/0015/00152805e.pdf)

12) Zayyoun A., Maaroufi A., Khyati M., *Rapport de recherche: Analyse du système de recherche en santé*, Royaume du Maroc, Ministère de la Santé, DELM-Direction de l'Epidémiologie et de la Lutte contre les Maladies and WHO/EMRO - World Health Organisation Regional Office for the Eastern Mediterranean, 2003 (Accessed on 9 July 2008 at http://doc.abhatoo.net.ma/DOC/IMG/pdf/Raport_20RSS.pdf)

13) Ziraoui Y., *Médecine. Le labyrinthe des tests cliniques*, Tel Quel on-line, 2008, No. 302 (Accessed on 9 July 2008 at http://www.telquel-online.com/302/maroc2_302.shtml)

MOZAMBIQUE	
National specific legislation on ethics in biomedical research	N/A
Guidelines and/or SOPs concerning ethics in research	N/A
National/Institutional Bioethics Committees that review ethics of biomedical research with human participants	YES

Sources:

1) Kirigia J. M, Wambebe C., Baba-Moussa A., *Status of national research bioethics committees in the WHO African region*, BMC Medical Ethics, 2005, Vol. 6:10 (Accessed on 21 August 2008 at http://www.biomedcentral.com/1472-6939/6/10)

NIGERIA	
National specific legislation on ethics in biomedical research	YES
Guidelines and/or SOPs concerning ethics in research	YES
National/Institutional Bioethics Committees that review ethics of biomedical research with human participants	YES

Sources:

1) Ajuwon A. J., Kass N., *Outcome of a research ethics training workshop among clinicians and scientists in a Nigerian University*, BMC - Medical Ethics, 2008, Vol. 9:1 (Accessed on 9 July 2008 at http://www.biomedcentral.com/content/pdf/1472-6939-9-1.pdf)

2) Federal Republic of Nigeria, Ministry of Health, Department of Health Planning and Research, *NHREC - National Health Research Ethics Committee of Nigeria*, 2006 (Accessed on 9 July 2008 at http://www.nhrec.net/nhrec/)

3) Federal Republic of Nigeria, Ministry of Health, National Health Research Ethics Committee of Nigeria (NHREC), *National Code of Health Research Ethics,* 2007 (Accessed on 9 July 2008 at http://www.nhrec.net/nhrec/offline.html)

4) Federal Republic of Nigeria, *NAFDAC – The National Agency for Food and Drug Administration and Control* (Date unknown), (Accessed on 26 August 2008 at www.nafdacnigeria.org)

5) Federal Republic of Nigeria, NHREC - National Health Research Ethics Committee, *About National Health Research Ethics Committee,* (Date unknown), (Accessed on 9 July 2008 at http://www.nhrec.net/nhrec/about.html

6) Irabor D.O., Omonzejele P., *Country Report, Local attitudes, moral obligation, customary obedience and other cultural practices: their influence on the process of gaining informed consent for surgery in a tertiary institution in a developing country*, Developing World Bioethics ISSN 1471-8731, 2007 (Accessed on 8 July 2008 at http://web.up.ac.za/sitefiles/File/healthsciences/SARETI/downloads/Irabor_Informed_consent.pdf)

7) Manafa O., Lindegger G., Ijsselmuiden C., *Informed consent in an antiretroviral trial in Nigeria*, Indian Journal of Medical Ethics, 2007, Vol. IV, No 1, Pages 26-30 (Accessed on 9 July 2008 at http://web.up.ac.za/sitefiles/File/healthsciences/SARETI/downloads/Manafa_007.pdf)

8) neBRA – Networking for Ethics on Biomedical Research in Africa*, Final Report, Annex 15: Nigeria-Preparatory text for the future National Committee,* 2006 (Accessed on 8 July 2008 at http://www.trree.org/site/en_nebra.phtml)

9) neBRA – Networking for Ethics on Biomedical Research in Africa, *Final Report*, 2006 (Accessed on 8 July 2008 at http://www.trree.org/site/en_nebra.phtml)

10) UNESCO – United Nations Educational, Scientific and Cultural Organization, *Global Ethics Observatory*, (Accessed on 30 September 2008 at http://www.unesco.org/shs/ethics/geo/user/?action=select&lng=en&db=)

11) WHO – UNAIDS HIV Vaccine Initiative, *HIV/AIDS Vaccine Country Profile*, 2005 (Accessed on 25 August 2008 at http://www.who.int/vaccine_research/diseases/hiv/aavp/Nigeria.pdf)

RWANDA	
National specific legislation on ethics in biomedical research	N/A
Guidelines and/or SOPs concerning ethics in research	N/A
National/Institutional Bioethics Committees that review ethics of biomedical research with human participants	YES

Sources:

1) Kirigia J. M, Wambebe C., Baba-Moussa A., *Status of national research bioethics committees in the WHO African region*, BMC Medical Ethics, 2005, Vol. 6:10 (Accessed on 21 August 2008 at http://www.biomedcentral.com/1472-6939/6/10)

SAO TOME AND PRINCIPE	
National specific legislation on ethics in biomedical research	N/A
Guidelines and/or SOPs concerning ethics in research	N/A
National/Institutional Bioethics Committees that review ethics of biomedical research with human participants	NO

Sources:

1) Kirigia J. M, Wambebe C., Baba-Moussa A., *Status of national research bioethics committees in the WHO African region*, BMC Medical Ethics, 2005, Vol. 6:10 (Accessed on 21 August 2008 at http://www.biomedcentral.com/1472-6939/6/10)

SENEGAL	
National specific legislation on ethics in biomedical research	YES
Guidelines and/or SOPs concerning ethics in research	YES
National/Institutional Bioethics Committees that review ethics of biomedical research with human participants	YES

Sources:

1) Dramé B., Becker C., Samba Cor Sarr, *Le Conseil national de recherche en santé: naissance d'une instance éthique au Sénégal,* Animation régionale de Dakar, Réseau des chercheurs "Droit de la Santé", Agence Universitaire de la Francophonie, (Date unknown), (Accessed on 25 July au http://www.refer.sn/rds/IMG/doc/3DRAMECNRSENEGALANIMA.doc)

2) Harvard School of Public Health, *Global Research Ethics Map*, 2006 (Accessed on 25 July 2008 at https://webapps.sph.harvard.edu/live/gremap/view.cfm)

3) neBRA – Networking for Ethics on Biomedical Research in Africa, *Final Report, Annex 16: Sénégal - Draft Bill on Health Research,* 2006, (Accessed on 8 July 2008 at http://www.trree.org/site/en_nebra.phtml)

4) neBRA – Networking for Ethics on Biomedical Research in Africa, *Final Report, Annex 17- Sénégal - Draft decree for the creation of a National Research Committee,* 2006, (Accessed on 8 July 2008 at http://www.trree.org/site/en_nebra.phtml)

5) neBRA – Networking for Ethics on Biomedical Research in Africa, *Final Report,* 2006, (Accessed on 8 July 2008 at http://www.trree.org/site/en_nebra.phtml)

6) République du Sénégal, Conseil National de Recherche en Santé, *Règlement intérieur du Conseil National de la Recherche en Santé*, 2006 (Accessed on 25 July 2008 at https://webapps.sph.harvard.edu/live/gremap/files/sn_CNRSreglementinterieur2005.pdf)

7) République du Sénégal, Ministère de la Santé, *Analyse: Arrêté portant création et organisation du Conseil National de la Recherche en Santé*, 2001 (Accessed on 25 July 2008 at http://www.refer.sn/rds/IMG/pdf/4h01-03-02CNRS.pdf)

8) République du Sénégal, Ministère de la Santé, *Arrêté ministériel n° 3224 MSP-DERF-DER en date du 17 mars 2004 abrogeant et remplaçant l'arrêté n° 1422 MS-DERF-DER du 2 mars 2001 portant création et organisation du Conseil National de Recherche en Santé/CNRS*, 2004 (Accessed on 25 July at http://www.refer.sn/rds/IMG/pdf/4h04-03-17CNRSANTE.pdf)

9) UNESCO – United Nations Educational, Scientific and Cultural Organization, *Global Ethics Observatory*, (Accessed on 30 September 2008 at http://www.unesco.org/shs/ethics/geo/user/?action=select&lng=en&db=)

SEYCHELLES	
National specific legislation on ethics in biomedical research	N/A
Guidelines and/or SOPs concerning ethics in research	N/A
National/Institutional Bioethics Committees that review ethics of biomedical research with human participants	YES

Sources:

1) Kirigia J. M, Wambebe C., Baba-Moussa A., *Status of national research bioethics committees in the WHO African region*, BMC Medical Ethics, 2005, Vol. 6:10 (Accessed on 21 August 2008 at http://www.biomedcentral.com/1472-6939/6/10)

SOUTH AFRICA	
National specific legislation on ethics in biomedical research	YES
Guidelines and/or SOPs concerning ethics in research	YES
National/Institutional Bioethics Committees that review ethics of biomedical research with human participants	YES

Sources:

1) Batho Pele, *The Batho Pele Principles*, (Date unknown), (Accessed on 17 July 2008 at http://www.dpsa.gov.za/batho-pele/Principles.asp)

2) COHRED - The Council on Health Research for Development, *Priority Setting for Health Research: Toward a management process for low and middle income countries, Country experiences Philippines, South Africa, Brazil, The Netherlands, Overview of existing tools and methods*, 2006 (Accessed on 17 July 2008 at http://www.cohred.org/publications/workingpapers/COHREDWP1PrioritySetting.pdf)

3) Dawad S., Veenstra N., *Comparative health systems research in a context of HIV/AIDS: lessons from a multi-country study in South Africa, Tanzania and Zambia*, BMC BioMed Central, 2007, Vol. 5:13 (Accessed on 17 July 2008 at http://www.health-policy-systems.com/content/pdf/1478-4505-5-13.pdf)

4) Harvard School of Public Health, *Global Research Ethics Map*, 2006 (Accessed on 10 July 2008 at https://webapps.sph.harvard.edu/live/gremap/view.cfm)

5) Langlois A., *The UNESCO Universal Declaration on Bioethics and Human Rights: Perspectives from Kenya and South Africa*, Health Care Anal, 2008, Vol. 16, Pages 39-51 (Accessed on 9 July 2008 at http://www.springerlink.com/content/p655787h217h0236/fulltext.pdf)

6) Moodley K., Myer L., *Health Research Ethics Committees in South Africa 12 years into democracy*, BMC Medical Ethics, 2007, Vol. 8:1 (Accessed on 17 July 2008 at http://www.biomedcentral.com/content/pdf/1472-6939-8-1.pdf)

7) Republic of South Africa, Department of Health, *Ethics in Health Research Principles, Structures and Processes*, 2004 (Accessed on 10 July 2008 at http://www.doh.gov.za/nhrec/norms/ethics.pdf)

8) Republic of South Africa, Department of Health, *Guidelines for Good Practice in the conduct of Clinical Trials in human participants in South Africa*, 2000 (Accessed on 17 July 2008 at http://www.doh.gov.za/docs/policy/trials/trials_contents.html)

9) Republic of South Africa, Department of Health, *Law audit applicable to child participation in research and clinical trials*, (Date unknown), (Accessed on 17 July 2008 at http://www.saavi.org.za/legalaudit.pdf)

10) Republic of South Africa, Department of Health, *South African Good Clinical Practice Guidelines*, *Second Edition*, 2006 (Accessed on 10 July 2008 at http://www.doh.gov.za/docs/factsheets/guidelines/clinical/2006/part1.pdf)

11) Republic of South Africa, Department of Health, South African National Clinical Trials Register, *Research Ethics Committees*, (Date unknown), (Accessed on 10 July 2008 at http://sancrt.gov.za/YourbrnbRights/ResearchEthicsCommittees/tabid/178/Default.aspx)

12) Republic of South Africa, Department of Health, *The Patient's Rights Charter*, (Date unknown), (Accessed on 10 July 2008 at http://www.justice.gov.za/VC/docs/policy/Patient%20Rights%20Charter.pdf)

13) Republic of South Africa, Department of Health, *What you should know when deciding to take part in a clinical trial as a research participant*, 2002 (Accessed on 10 July 2008 at http://www.doh.gov.za/aids/docs/gcp2.html)

14) Republic of South Africa, Department of Health, *White Paper on the Transformation of the Health System in South Africa*, 1997 (Accessed on 29 July 2008 at http://www.info.gov.za/whitepapers/1997/health.htm)

15) Republic of South Africa, Medical Research Council (MRC), *Guidelines for Good Clinical Practice in Clinical Trials*, MRC Clinical Trials Series, 1998 (Accessed on 17 July 2008 at www.mrc.ac.uk/consumption/idcplg?IdcService=GET_FILE&dID=7525&dDocName=MRC002416&allowInterrupt=1)

16) Republic of South Africa, Medical Research Council (MRC), *Guidelines on Ethics for Medical Research: General Principles including research on children, vulnerable groups, international collaboration and epidemiology, Book 1*, 2003 (Accessed on 2 October 2008 at http://www.sahealthinfo.org/ethics/ethicsbook1.pdf)

17) Republic of South Africa, Medical Research Council (MRC), *Guidelines on Ethics for Medical Research, HIV preventive vaccine research, Book 5,* 2003 (Accessed on 17 July 2008 at http://www.sahealthinfo.org/ethics/ethicsbook5.pdf)

18) Republic of South Africa, Minister of Health, *National Health Bill*, 2003 (Accessed on 10 July 2008 at http://www.doh.gov.za/docs/bills/b32b.pdf)

19) Republic of South Africa, Minister of Health, *South Africa Medicine & Related Substances Amendment Bill*, 2002 (Accessed on 17 July 2008 at http://www.info.gov.za/view/DownloadFileAction?id=66947)

20) Republic of South Africa, *National Health Act No. 61*, Government Gazette, 23 July 2004, Vol. 469, No. 26595 (Accessed on 17 July 2008 at http://www.doh.gov.za/docs/legislation-f.html)

21) Singh J. A., *Health Research and Human Rights in South Africa*, The Lancet, 2004 Vol. 363, Issue 9418, Page 1393 (Accessed on 17 July 2008 at http://download.thelancet.com/pdfs/journals/0140-6736/PIIS0140673604160546.pdf)

22) Slack C., Strode A., Fleischer T., Gray G., Ranchod C., *Enrolling adolescents in HIV vaccine trials: reflections on legal complexities from South Africa*, BMC Medical Ethics, 2007, Vol. 8:5 (Accessed on 17 July 2008 at http://www.biomedcentral.com/content/pdf/1472-6939-8-5.pdf)

23) UNESCO - United Nations Educational, Scientific and Cultural Organization, *Global Ethics Observatory*, (Accessed on 30 September 2008 at http://www.unesco.org/shs/ethics/geo/user/?action=select&lng=en&db=)

24) WHO – UNAIDS HIV Vaccine Initiative, *HIV/AIDS Vaccine Country Profile*, 2005 (Accessed on 25 August 2008 at http://www.who.int/vaccine_research/diseases/hiv/aavp/SouthAfrica.pdf)

SUDAN	
National specific legislation on ethics in biomedical research	NO
Guidelines and/or SOPs concerning ethics in research	NO
National/Institutional Bioethics Committees that review ethics of biomedical research with human participants	YES

Sources:

1) Elsayed D.E.M., Kass N., *Attitudes of Sudanese researchers on obtaining informed consent from study subjects involved in health research*, Sudanese Journal of Public Health, 2007, Vol. 2, No. 2, Pages 95-102 (Accessed on 23 July at http://www.sjph.net.sd/files/vol2i2p95-102.pdf)

2) Elsayed D.E.M., *National Framework for Ethics in Health Research involving Human Subjects*, Sudanese Journal of Public Health, 2006, Vol. 1, No. 3, Pages 192-196 (Accessed on 23 July 2008 at http://www.sjph.net.sd/files/v1i3p192-196.pdf)

3) UNESCO – United Nations Educational, Scientific and Cultural Organization, *Global Ethics Observatory*, (Accessed on 30 September 2008 at http://www.unesco.org/shs/ethics/geo/user/?action=select&lng=en&db=)

4) WHO/EMRO - World Health Organization Regional Office for the Eastern Mediterranean, UNESCO - United Nations Educational, Scientific and Cultural Organization, *First Regional Meeting of National Bioethics Committees,* Cairo 5/7 May 2007 (Accessed on 30 September 2008 at http://unesdoc.unesco.org/images/0015/00152805e.pdf)

SWAZILAND	
National specific legislation on ethics in biomedical research	N/A
Guidelines and/or SOPs concerning ethics in research	N/A
National/Institutional Bioethics Committees that review ethics of biomedical research with human participants	NO

Sources:

1) Kirigia J. M, Wambebe C., Baba-Moussa A., *Status of national research bioethics committees in the WHO African region*, BMC Medical Ethics, 2005, Vol. 6:10 (Accessed on 21 August 2008 at http://www.biomedcentral.com/1472-6939/6/10)

TANZANIA	
National specific legislation on ethics in biomedical research	NO
Guidelines and/or SOPs concerning ethics in research	YES
National/Institutional Bioethics Committees that review ethics of biomedical research with human participants	YES

Sources:

1) COHRED-The Council on Health Research for Development, *From a little known entity to a functional health research network: The Tanzania National Health Research Forum*, Research into Action, 2000, No. 20, Pages 5-6 (Accessed on 15 November 2008 at http://www.cohred.org/main/CommonCategories/content/599.pdf)

2) COHRED - The Council on Health Research for Development, *National survey of health research for development in Tanzania - a summary*, 2000 (Accessed on 22 July 2008 at http://www.cohred.org/cohred/content/267.doc)

3) COHRED - The Council on Health Research for Development, *NIMR celebrates 20th anniversary, Tanzania's Minister of Health lauds organisation's achievements*, Research into Action, 2001, No. 23, Pages 8-9 (Accessed on 15 November 2008 at http://www.cohred.org/main/CommonCategories/content/700.pdf)

4) COHRED -The Council on Health Research for Development, *Resource Flows for Health Research in Cameroon and Tanzania*, Research into Action, 2003, No. 31, Pages 6-7 (Accessed on 22 July 2008 at http://www.cohred.org/main/CommonCategories/content/742.pdf)

5) COHRED - The Council on Health Research for Development, *Tanzania - re-orientation of the ENHR mechanism to reinforce partnership*, 2000 (Accessed on 22 July 2008 at http://www.cohred.org/main/CommonCategories/content/534.pdf)

6) Dawad S., Veenstra N., *Comparative health systems research in a context of HIV/AIDS: lessons from a multi-country study in South Africa, Tanzania and Zambia*, BMC BioMed Central, 2007, Vol. 5:13 (Accessed on 22 July 2008 at http://www.health-policy-systems.com/content/pdf/1478-4505-5-13.pdf)

7) Global Forum on Health Research, *Health Research Institutions and Global Challenges,* Global Forum Update on Research for Health, Vol. 2, Pages 127-140 (Date unknown), (Accessed on 22 July 2008 at http://www.globalforumhealth.org/filesupld/global_update2/5_health_research.pdf)

8) Global Forum for Health Research, *Universities, Schools of Public Health and Health Research Systems,* Global Forum Update on Research for Health, Vol. 2, Pages 141-157 (Date unknown), (Accessed on 22 July 2008 at http://www.globalforumhealth.org/filesupld/global_update2/6_universities.pdf)

9) Harrison D., *How should public money be spent? The case of health research in Tanzania*, COHRED - The Council on Health Research for Development, 2002 (Accessed on 22 July 2008 at http://www.cohred.org/main/CommonCategories/content/721.pdf)

10) Harvard School of Public Health, *Global Research Ethics Map*, 2006 (Accessed on 22 July 2008 at https://webapps.sph.harvard.edu/live/gremap/view.cfm)

11) Ikingura J.K., Kruger M., Zeleke W., *Health research ethics review and needs of institutional ethics committees in Tanzania,* United Republic of Tanzania, NIMR - National Institute for Medical Research, (Date unknown), (Accessed on 22 July 2008 at http://web.up.ac.za/sitefiles/File/45/SARETI/Ikingura%20et%20al.pdf)

12) Johansson K.A. et al., *National HIV Treatment Guidelines in Tanzania and Ethiopia: are they legitimate rationing tools?*, Journal of Medical Ethics, 2008, Vol. 34, Pages 478-483 (Accessed on 15 November 2008 at http://jme.bmj.com/cgi/content/abstract/34/6/478)

13) Kitua A.Y., Mashalla Y.J.S., Shija J.K., *Coordinating health research to promote action: the Tanzanian experience*, British Medical Journal, 2000, Vol. 321, Pages 821-823 (Accessed on 22 July 2008 at http://www.bmj.com/cgi/content/full/321/7264/821)

14) Kumaranayake L., Lake S., Mujinja P., Hongoro C., Mpembeni R., *How do countries regulate the health sector? Evidence from Tanzania and Zimbabwe*, Health Policy and Planning, 2000, Vol. 15, No.4, Pages 357-367 **(**Accessed on 22 July 2008 at http://heapol.oxfordjournals.org/cgi/reprint/15/4/357.pdf)

15) UNESCO – United Nations Educational, Scientific and Cultural Organization, *Global Ethics Observatory*, (Accessed on 30 September 2008 at http://www.unesco.org/shs/ethics/geo/user/?action=select&lng=en&db=)

16) United Republic of Tanzania, National Institute for Medical Research (NIMR), *Ethical Clearance Guidelines, Medical Research Coordinating Committee Ethical Guidelines*, 2008 (Accessed on 28 August 2008 at http://nimr.or.tz/websitehome/index.php?option=com_content&view=article&id=46&Itemid=58)

17) United Republic of Tanzania, National Institute for Medical Research (NIMR), *National Health Research Database (NHRD),* (Date unknown), (Accessed on 28 August 2008 at http://www.nimr.or.tz/nhrd/homepage.php)

18) United Republic of Tanzania, Tanzania Commission for Science and Technology (COSTECH), *About COSTECH*, (Date unknown), (Accessed on 25 July 2008 at http://www.costech.or.tz/about.htm)

19) United Republic of Tanzania, Tanzania Commission for Science and Technology (COSTECH), *Research Clearance*, (Date unknown), (Accessed on 28 August 2008 at http://www.costech.or.tz/research%20clearance.htm)

20) United Republic of Tanzania, *The Tanzania Food, Drugs and Cosmetics Act*, 2003 (Accessed on 22 July 2008 at http://www.tfda.or.tz/tfdaact.pdf)

21) WHO – UNAIDS HIV Vaccine Initiative, *HIV/AIDS Vaccine Country Profile*, 2005 (Accessed on 25 August 2008 at http://www.who.int/vaccine_research/diseases/hiv/aavp/Tanzania_profile.pdf)

TOGO	
National specific legislation on ethics in biomedical research	N/A
Guidelines and/or SOPs concerning ethics in research	N/A
National/Institutional Bioethics Committees that review ethics of biomedical research with human participants	NO

Sources:

1) Kirigia J. M, Wambebe C., Baba-Moussa A., *Status of national research bioethics committees in the WHO African region*, BMC Medical Ethics, 2005, Vol. 6:10, (Accessed on 21 August 2008 at http://www.biomedcentral.com/1472-6939/6/10)

2) neBRA – Networking for Ethics on Biomedical Research in Africa, *Final Report,* 2006, (Accessed on 8 July 2008 at http://www.trree.org/site/en_nebra.phtml)

3) République Togolaise, Comité Consultatif National de Bioéthique and Commission Nationale pour l'UNESCO, *CCNB – TOGO, Réunion Constitutive, Rapport Final*, 2007 (Accessed on 29 September 2008 at http://portal.unesco.org/shs/en/files/11547/11924568151Report_meeting_29_March_2007.pdf/Report%2Bmeeting%2B29%2BMarch%2B2007.pdf)

4) UNESCO – United Nations Educational, Scientific and Cultural Organization, *Global Ethics Observatory*, (Accessed on 30 September 2008 at http://www.unesco.org/shs/ethics/geo/user/?action=select&lng=en&db=)

TUNISIA	
National specific legislation on ethics in biomedical research	NO
Guidelines and/or SOPs concerning ethics in research	N/A
National/Institutional Bioethics Committees that review ethics of biomedical research with human participants	YES

Sources:

1) Amilcar International, CRO - Advice in Medical Investigation and Logistic for Communication and Research, *Essais cliniques en Tunisie*, 2005 (Accessed on 23 July 2008 at http://www.amilcar.com.tn/Sante_Tunisie.ppt)

2) Amilcar International, CRO - Advice in Medical Investigation and Logistic for Communication and Research, *Roadmap for clinical trials in Tunisia,* (Date unknown), (Accessed on 23 July 2008 at http://www.amilcar.com.tn/Roadmap.pdf)

3) Hamza B., *Spécificités et Rôle des Comités d'Ethique, Exemple de la Tunisie*, République Tunisienne, Ministère de la Santé Publique, Comité National d'Ethique Médicale, 2003 (Accessed on 23 July 2008 at http://www.comiteethique.rns.tn/ethique/CONFERENCES_ET_PUBLICATIONS/SPECIF_COMITES_ETHIQUES_COURS_PHILOSOPHES.doc)

4) Hamza B., *Spécificités des Comités d'Ethique propres aux pays émergents: exemple de la Tunisie*, République de Tunisie, Comité National d'Ethique Médicale, Premier Colloque National de Bioéthique Casablanca, 30 Juin 2001 (Accessed on 23 July 2008 at http://www.comiteethique.rns.tn/ethique/CONFERENCES_ET_PUBLICATIONS/SPECIF_COMITES_ETHIQUES.doc)

5) Kennedy A., Khoja T.A.M., Abou-Zeid A.H., Ghannem H., Ijsselmuiden C., on behalf of the WHO-EMRO/COHRED/GCC NHRS Collaborative Group, *National health research system mapping in 10 Eastern Mediterranean countries*, La Révue de la Santé Orientale, 2008, Vol. 14, No. 3, Pages 502-517 (Accessed on 26 August 2008 at http://www.emro.who.int/emhj/1403/14_3_2008_0502_0517.pdf)

6) Maghrebmed, Santé et Médicine au Maghreb, *Les Bonnes Pratiques Cliniques en Tunisie* (Date unknown), (Accessed on 23 July 2008 at http://www.maghrebmed.com.tn/contenu.php?NumeroSousRubrique=91&imgbgrubrique=images/fond_center3.jpg)

7) République Tunisienne, Ministère de la Santé, *Cahier des Charges Relatif à l'expérimentation médicale ou scientifique des médicaments destinés à la médecine humaine*, Arrêté du Ministre de la Santé Publique du 28 Mai 2001 JORT N° 47 DU 12 Juin 2001 (Accessed on 23 July 2008 at http://www.santetunisie.rns.tn/msp/service_public/cahier_charge/c_charge_fr/C4_fr.pdf)

8) République Tunisienne, Comité National d'Ethique Médicale, *Les Essais Cliniques des nouveaux médicaments chez l'homme: impératifs éthiques et cadre juridiques, IXème*

Conférence Annuelle, 2005 (Accessed on 23 September 2008 at http://www.comiteethique.rns.tn/ethique/CONFERENCES/CONFERENCE9.pdf)

9) République Tunisienne, Ministère de la Santé Publique, Comité National d'Ethique Médicale*, Présentation et Mission* (Date unknown), (Accessed on 23 September 2008 at http://www.comiteethique.rns.tn/ethique/ethique.html)

10) République Tunisienne, Ministère de la Santé Publique, *Décret n. 94-1939 du 19 Septembre 1994, fixant les attributions, la composition et les modalités de fonctionnement du comité national d'éthique médicale*,1994 (Accessed on 23 September 2008 at http://www.atds.org.tn/CNEM2.pdf)

11) République Tunisienne, Ministère de la Santé Publique, *Décret n. 2001-2133 du 10 Septembre 2001, modifiant et completant le décret n. 94-1939 du 19 Septembre 1994, fixant les attributions, la composition et les modalités de fonctionnement du comité national d'éthique medicale*, 2001 (Accessed on 23 September 2008 at http://www.comiteethique.rns.tn/ethique/textes%20juridiques/DECRET-2001-2133-fr.pdf)

12) République Tunisienne, Ministère de la Santé Publique, *Dispositions et Principes directeurs relatifs aux Bonnes Pratiques dans les Essais Cliniques*, (Date unknown), (Accessed on 23 September 2008 on http://www.dpm.tn/PDF/Annexeexperim.PDF)

13) République Tunisienne, Ministère de la Santé Publique, *L'Industrie Pharmaceutique*, (Date unknown), (Accessed on 23 July 2008 at http://www.santetunisie.rns.tn/msp/sante_tunisie/industrie_phar.html)

14) République Tunisienne, Président de la République, *Code de déontologie médicale tunisine, Décret n° 93-1155 du 17 mai 1993, portant code de déontologie médicale*, 1993 (Accessed on 21 August 2008 at http://www.ordre medecins.org.tn/images/code_deontologie.pdf)

15) République Tunisienne, Président de la République, *Décret n° 90-1401 du 3 Septembre 1990, fixant les modalités de l'expérimentation médicale ou scientifique des médicaments destinés à la médecine humaine*, 1990 (Accessed on 23 July 2008 at http://www.amilcar.com.tn/doc/decret90-1401.doc)

16) UNESCO – United Nations Educational, Scientific and Cultural Organization, *Global Ethics Observatory*, (Accessed on 30 September 2008 at http://www.unesco.org/shs/ethics/geo/user/?action=select&lng=en&db=)

17) WHO/EMRO - World Health Organization Regional Office for the Eastern Mediterranean, UNESCO - United Nations Educational, Scientific and Cultural Organization, *First Regional Meeting of National Bioethics Committees,* Cairo 5/7 May 2007 (Accessed on 30 September 2008 at http://unesdoc.unesco.org/images/0015/00152805e.pdf)

UGANDA	
National specific legislation on ethics in biomedical research	N/A
Guidelines and/or SOPs concerning ethics in research	YES
National/Institutional Bioethics Committees that review ethics of biomedical research with human participants	YES

Sources:

1) AITRP - Fogarty AIDS International Training Program, University of California, Berkeley and University of California, *A Survival Guide for Conducting International Collaborative Research in Uganda*, 2004 (Accessed on 28 July 2008 at http://epi.berkeley.edu/AITRP_Survival_Guide_Uganda_Final_10May2004.pdf)

2) COHRED - Council on Health Research for Development, *Data for health research planning and development in Uganda*, Learning Brief, 2002, No. 2 (Accessed on 28 July 2008 at http://www.cohred.org/main/CommonCategories/content/719.pdf)

3) COHRED - The Council on Health Research for Development, *Identifying Capacities, Country Analysis Ghana and Uganda*, 1999 (Accessed on 28 July 2008 at http://www.cohred.org/main/CommonCategories/content/542.pdf)

4) Grady C., Wagman J., Ssekubugu R., Wawer M.J., Serwadda D., Kiddugavu M., Nalugoda F., Gray R.H., Wendler D., Dong Q., Dixon D.O., Townsend B., Wahl E., Emanuel E.J., *Research Benefits for Hypothetical HIV Vaccine Trials: the View of Ugandans in the Rakai District*, IRB Ethics and Human Research, 2008, Vol. 30, No. 2, Pages 1-7 (Accessed on 12 November 2008 at http://www.thehastingscenter.org/uploadedFiles/Publications/IRB/Articles/2008_March-April/irb_2008_mar_apr_sample1.pdf)

5) Neema S., *Community participation in essential national health research process: Uganda's Experience*, COHRED - The Council on Health Research for Development, 1999 (Accessed on 28 July 2008 at http://www.cohred.org/main/CommonCategories/content/545.pdf)

6) Republic of Uganda, National Council for Science and Technology (UNCST), *National Guidelines for Research involving Humans as Research Participants*, 2007 (Accessed on 28 July 2008 at http://www.cohred.org/HealthResearchWeb/insidepages/africa/pdf/Human_Subjects_Guidelines_March_27.pdf)

7) Republic of Uganda, National Council for Science and Technology (UNCST), *Research Registration and Clearance Policy and Guidelines*, 2007 (Accessed on 28 July 2008 at http://www.cohred.org/HealthResearchWeb/insidepages/africa/pdf/Research_registration_UNCST_2007.pdf)

8) Republic of Uganda, National Health Research Organization (UNHRO), *An analysis of institutions doing health research in Uganda*, 2000 (Accessed on 28 July 2008 at http://www.health.go.ug/docs/unhro_analysis.pdf)

9) Republic of Uganda, National Health Research Organization (UNHRO), The Council on Health Research for Development (COHRED), *Essential National Health Research in Uganda, A case study of progress and challenges in implementing the ENHR strategy*, 2000 (Accessed on 28 July 2008 at http://www.cohred.org/main/CommonCategories/content/546.pdf)

10) Uganda AIDS Commission, European Union and the Uganda HIV/AIDS Partnership, *Uganda Guidelines for AIDS Vaccine Research, A Guide for Vaccine Research, Development and Evaluation*, 2006 (Accessed on 26 August 2008 at http://www.iavi.or.ug/pdf/guidelines.pdf)

11) WHO – UNAIDS HIV Vaccine Initiative, *HIV/AIDS Vaccine Country Profile*, 2005 (Accessed on 25 August 2008 at http://www.who.int/vaccine_research/diseases/hiv/aavp/uganda_profile.pdf)

ZAMBIA	
National specific legislation on ethics in biomedical research	N/A
Guidelines and/or SOPs concerning ethics in research	N/A
National/Institutional Bioethics Committees that review ethics of biomedical research with human participants	YES

Sources:

1) Dawad S., Veenstra N., *Comparative health systems research in a context of HIV/AIDS: lessons from a multi-country study in South Africa, Tanzania and Zambia*, BMC BioMed Central, 2007, Vol. 5:13 (Accessed on 22 July 2008 at http://www.health-policy-systems.com/content/pdf/1478-4505-5-13.pdf)

2) Kirigia J. M, Wambebe C., Baba-Moussa A., *Status of national research bioethics committees in the WHO African region*, BMC Medical Ethics, 2005, Vol. 6:10 (Accessed on 21 August 2008 at http://www.biomedcentral.com/1472-6939/6/10)

ZIMBABWE	
National specific legislation on ethics in biomedical research	N/A
Guidelines and/or SOPs concerning ethics in research	YES
National/Institutional Bioethics Committees that review ethics of biomedical research with human participants	YES

Sources:

1) COHRED - The Council on Health Research for Development, *Can communities* influence *national health research agendas? A learning process leading to a framework for community engagement in shaping health research policy, Country experiences: Bolivia, Cambodia, India, Kenya, Pakistan, Tajikistan, Zimbabwe*, 2006 (Accessed on 21 July 2008 at http://www.cohred.org/publications/recordpapers/COHREDRP3Communities.pdf

2) Kirigia J. M, Wambebe C., Baba-Moussa A., *Status of national research bioethics committees in the WHO African region*, BMC Medical Ethics, 2005, Vol. 6:10 (Accessed on 21 August 2008 at http://www.biomedcentral.com/1472-6939/6/10)

3) Kumaranayake L., Lake S., Mujinja P., Hongoro C., Mpembeni R., *How do countries regulate the health sector? Evidence from Tanzania and Zimbabwe*, Health Policy and Planning, 2000, Vol. 15, No. 4, Pages 357-367 (Accessed on 22 July 2008 at http://heapol.oxfordjournals.org/cgi/reprint/15/4/357.pdf)

4) Republic of Zimbabwe, Medical Research Council (MRC), *Conducting Health Research In Zimbabwe: What researchers need to know*, 2004 (Accessed on 21 July 2008 at http://www.mrcz.org.zw/docs/conducting_health_research_in_zim.pdf)

5) Republic of Zimbabwe, *Medicine and Allied Substances Control Act*, 1969 (Accessed on 21 July 2008 at http://faolex.fao.org/docs/pdf/zim24977.pdf)

6) Republic of Zimbabwe, *Medicine and Allied Substances Control General Regulations*, 1991 (Accessed on 21 July 2008 at http://www.mcaz.co.zw/legislation/Medicines%20and%20Allied%20Substances%20Control%20Regulations%20(SI%20150%20of%201991).pdf)

7) Republic of Zimbabwe, *Medicine Control Authority of Zimbabwe* (Accessed on 26 August 2008 at http://mednet2.who.int/mdra/mcazw/laboratory.html)

8) Republic of Zimbabwe, Medicines Control Authority (MCAZ), *Guidelines for Good Clinical Trial Practice in Zimbabwe*, 2002 (Accessed on 21 July 2008 at http://www.mcaz.co.zw/Guidelines%20for%20Good%20Clinical%20Trial%20Practice%20in%20Zimbabwe.pdf)

9) Republic of Zimbabwe, Medicines Control Authority (MCAZ), *Guidelines for Good Clinical Practice*, 2002 (Accessed on 21 July 2008 at http://mednet2.who.int/mdra/mcazw/guidelines%20for%20good%20clinical%20practice.pdf)

10) Republic of Zimbabwe, Medicines Control Authority (MCAZ), *Guidelines for submitting application for registration of a medicine in Zimbabwe*, (Date unknown), (Accessed on 21 July 2008 at http://mednet2.who.int/mdra/mcazw/regguidelines.pdf)

11) Republic of Zimbabwe, Medicines Control Authority (MCAZ), *Guideline on submission of documentation for registration of multi-source (generic) finished pharmaceutical products (FPPS)*, 2008 (Accessed on 21 July 2008 at http://www.mcaz.co.zw/regguidelines.pdf)

12) UNESCO – United Nations Educational, Scientific and Cultural Organization, *Global Ethics Observatory*, (Accessed on 30 September 2008 at http://www.unesco.org/shs/ethics/geo/user/?action=select&lng=en&db=)

ANNEXES

INTERNATIONAL ROUND TABLE "BIOMEDICAL RESEARCH IN DEVELOPING COUNTRIES: THE PROMOTION OF ETHICS, HUMAN RIGHTS AND JUSTICE" ROME, 15-16 DECEMBER 2008

Conclusions and Recommendations

At the end of an international Round Table organized in Rome, Italy, by UNICRI and AIFA, on 15 and 16 December 2008, a conclusive document was circulated among all participants to summarize the content of the two-days meeting and to invite participants to continue to contribute to the debate, by turning this document into a set of recommendations. The document is available in the UNICRI website, together with the various lectures and presentations that were given and it is open for comment.

We would like to conclude this book by proposing again these points of discussion as they emerged during the Round Table, because we consider them also an important natural conclusion to our survey. The participation of many high-profile experts in the meeting and the richness and liveliness of the debate foster our hope that another little, yet constructive contribution has been given to create a common path to continue to build on the preservation of the health and overall well-being of human participants in the biomedical research.

1) National Governments in developing countries should increase their effort to implement the normative framework available at the international and regional level within their legislative system. It is a paramount need, which has emerged both from our survey and from the international debate, that National Governments should work more effectively to build a set of specific laws and normative for the protection of human participants in clinical research. National specific legislation should be clearly supported by an appropriate judicial system. The Judiciary would, in turn, feel supported and capable of interpreting the cases through the appropriate laws and effectively control criminalization and victimization. A national legislation would create the basis for the setting up of an efficient evaluation system, through the creation of National Research Ethics Committees and sufficient regulation, through the setting up of Inspectorates and Regulatory Agencies.

2) Protection of human participants in biomedical research should be based on reducing the gap between health and development through:

a) appropriate specific legislation;
b) independence of application;
c) the respect of the Rule of Law;

d) the promotion of the rights of participants;
e) ensuring the benefit to participants;
f) avoid ethical imperialism;
g) safeguarding the wellbeing of individuals, the communities and societies at the macro level.

3) Individuals, national and international institutions involved at all levels in the protection of participants in clinical research should make all efforts to increase knowledge, transparency and awareness of:

- Research
    - o leading to action addressing the needs of countries where it is conducted
    - o leading to sustainable plans to secure benefits in developing countries

- Transparency in reporting
    - o to increase the knowledge base
    - o to increase the trust among the general public and policy makers

- Awareness
    - o rights, risks and benefits
    - o among all stakeholders

4) National Governments in developed and developing countries should join forces to further increase activities in capacity building, that can lead to a well functioning system of research ethics bodies supported by the Law, through:

- o Training
- o Adequate and sustainable resources
- o Adequate infrastructure to carry out functions
- o Dedicated personnel

5) National Governments in developed and developing countries should increase coordination of responses at the national and International levels, by contributing to the knowledge and expertise at both levels, by requesting the support of the United Nations and its specialized programmes and agencies.

The way forward:

a) We recommend the creation of a permanent discussion panel, that can follow-up and monitor the steps towards the implementation of the above points.
b) We recommend more coordination of activities among partners towards increasing joint efforts.

c) We recommend the appropriate identification of resources for the training of research ethics committees and the training of judiciary and policy makers on the themes of ethics and legality of clinical research with human participants.

d) We recommend the identification of priority actions or the designation of a global forum of experts that can work towards the establishment of an international instrument that can effectively:

- Assist in the development of biomedical research policies that meet the needs of both the developed and the developing countries.
- Address the inequities in research priorities.
- Monitor on-going research to safeguard participants and communities from exploitation.

Italian Medicines Agency
GCP Promotion Unit, GCP and
Pharmacovigilance Inspectorate

International Round Table AIFA-UNICRI

Biomedical Research in Developing Countries: the Promotion of Ethics, Human Rights and Justice

Rome, 15-16 December 2008

Proposals and Recommendations

The respect of the GCP principles in the clinical trials of medicines guarantees the ethics of the trials as well as the protection of the rights of the participants. This could be achieved through:

a) Legislation authorizing Clinical Trials only if the protocol is in compliance with GCP principles, following the evaluation of Ethical Committees.

b) Legislation authorizing the marketing of medicines only if their efficacy and safety is based on CTs performed in the respect of GCP principles.

c) Implementation of CTs in compliance with GCP principles.

d) GCP Inspectorates which verify the respect of GCP principles before, during and after CTs conduct.

AIFA INVITES

1) International and regional organizations, NGOs and Regulatory Authorities participating in the Round Table and operating in this field, to collaborate with each other according to their mandate, for setting up the necessary measures for the implementation of the points a), b), c), d) in Developing Countries.

2) In order to implement the collaboration mentioned in point 1), AIFA invites these organizations to identify, propose and share among each other the needed measures to start a joint mechanism of information so as to implement the necessary actions in a integrated, complementary and harmonized way, in the respect of the autonomy of each institution.

BIBLIOGRAPHY

AACHRD – African Advisory Committee for Health Research and Development, *Perspectives on Bioethical Review of Research in the African Region, A working Paper for the Twenty-first Session of AACHRD*, Port Louis Mauritius, 22-25 April 2002

AAVP-WHO/UNAIDS African AIDS Vaccine Programme, *List of African Research Ethics Committees*, 2007

Acharya K., *Health-India: Prime Destination for Unethical Clinical Trials*, Inter Press Service, News Agency, 2007

Addis Ababa University, *Brain Drain in Africa, Facts and Figures*, (date unknown)

Afifi R.Y., *Biomedical research ethics: An Islamic view – part I*, International Journal of Surgery, 2006, Vol. 5, No. 5, Pages 292-296

Afifi R.Y., *Biomedical research ethics: An Islamic view – part II*, International Journal of Surgery, 2006, Vol. 5, No. 6, Pages 381-383

AIFA – Agenzia Italiana del Farmaco, OsSC – Osservatorio Nazionale Sperimentazione Clinica, *La sperimentazione clinica della medicina in Italia, 4° Rapporto Nazionale*, 2005

AITRP - Fogarty AIDS International Training Program, University of California, Berkeley and University of California, *A Survival Guide for Conducting International Collaborative Research in Uganda*, 2004

Ajuwon A.J., Kass N., *Outcome of a research ethics training workshop among clinicians and scientists in a Nigerian university*, BMC Medical Ethics, 2008, Vol. 9:1

Ali N., Hill C., Kennedy A., Ijsselmuiden C., *What factors influence national health research agendas in low and middle income countries? Perspectives of health research stakeholders from six countries and 11 international agencies, Country perspectives: Cameroon, Philippines, Cuba, The Gambia, Lao PDR, Nicaragua*, COHRED - The Council on Health Research for Development, 2006

Amilcar International, CRO - Advice in Medical Investigation and Logistic for Communication and Research, *Roadmap for clinical trials in Tunisia*, (date unknown)

Amilcar International, CRO - Advice in Medical Investigation and Logistic for Communication and Research, *Essais cliniques en Tunisie*, 2005

A New Vision for Clinical Trials in Africa, The PLoS Medicine Editors, (Ed.) PLoS Medicine, 2004, Vol. 1, No. 3, Page 169

Angell M., *The Ethics of Clinical Research in the Third World*, New England Journal of Medicine, 1997, Vol. 337, No. 12, Pages 847-849

Angell M., *Investigators' Responsibilities for Human Subjects in Developing Countries*, New England Journal of Medicine, 2000, Vol. 342, No. 30, Pages 967-969

A+Science, *A+ Science initiates Clinical trial symposium held in Morocco*, 17 January 2008

Arab Republic of Egypt, Minister of Health and Population, *Egyptian Medical Syndicate, Profession Ethics Regulations issued by the Resolution of the Minister of Health and Population No. 238/2003*, 2003

Aseffa A., *Role of PABIN and ETBIN in promoting the National Health Research Ethics Review System*, PABIN – Pan-African Bioethics Initiative, Secretariat, 2000

Atici E., *Ethics in a scientific approach: the importance of the biostatistician in research ethics committees*, Journal of Medical Ethics, 2008, Vol. 34, Pages 297-300

Attaran A., Gillespie-White L., *Do patents for antiretroviral drugs constrain access to AIDS treatment in Africa?*, Journal of the American Medical Association, 2001, Vol. 286, Pages 1886-1892

Badji M., Marias C., Nzé-Nguéma, F., Sarr S.C., Touré A., Becker C., *Promoting Bioethics in Africa, Report on the First Days of Bioethics for West and Central Africa, What Ethics for Research in Africa?*, Dakar 11-13 July 2005

Balcha F., *Role and Responsibility of Research Stakeholders in Promoting Ethical Health Research in Ethiopia*, Institute of Pathobiology, Addis Ababa University, (date unknown)

Barnes K., *Morocco vying for clinical trial attention*, Outsourcing pharma.com, 2006

Barton J.H., *TRIPS and the global pharmaceuticals market*, Health Affairs, 2004, Vol. 23, No. 3, Pages 146-154

Basil B., Mathews M., Mahmud J., Adetunjii B., Budur K., *India plans to audit clinical trials*, British Medical Journal, 2005, Vol. 331, Pages 1204-1205

Batho Pele, *The Batho Pele Principles*, (date unknown)

Beauchamp T.L., Childress J.F., *Principles of Biomedical Ethics*, Oxford University Press, 2001

Bélanger M., *Existe-t-il un droit africain de la santé?*, in Dominique Darbon et Jean du Bois de Gaudusson (éds), *La création du droit en Afrique*, Paris, Karthala, 1997, Pages 361-369

Benatar S.R., *Linking moral progress to medical progress: new opportunities for the Declaration of Helsinki*, World Medical Journal, 2004, Vol. 5, No. 1, Pages 11-13

Benatar S.R., Singer P.A., *A new look at international research ethics*, British Medical Journal, 2000, Vol. 321, Pages 824-826

Benatar S.R., *Research Ethics Committees in Africa, building capacity*, PLOS Medicine, 2007, Vol. 4, Issue 3, Pages 135-136

Berlinguer G., De Castro L., *Report of the IBC on the Possibility of Elaborating a Universal Instrument on Bioethics*, UNESCO - United Nations Educational, Scientific and Cultural Organization, Division on Science and Technology, IBC – International Bioethics Committee, 2003

Berndt E.R., Glennerster R., Kremer M.R. et al., *Advance Market Commitments for Vaccines against Neglected Diseases: Estimating Costs and Effectiveness*, Health Economics, 2007, Vol. 16, Pages 491-511

Bhattarai A. et al., *Impact of artemisin-based combination therapy and insecticide-treated nets on malaria burden in Zanzibar*, PLoS Medicine, 2007, Vol. 4, No. 11, Pages 1784-1790

Bhutta Z.A., *Ethics in International Health Research: A Perspective from the Developing World, Paper No. WG2:4*, WHO/EMRO - World Health Organization Regional Office for the Eastern Mediterranean, Commission on Macroeconomics and Health, CMH Working Paper Series, 2002

Bhutta Z.A., *Standards of care in research*, British Medical Journal, 2004, Vol. 329, Pages 1114-1115

Blümle A., Antes G., Schumacher M., Just H., von Elm E., *Clinical research projects at a German medical faculty: follow-up from ethical approval to publication and citation by others*, Journal of Medical Ethics, 2008, Vol. 34, No. 9

Bonn D., *Research ethics fund for developing countries*, The Lancet Infectious Diseases, 2002, Vol. 2, No. 12, Pages 712-712

Borry P., Schotsmans P., Dierickx K., *Developing Countries and Bioethical Research*, New England Journal of Medicine, 2005, Vol. 353, No. 8, Pages 852-853

Brennan T.A., *Proposed Revisions to the Declaration of Helsinki - Will They Weaken the Ethical Principles Underlying Human Research?*, New England Journal of Medicine, 1999, Vol. 341, No. 7, Pages 527-531

Burke M.A., de Francisco A. (Eds.), *Monitoring Financial Flows for Health Research 2005, Behind the Global Numbers*, Global Forum for Health Research, 2006

Burke M.A., Matlin S.A. (Eds.), *Monitoring Financial Flows for Health Research 2008, Prioritizing research for health equity*, Global Forum for Health Research, 2008

CBEC - Centre of Biomedical Ethics and Culture, SIUT, Pakistan, UNESCO - United Nations Educational, Scientific and Cultural Organization, *Report of the Joint UNESCO CBEC Bioethics Education Conference and Workshop*, 21-22 January 2006

Chan A.W., Hrobjartsson A., Haahr M.T., Gotsche P.C., Altman D.G., *Empirical Evidence for Selective Reporting of Outcomes in Randomized Trials: Comparison of Protocols to Published Articles*, Journal of the American Medical Association, 2004, Vol. 291, No. 20, Pages 2457-2465

Chima S.C., *Regulation of Biomedical Research in Africa*, British Medical Journal, 2006, Vol. 332, Pages 848-851

Chippaux J.P., *Africa, continente-cavia dei colossi farmaceutici*, Le Monde Diplomatique/Il Manifesto, 2005

Chocarro L., *Building capacity to regulate clinical trials for vaccines*, WHO Prequalification of Diagnostics, Medicines and Vaccines – 3rd Consultative Stakeholders Meeting, 2008

Chong W., *China sets up rules to combat scientific misconduct*, SciDevNet - Science and Development Network, 2006

CIOMS - Council for International Organizations of Medical Sciences, *International ethical guidelines for biomedical research involving human subjects*, 2002

CIOMS - Council for International Organizations for Medical Sciences in cooperation with WHO - World Health Organization and IOMS - Islamic Organizations for Medical Sciences, *International Ethical Guidelines for Biomedical Research involving Human Subjects (An Islamic perspective)*, 2004

CIOMS – Council for International Organizations for Medical Sciences and WHO-World Health Organization, *Drug Development Research In Resource-Limited Countries, How to succeed in Implementation of Good Clinical Practice Guidelines*, Draft Report of the joint CIOMS/WHO Working Group, 2005

Clarke M., Collinson A., Faal H., Gaye A., Jallow M., Joof-Cole A., McAdam K., Schim van der Loeff M., Thomas V., Whittle H., Gambia Government/Medical Research Council Joint Ethical Committee, *Ethical issues facing medical research in developing countries*, The Lancet, 1998, Vol. 351, No. 9098, Pages 286-287

Cleaton-Jones P., *Research injury in clinical trials in South Africa*, The Lancet, 2006, Vol. 367, No. 9509, Pages 458-459

COHRED-The Council on Health Research for Development, *AIDS and HIV in Kenya: an issue of economic development*, Research into Action, 2000, No. 20, Pages 2-3

COHRED - The Council on Health Research for Development, *AHA Study: donor alignment and harmonisation in health research*, (date unknown)

COHRED - The Council on Health Research for Development, *Can communities influence national health research agendas? A learning process leading to a framework for community engagement in shaping health research policy, Country experiences: Bolivia, Cambodia, India, Kenya, Pakistan, Tajikistan, Zimbabwe*, 2006

COHRED - Council on Health Research for Development, *Data for health research planning and development in Uganda*, Learning Brief, 2002, No. 2

COHRED - The Council on Health Research for Development, *Essential National Health Research in Kenya*, 1998

COHRED - The Council on Health Research for Development, *Francophone African countries meet to discuss networking opportunities*, Research into Action, 2001, No. 23, Pages 6-8

COHRED -The Council on Health Research for Development, *From a little known entity to a functional health research network: The Tanzania National Health Research Forum*, Research into Action, 2000, No. 20, Pages 5-6

COHRED - The Council on Health Research for Development, *Getting Research into Policy and Practice in Malawi: The experience of the National TB Control Programme*, Research into Action, 2000, No. 19, Page 5

COHRED - The Council on Health Research for Development, *Health Research for Development in Benin – a summary*, 2000

COHRED - The Council on Health Research for Development, *Health Research for Development in Burundi – a summary*, 2000

COHRED - The Council on Health Research for Development, *Health Research in Ethiopia - A country overview*, 2000

COHRED - The Council on Health Research for Development, *Identifying capacities: country analysis Ghana and Uganda*, 1999

COHRED -The Council on Health Research for Development, *International Conference on Health Research for Development – Bangkok 2000: Consultative Processes for Africa and Latin America*, Research into Action, 2000, No. 20, Pages 11-12

COHRED - The Council on Health Research for Development, *Kenyan Consultative Process on Health Research – A summary*, 2000

COHRED - The Council on Health Research for Development, *Malawi – Prioritised health research in support of the National Health Plan*, *Research into Action*, 2001, No. 25, Pages 4-5

COHRED - The Council on Health Research for Development, *National Health Research Priorities Cameroon*, (date unknown)

COHRED - The Council on Health Research for Development, *National survey of health research for development in Tanzania - a summary*, 2000

COHRED - The Council on Health Research for Development, *NIMR celebrates 20th anniversary, Tanzania's Minister of Health lauds organisation's achievements*, Research into Action, 2001, No. 23, Pages 8-9

COHRED - The Council on Health Research for Development, *Priority Setting for Health Research: Toward a management process for low and middle income countries Country experiences Philippines, South Africa, Brazil, The Netherlands, Overview of existing tools and methods*, 2006

COHRED - The Council on Health Research for Development, *Research capacity strengthening: creating demand for research in Kenya*, 2001

COHRED-The Council on Health Research for Development, *Resource Flows for Health Research in Cameroon and Tanzania*, Research into Action, 2003, No. 31, Pages 6-7

COHRED - The Council on Health Research for Development, *Tanzania - re-orientation of the ENHR mechanism to reinforce partnership*, 2000

COHRED - The Council on Health Research for Development, *What factors influence health research agendas in developing countries?*, 2006

Coleman C.H., Bouësseau M.C., *Strengthening Local Review of Research in Africa: Is the IRB Model Relevant?*, Bioethics Forum, 2006

Collier J., *Confusion over use of placebos in clinical trials*, British Medical Journal, 1995, Vol. 311, Pages 821-822

COMEST - Commission Mondiale d'Ethique des Connaissances Scientifiques et des Technologies, UNESCO - United Nations Educational, Scientific and Cultural Organization, Division de l'Ethique des Sciences et Technologies, *The teaching of Ethics, Report*, 2003

Commission for Africa, *Our Common Interest Report*, 11 May 2005

Commission Française et Commission Sénégalaise pour l'UNESCO, *Forum de Coopération en Bioéthique et en Ethique médicale*, 2008

Commonwealth of Australia, Australian Government, National Health and Medical Research Council, *Children, Clinical Trials Involving*, (date unknown)

Commission of the European Communities, *Directive 2005/28/EC of 8 April 2005 laying down principles and detailed guidelines for good clinical practice as regards investigational medicinal products for human use, as well as the requirements for authorisation of the manufacturing or importation of such products*, Official Journal of the European Union, 9/4/2005, L 91/13

Commission on Health Research for Development, *Executive Summary*, in *Health Research: Essential Link to Equity in Development*, New York, Oxford University Press, 1990, Pages xvii-xix

Cordero C., Delino R., Jeyaseelan L., Lansang MA., Lozano J.M., Kumar S., Moreno S., Pietersen M., Quirino J., Thamlikitkul V., Welch V.A., Tetroe J., ter Kuile A., Graham I.D., Grimshaw J., Neufeld V., Wells G., Tugwell P., *Funding agencies in low- and middle-income countries: support for knowledge translation*, Bulletin of the World Health Organization, June 2008, Vol. 86, No. 7, Pages 524-534

Council of Europe, *Additional protocol to the convention of human rights and biomedicine concerning biomedical research*, 2004

Council of Europe, *Human Rights and Biomedicine, Biomedical Research*, (date unknown)

Council of Europe, *Oviedo - Convention for the protection of human rights and dignity of the human being with regard to the application of biology and medicine: convention on human rights and biomedicine*, 1997

Cristakis N.A., Panner M.J., *Existing International Ethical Guidelines for Human Subjects Research: Some Open Questions*, Law Medicine and Healthcare, Fall-Winter 1991, Vol. 19, No. 3-4, Pages 214-220

Davies H. et al., *How can we provide effective training for research ethics committee members? A European assessment*, Journal of Medical Ethics, 2008, Vol. 34, Pages 301-302

Davis S., Scott C., *South African HIV trial gets long-awaited go ahead*, SciDevNet – Science And Development Network, 9 August 2007

Dawad S., Veenstra N., *Comparative health systems research in a context of HIV/AIDS: lessons from a multi-country study in South Africa, Tanzania and Zambia*, Health Research Policy and Systems, 2007, Vol. 5:13

De Angelis C., Drazen J.M., Frizelle F.A. et al., *Clinical trial registration: a statement from the International Committee of Medical Journal Editors*, The Lancet, 2004, Vol. 364, No. 9438, Pages 911-912

Dechambenoit G., *Ethique du nord, éthique du sud: responsabilité des élites africaines*, Editorial 2005, African Journal of Neurological Sciences, Vol. 24, No. 1, Pages 3-4

De Francisco A., Matlin, S. (Eds.), *Monitoring financial flows for health research 2006, The changing landscape of health research for development*, Global Forum for Health Research, 2006

De Gruchy J., Lewin S., *Ethics that exclude: The Role of Ethics Committees in Lesbian and Gay Health Research in Africa*, American Journal of Public Health, 2001, Vol. 91, No. 6, Pages 865-868

De Rosa M., Ramenghi A., Rinieri E., Ronchetti F., Tagliacozzo V., Tomino C., *La nuova versione dell'Osservatorio Nazionale sulla Sperimentazione Clinica dei Medicinali*, Notizie dal CINECA, 2004, No. 50, Pages 24-26

De Roy P. G., *Helsinki and the Declaration of Helsinki*, 2004, World Medical Journal, 2004, Vol. 50, No. 1, Pages 9-11

DFID – Department For International Development, IDRC – International Development Research Center and Wellcome Trust, *Health research capacity strengthening initiative, Kenya and Malawi*, 2006

Diallo D.A., Doumbo OK, Plowe CV, Wellems TE, Emanuel EJ, Hurst SA, *Community permission for medical research in developing countries*, Clinical Infectious Diseases, 2005, Vol. 41, Pages 255-259

Dicko M., Mihigo R., Onyeze A., Kandolo P., Nshimirimana D., Belgharbi L., Chocarro L., *Strengthening Vaccine Regulatory Capacity in Africa: Status Report -2007*, WHO - World Health Organization, 2007

Dionisio D., Cao Y., Hongzhou L. et al., *Affordable antiretroviral drugs for the underserved markets: how to expand equitable access against the backdrop of challenging scenarios?*, Current HIV Research, 2006, Vol. 4, No. 1, Pages 3-20

Dionisio D., *Profit rules and the right to appropriate antiretroviral treatments: suitability of incentive-bound WHO-mediate voluntary licenses for equitable long-term solutions*, WHO Intergovernmental Working Group on Public Health, Innovation and Intellectual Property (IGWG), Web-based public hearing, 1-15 November 2006

Doppelfeld E., *Harmonization of research Ethics Committees - are there limits?*, Japan Medical Association Journal, 2007, Vol. 50, No. 6, Pages 493-494

Dovlo D., Nyonator F., *Migration by Graduates of the University of Ghana Medical School: A Preliminary Rapid Appraisal*, Human Resources for Health Development Journal, 1999, Vol. 3, No. 1, Pages 34-37

Dramé B., Becker C., Samba Cor Sarr, *Le Conseil national de recherche en santé: naissance d'une instance éthique au Sénégal*, Animation régionale de Dakar, Réseau des chercheurs "Droit de la Santé", Agence Universitaire de la Francophonie, (date unknown)

Drug company to make its trial results public, British Medical Journal, 2004, Vol. 329:366

Dubois W., *New drug research, the extraterritorial application of FDA regulations and the need for international cooperation*, Vanderbilt Journal of Transnational Law, 2003, Vol. 36

Eckstein S., *Efforts to build capacity in research ethics: an overview*, SciDevNet – Science and Development Network, 2004

EDCTP – European and Developing Countries Clinical Trials Partnership, *EDCTP Newsletter*, 2006, Vol. 4, No. 1

EDCTP – European and Developing Countries Clinical Trials Partnership, *EDCTP Newsletter*, 2007, Vol. 2, No. 4

Edejer T.T.T., *North–South research partnerships: the ethics of carrying out research in developing countries*, British Medical Journal, 1999, Vol. 319, Pages 438–441

EFGCP – European Forum for Good Clinical Practice, *Guidelines and Recommendation for European Ethics Committees*, 1997

EGE – European Group on Ethics in Science and New Technologies to the European Commission, *Ethical Aspects Of Clinical Research In Developing Countries – Opinion No. 17*, 2003

EGE – European Group on Ethics in Science and New Technologies to the European Commission, *Recommendations on the Ethical Review of hESC FP7 Research Projects, Opinion No. 22*, 2007

EGE – European Group on Ethics in Science and New Technologies to the European Commission, *The ethical aspects of biomedical research in developing countries, Proceedings of the Round Table Debate*, Brussels on 1st October 2002

Elkebir F.Z., *L'état de la bioéthique en Algérie*, CEBACORES – Centro de Estudo de Bioética Polo Açores, 2005, Pages 347–350

Elliott C., Abadie R., *Exploiting a Research Underclass in Phase 1 Clinical Trials*, New England Journal of Medicine, 2008, Vol. 358, No. 22, Pages 2136–2137

Elsayed D.E.M., *Assessment of the ethical review process in Sudan*, Developing World Bioethics, 2004, Vol. 4, No. 2, Pages 154–159

Elsayed D.E.M., Kass N.E., *Attitudes of Sudanese researchers on obtaining informed consent from study subjects involved in health research*, Sudanese Journal of Public Health, 2007, Vol. 2, No. 2, Pages 95–102

Elsayed D.E.M., *National Framework for Ethics in Health Research involving Human Subjects*, Sudanese Journal of Public Health, 2006, Vol.1, No. 3, Pages 192–196

Emanuel E.J., *Ending Concerns About Undue Inducement*, Journal of Law, Medicine & Ethics, 2004, Vol. 32, Pages 100-105

Emanuel E.J., Wendler D., Grady C., *What Makes Clinical Research Ethical*, Journal of the American Medical Association, 2000, Vol. 283, No. 20, Pages 2701-2711

Emanuel E.J., Wendler D., Killen J., Grady C., *What Makes Clinical Research in Developing Countries Ethical? The Benchmarks of Ethical Research*, Journal of Infectious Diseases, 2004, Vol. 189, No. 5, Pages 930-937

EMEA – European Medicines Agency, *EMEA/EFGCP Workshop on Ethics in Clinical Trials Development, From Legislation to Implementation*, 2003

EMWA – European Medical Writers Association, *Clinical Trials*, The Write Stuff, The Journal of the European Medical Writers Association, 2006, Vol.15, No.1

Epstein R., *Overdose, Come una regolamentazione eccessiva mette a rischio le medicine del futuro*, Rubbettino/Leonardo Facco, 2007

EURETH.NET – European Information Ethics in Medicine and Biotechnology, *Ethical and legal aspects on clinical trials with children, A bibliography*, 2004

European Commission, EGE - European Group on Ethics in Science and New Technologies, *Ethically Speaking*, 2007, No. 8

European Commission, EGE - European Group on Ethics in Science and New Technologies, *Ethically Speaking*, 2008, No. 9

European Commission, *Ethics, Research And Globalization, Europe and its partners building capacity in research ethics, Conference proceedings*, Brussels, 14-15 May 2007

European Commission, *Medicines for Children*, 2007

European Commission, *Who is privy to medical research data?*, 2005

European Parliament and the Council of the European Union, *Directive 2001/20/EC on the approximation of the laws, regulations and administrative provisions of the Member States relating to the implementation of good clinical practice in the conduct of clinical trials on medicinal products for human use*, Official Journal of the European Communities, 1 May 2001, L 121/34

European Parliament and the Council of the European Union, *Regulation (EC) 726/2004 of the European Parliament and of the Council of 31 March 2004 laying down Community procedures for the authorisation and supervision of medical products for human and veterinary use and establishing a European Medicines Agency*, Official Journal of the European Union, 31 March 2004, L 136/1

European Union, *Consolidated Versions of the Threaty establishing the European Community, Title XVIII Research and Technological Development*, Official Journal of the European Union C 321 E/1, 2006, C 321 E/1

Falguni S., Muthuswamy Y., *Capacity Building for Clinical Trials in India*, Editorial, Indian Journal of Medical Research, 2006, Vol. 124, Pages 605-607

Federal Democratic Republic of Ethiopia, Ethiopian Science and Technology Commission, National Health Science and Technology Council, Health Department, *National Health Research Ethics, Review Guideline, Consultation Workshop Proceedings*, 2005

Federal Democratic Republic of Ethiopia, Ethiopian Science and Technology Commission, National Health Science and Technology Council, Health Department, *Ethiopia National Health Research Ethics Review Guideline*, 2005

Federal Republic of Nigeria, Ministry of Health and Republic of Ghana, Ministry of Health with support of WHO and TDR, High Level Ministerial Meeting on Health Research in Africa 8-10 March 2006, Abuja, Nigeria, *Communique High Level Ministerial Meeting*, 2006

Federal Republic of Nigeria, Ministry of Health and Republic of Ghana, Ministry of Health with support of WHO and TDR, High Level Ministerial Meeting on Health Research in Africa 15-17 June 2006, Accra, Ghana, *Health Research for Disease Control and Development*, 2006

Federal Republic of Nigeria, Ministry of Health, National Health Research Ethics Committee of Nigeria (NHREC), *National Code of Health Research Ethics*, 2007

Federal Republic of Nigeria, NHREC - National Health Research Ethics Committee, *About National Health Research Ethics Committee*, (date unknown)

Finlay K.A., Fernandez C.V., *Failure to report and provide commentary on research ethics board approval and informed consent in medical journals*, Journal of Medical Ethics, 2008, Vol. 34, Pages 761-764

Fischer B.A. IV, *A Summary of Important Documents in the Field of Research Ethics*, Schizophrenia Bulletin, 2005, Vol. 32, No. 1, Pages 69-80

Fuchs M., *National Ethics Council, Their background, functions and modes of operations compared*, Nationaler Ethikrat, 2005

Gardella F., Assi S., Simon F., Bogreau H., Eggelt T., Ba F., Foumane V., Henry MC., Kientega P.T., Basco L., Trape JF., Lalou R., Martelloni M., Desbordes M., Baragatti M., Briolant S., Almeras L., Pradines B., Fusai T., Rogier C., *Antimalarial drug use in general populations of tropical Africa*, Malaria Journal 2008, Vol. 7:124

Garrafa V., Lorenzo C., *Moral imperialism and multi-centric clinical trials in peripheral countries*, Cadernos de Saúde Pública, 2008, Vol. 24, No. 10, Pages 2219-2226

Gaudiano M.C., Di Maggio A., Cocchieri E., Antoniella E., Alimonti S., Valvo S., *Medicines informal market in Congo, Burundi and Angola: counterfeit and sub-standard antimalarials*, Malaria Journal, 2007, Vol. 6:22

Gedif T., *Assessment of Ethics Review Application submitted in the period b/n June 1995/mid May 2004*, Federal Democratic Republic of Ethiopia, Health Department Ethiopian Science and Technology Commission, (date unknown)

Getz K., Borfitz D., *Informed Consent: a Guide to the Risks and Benefits of Volunteering for Clinical Trials*, Center Watch, 2006

Ghersi D., Clarke M., Berlin J., Gülmezoglu AM., Kush R., Lumbiganon P., Moher D., Rockhold F., Sim I., Wager E., *Reporting the findings of clinical trials: a discussion paper*, Bulletin of the World Health Organization, June 2008, Vol. 86, No. 6, Page 492-493

Gibbs Brown J., *Institutional Review Boards: A Time for Reform*, US Department of Health and Human Services, Office of Inspector General, 1998

Gibbs Brown J., *Protecting Human Research Subjects Status of Recommendations*, US Department of Health and Human Services, Office of Inspector General, 2000

Gibbs Brown J., *Recruiting Human Subjects Pressures in Industry-Sponsored Clinical Research*, US Department of Health and Human Services, Office of Inspector General, 2000

Gillon R., *Medical Ethics: four principles plus attention to scope*, British Medical Journal, 1994, Vol. 309:184

Giordani M.M., *Per un'arte medica al servizio della persona*, Bulletin Européen, Ed. Italiana, 2008, Anno 59, No. 698-699, Pages 1-2

Global Forum on Health Research, *Case study – Choosing a research ethical committee system amongst the existing models? Critical decision of a middle-income country (Chile)*, 2007

Global Forum for Health Research, *Cross-cutting Issues*, Global Forum Update on Research for Health, 2005, Pages 129-146

Global Forum on Health Research, *Health Research Institutions and Global Challenges*, Global Forum Update on Research for Health, Vol. 2, Pages 127-140

Global Forum on Health Research, *The 10/90 Report on Health Research 2001-2002*, 2002

Global Forum on Health Research, *The 10/90 Report on Health Research 2003-2004*, 2004

Global Forum for Health Research, *Universities, Schools of Public Health and Health Research Systems*, Global Forum Update on Research for Health, Vol. 2, Pages 141-157

Grady C., Wagman J., Ssekubugu R., Wawer M.J., Serwadda D., Kiddugavu M., Nalugoda F., Gray R.H., Wendler D., Dong Q., Dixon D.O., Townsend B., Wahl E., Emanuel E.J., *Research Benefits for Hypothetical HIV Vaccine Trials: the View of Ugandans in the Rakai District*, IRB Ethics and Human Research, 2008, Vol. 30, No. 2, Pages 1-7

Greco D., Petrini C., *Alcuni aspetti di etica in sanità pubblica*, Annali dell'Istituto Superiore di Sanità, 2004, Vol. 40, No. 3, Pages 363-371

Gross A., Hirose M., *Conducting Clinical Trials in Asia*, Pacific Bridge Medical, Asia Medical Publications, March 2007

Halpern S., Karlawish J., for the University of Pennsylvania Research Ethics Working Group, *Industry-sponsored research*, The Lancet, 2000, Vol. 356, No. 9248, Pages 2193-2193

Hamza B., *Spécificités et Rôle des Comités d'Ethique, Exemple de la Tunisie*, République Tunisienne, Ministère de la Santé Publique, Comité National d'Ethique Médicale, 2003

Hamza B., *Spécificités des Comités d'Ethique propres aux pays émergents: exemple de la Tunisie*, République de Tunisie, Comité National d'Ethique Médicale, Premier Colloque National de Bioéthique Casablanca, 30 Juin 2001

Harmon S.H.E., *Ethical rhetoric: genomics and the moral content of UNESCO's "universal" declarations*, Journal of Medical Ethics, 2008, Vol. 34

Harrison D., *How should public money be spent? The case of health research in Tanzania*, COHRED – The Council on Health Research for Development, 2002

Harvard School of Public Health, *Global Research Ethics Map Botswana*, 2006

Harvard School of Public Health, *Global Research Ethics Map Ghana*, 2006

Harvard School of Public Health, *Global Research Ethics Map Kenya*, 2006

Harvard School of Public Health, *Global Research Ethics Map Malawi*, 2006

Harvard School of Public Health, *Global Research Ethics Map Senegal*, 2006

Harvard School of Public Health, *Global Research Ethics Map South Africa*, 2006

Harvard School of Public Health, *Global Research Ethics Map Tanzania*, 2006

Hassan M.H.A., *Collaboration requires a strong home base*, SciDevNet – Science and Development Network, 14 May 2008

Hassan M.H.A., *Sunlight and shadows in the South*, TWAS Newsletter, 2007, Vol. 19, No. 1, Pages 9–17

Hassar M., *Recherche en santé*, Institut Pasteur du Maroc, Pharmacologie Clinique, 2005

Hassi H., *Recherches cliniques: Le Maroc encore à la traîne*, L'Economiste, 2008

Haug C., Gøtzsche P.C., Schroeder T.V., *Registries and Registration of Clinical Trials*, New England Journal of Medicine, 2005, Vol. 353, No. 26, Pages 2811–2812

Have H. ten., *The Activities of UNESCO in the Area of Ethics*, Kennedy Institute of Ethics Journal, 2006, Vol. 16, No. 4, Pages 333–351

Hawkins J., Emanuel E.J., *Exploitation and Developing Countries: the Ethics of Clinical Research*, Princeton N.J., Oxford, Princeton University Press, 2008

Hill K.P., Ross J.S., Egilman D.S., Krumholz H.M., *The advantage seeding trial: a review of internal documents*, Annals of Internal Medicine, 2008, Vol. 149, No. 4, Pages 251–258

Holm S., *Clinical Ethics Committees in Norway, Highly Recommended by the Norwegian Parliament*, UK Clinical Ethics Network, (date unknown)

HRETIE – University of Maryland School of Medicine, Health Research Ethics Training Initiative in Egypt, *Research Ethics Committees Standard Operating Procedures*, (date unknown)

HRETIE – University of Maryland School of Medicine, Health Research Ethics Training Initiative in Egypt, *Enhancing Research Ethics Committees in Egypt Guidelines for Standard Operating Procedures SOPs*, (date unknown)

Horton R., *North and South: bridging the information gap*, The Lancet, 2000, Vol. 355, No. 9222, Pages 2231-2236

Hyder A.A., Wali S.A., Khan A.N. et al., *Ethical review of health research: a perspective from developing countries researchers*, Journal of Medical Ethics, 2004, Vol. 30, Pages 68-72

ICH - International Conference on Harmonisation of Technical Requirements for Registration of Pharmaceuticals for Human Use, *ICH Guidelines*, (date unknown)

ICH – International Conference on Harmonization of Technical Requirements for Registration of Pharmaceuticals for Human Use, *ICH Harmonized Tripartite Guideline, Choice of Control Group and related Issues in Clinical Trials E10*, 2000

ICH – International Conference on Harmonization of Technical Requirements for Registration of Pharmaceuticals for Human Use, *ICH Harmonized Tripartite Guidelines, Clinical Investigation in Medicinal Products in the Pediatric Population E 11*, 2000

ICH – International Conference on Harmonization of Technical Requirements for Registration of Pharmaceuticals for Human Use, *ICH Harmonized Tripartite Guideline, General Considerations for Clinical Trials E8*, 1997

ICH – International Conference on Harmonization of Technical Requirements for Registration of Pharmaceuticals for Human Use, *ICH Harmonized Tripartite Guideline, Statistical Principles for Clinical Trials E9*, 1998

ICH – International Conference on Harmonization of Technical Requirements for Registration of Pharmaceuticals for Human Use, *ICH Harmonized Tripartite Guidelines, Maintenance of the ICH Guideline on Non-Clinical Safety Studies for the Conduct of Human Clinical Trials for Pharmaceuticals M3(R1)*, 2000

ICH - International Conference on Harmonisation of Technical Requirements for Registration of Pharmaceuticals for Human Use, *Guidance for industry E6 Good Clinical Practice: Consolidated Guidance*, 1996

ICMR – Indian Council of Medical Research, *Ethical Guidelines for Biomedical Research on Human Subjects*, 2000

IDRC – The International Development Research Centre, *First Edition of Dakar Bioethics Days*, 11-13 July 2005

Idrissi N.G., *Rapport sur le consentement, Elaboré par le CIB*, UNESCO - United Nations Educational, Scientific and Cultural Organization, IBC - International Bioethics Committee, 2007

IFPMA – International Federation on Pharmaceutical Manufacturers and Associations, EFPIA – European Federation of Pharmaceutical Industries and Associations, JPMA –

Japan Pharmaceutical Manufacturers Association, PhRMA – Pharmaceutical Research and Manufacturers of America, *Joint Position on the Disclosure of Sensitive Information via Clinical Trial Registries*, 2005

Ijsselmuiden C., *Clinical trials in developing countries: Ethical issues*, COHRED–The Council on Health Research for Development, 2007

Ikingura J.K., Kruger M., Zeleke W., *Health research ethics review and needs of institutional ethics committees in Tanzania*, United Republic of Tanzania, NIMR – National Institute for Medical Research, (date unknown)

Imasheva A., Seiter A., *The Pharmaceutical Sector of the Western Balkan Countries*, World Bank Health, Nutrition and Population (HNP), 2008

Infezione da HIV: Repertorio delle sperimentazioni terapeutiche, Ed. 2004, Suppl. Positifs, 2004, Anno X, No. 65

INSERM - Institut National de la Santé et de la Recherche Médicale, *Ethique biomédicale de la recherche: Bilan d'un Partenariat constructif Europe–Afrique coordonné par l'INSERM*, Communiqué de Presse, Paris 13 Décembre 2006

International Conference on Primary Health Care, *Declaration of Alma–Ata*, 1978

Irabor D.O., Omonzejele P., *Country Report, Local attitudes, moral obligation, customary obedience and other cultural practices: their influence on the process of gaining informed consent for surgery in a tertiary institution in a developing country*, Developing World Bioethics ISSN 1471–8731, 2007

ISESCO – Islamic Educational, Scientific and Cultural Organization, *Basic Document on the Establishment of the Islamic Body on Ethics of Science and Technology (IBEST)*, (date unknown)

Johansson K.A. et al., *National HIV Treatment Guidelines in Tanzania and Ethiopia: are they legitimate rationing tools?*, Journal of Medical Ethics, 2008, Vol. 34, Pages 478–483

John Hopkins Bloomberg School of Public Health, *NIH–Funded Case Study: Research Ethics Committees in Africa Report Inadequate Funding, Staffing and Training*, 2007

Kagarise M.J., Sheldon G.F., *Transnational Ethics. A perspective for the New Millennium*, Archives of Surgery, 2000, Vol. 135, No. 1, Pages 39–45

Kandeel N., Elnemer A., Kassem H., Moustafa N., El-Setouhy M, Silverman H., *Developing Research Ethics Committees: Implications for Global Health*, HRETIE - Health Research Ethics Training Initiative in Egypt, (date unknown)

Karbwang J., Pattou C., *Standard Operating Procedures for Clinical Investigators*, TDR – UNDP/World Bank/WHO Special Programme for Research and Training in Tropical Diseases, 2001

Kass N.E., Hyder A.A., Ajuwon A., Appiah-Poku J., Barsdorf N., Elsayed D.E., Mokhachane M., Mupenda B., Ndebele P., Ndossi G., Sikateyo B., Tangwa G., Tindana P., *The Structure and Function of Research Ethics Committees in Africa: a Case Study*, PlosMed 2007, Vol. 4, No. 1, Pages 26–31

Khalil S.S., Silverman H.J., Raafat M., El-Kamary S., El-Setouhy M., *Attitudes, understanding and concerns regarding medical research amongst Egyptians: A qualitative pilot study*, BMC Medical Ethics, 2007, Vol. 8:9

Kennedy A., Khoja T.A.M., Abou-Zeid A.H., Ghannem H., Ijsselmuiden C., on behalf of the WHO-EMRO/COHRED/GCC NHRS Collaborative Group, *National health research system mapping in 10 Eastern Mediterranean countries*, La Révue de la Santé Orientale, 2008, Vol. 14, No. 3, Pages 502-517

Kent D.M., Mwamburi D.M., Bennish M.L., Kupelnick B., et al., *Clinical Trials in Sub-Saharan Africa and Established Standards of Care: A Systematic of HIV, Tubercolosis, and Malaria Trials*, The Journal of the American Medical Association, 2004, Vol. 292, No. 2, Pages 237-242

Kenyan science and technology system - a brief profile, Research-Africa.net, (date unknown)

Kilama W.L., *Equipping Africa's researchers for global collaboration*, SciDevNet – Science and Development Network, 2003

Killen J., Grady C., Folkers G.K., Fauci A.S., *Ethics of Clinical Research in the Developing World*, Nature, 2002, *V*ol. 2, Pages 210-215

Killien M., Bigby J.A., Champion V., Fernandez-Repollet E., Jackson R.D., Kagawa-Singer M., Kidd K., Naughton M.J., Prout M., *The Millennium Series, Involving Minority and Underrepresented Women in Clinical Trials: The National Centers of Excellence in Women's Health*, Journal Of Women's Health & Gender-Based Medicine, 2000, Vol. 9, No. 10, Pages 1061-1070

Kintampo Health Research Centre, Ghana Health Service, *Ghana Health Service Annual Report For The Year 2006*, 2007

Kirigia J.M., Wambebe C., Baba-Moussa A., *Status of national research bioethics committees in the WHO African region*, BMC Medical Ethics, 2005, Vol. 6:10

Kitua A.Y., Mashalla Y.J.S., Shija J.K., *Coordinating health research to promote action: the Tanzanian experience*, British Medical Journal, 2000, Vol. 321, Pages 821-823

Kokkonen P., *Medicine, the Law and Medical Ethics in a Changing Society*, World Medical Journal, 2004, Vol. 50, No. 1, Pages 5-8

Koski G., Nightingale S.L., *Research involving human subjects in developing countries*, New England Journal of Medicine, 2001, Vol. 345, No. 2, Pages 136-138

Kubar O., *Ethical Review of Biomedical Research in the CIS Countries (Social and Cultural Aspects)*, 2007

Kumaranayake L., Lake S., Mujinja P., Hongoro C., Mpembeni R., *How do countries regulate the health sector? Evidence from Tanzania and Zimbabwe*, Health Policy and Planning, 2000, Vol. 15, No.4, Pages 357-367

Kuritzkes D.R., *Ethical conduct of Research in Resource-Limited Settings*, Journal of Infectious Diseases, 2004, Vol. 189, No. 5, Pages 764-765

Repère Médical, *La bioéthique dans le pays en développement*, 2008, No. 7

Lamine S.M., *Réflexions sur la Bioéthique en Afrique*, in Ndiaye A.L., Ba A.T., Becker C., Dia O. et al. (éds), *Les biotechnologies, Potentiels, enjeux et perspectives: le cas du Sénégal*, Dakar, Académie des Sciences et Techniques du Sénégal, 2004, Pages 73-81

Langlois A., *The UNESCO Universal Declaration on Bioethics and Human Rights: Perspectives from Kenya and South Africa*, Health Care Anal, 2008, Vol. 16, Pages 39-51

Lavery J.V., *A Culture of Ethical Conduct in Research: The Proper Goal of Capacity Building in International Research Ethics CMH Working Paper Series Paper No. WG2:5*, WHO/EMRO – World Health Organization Regional Office for the Eastern Mediterranean, Commission on Macroeconomics and Health, (date unknown)

Lavery J.V., Grady C., Wahl E.R., Emanuel E.J. (Eds.), *Ethical Issues in International Biomedical Research: A Casebook*, Oxford University Press, 2007

Lavery J.V., *The Challenge of Regulating International Research With Human Subjects*, SciDevNet – Science And Development Network, 2004

Levine R.J., *The Need to Revise the Declaration of Helsinki*, New England Journal of Medicine, 1999, Vol. 341, No. 7, Pages 531-534

Levinson D.R., *Review of Corrective Actions Concerning the Human Subject Research Program (A-06-06-00042)*, US Department of Health and Human Services, Office of Inspector General, 2006

Loff B., *Africans discuss ethics of biomedical research*, The Lancet, 2002, Vol. 359, No. 9310, Page 956

London L., *Ethical Oversight of Public Health Research: Can Rules and IRBs Make a Difference in Developing Countries?*, American Journal of Public Health, 2002, Vol. 92, No. 7, Pages 1079-1084

Lopez A.D., Mathers C.D., Ezzati M., Jamison D.T., Murray C.J. (Eds.), *Global Burden of Disease and Risk Factors*, World Bank Publications, 2006

Love C.B., Thomson E.J. (Eds.), D. Royal C.D., *Current Bibliography in Medicine 99-3, Ethical Issues in Research involving Human Participants*, US Department of Health and Human Services, Public Health Service, National Institutes of Health, 1999

Lucas A.O., *Human Resources for Health in Africa (Ed.)*, British Medical Journal, 2005, Vol. 331, Pages 1037-1038

Lucas A.O., *International Collaboration in Health Research CMH Working Paper Series, Paper No. WG2:2*, WHO/EMRO - World Health Organization Regional Office for the Eastern Mediterranean, Commission on Macroeconomics and Health, CMH Working Paper Series, (date unknown)

Lurie P., Wolfe S.M., *The developing world as the "answer" to the dreams of pharmaceutical companies: the Surkaxin story*, in Lavery J.V., Grady C., Wahl E.R., Emanuel E.J. (Eds.), *Ethical Issues in International Biomedical Research: A Casebook*, Oxford University Press, 2007, Pages 159-170

Lurie P., Wolfe S.M., *Unethical Trials of Interventions to reduce Perinatal Transmission of the Human Immunodeficiency in Developing Countries*, New England Journal of Medicine, 1997, Vol. 337, No. 12, Pages 853-856

Maghrebmed, Santé et Médicine au Maghreb, *Les Bonnes Pratiques Cliniques en Tunisie*, (date unknown)

Manafa O., Lindegger G., Ijsselmuiden C., *Informed consent in an antiretroviral trial in Nigeria*, Indian Journal of Medical Ethics, 2007, Vol. IV, No 1, Pages 26-30

Manafa O., Lindegger G, Ijsselmuiden C., *Informed Consent in a Clinical Trials: Participants' Satisfaction of the Consent Process and Voluntariness of Participation*, SARETI - South African Research Ethics Training Initiative, (date unknown)

Mangset M. et al., *"I don't like that, it's tricking people too much…": acute informed consent to participation in a trial of thrombolysis for stroke*, Journal of Medical Ethics, 2008, Vol. 34, Pages 751-756

Mc Guire Dunn C., Chadwick G., *Special Ethical concerns in Clinical Research*, in *Protecting Study Volunteers in Research, A Manual for Investigative Sites*, 3rd Edition, 2007

Mehdiratta R., Parida D.K., Saberwal G., *Bio-business in brief: The challenges of clinical trials*, Current Science, 2007, Vol. 93, No. 10, Pages 1367-1375

Marshall P.A., *Ethical challenges in study design and informed consent for health research in resource-poor settings*, Special Topics in Social, Economic and Behavioural (SEB) Research report series, No. 5, WHO - World Health Organization and TDR – UNDP/World Bank/WHO Special Programme for Research and Training in Tropical Diseases, 2007

Mengistie G., *Health research ethics and law in Ethiopia*, (date unknown)

Mgone C.S., Mocumbi P., *Collaborative approach to Clinical Trials*, Global Forum for Health Research, Health Partnerships Review, May 2008, Pages 61-63

Milano G., *Farmaci con una doppia vita*, Panorama 17/7/2008

Milford C., Wassenaar D. et al., *Resources and Needs of Research Ethics Committees in Africa: Preparations for HIV Vaccine Trials*, IRB, Ethics & Human Research, 2006, Vol. 28, No. 2, Pages 1-9

Mills E.J., Schabas W.J., Volmink J. et al., *Should active recruitment of health workers from sub-Saharan Africa be viewed as a crime?*, The Lancet, 2008, Vol. 371, Pages 685-688

Ministerial Conference on Research for Health in the African Region, *The Algiers Declaration*, Algiers, 23–26 June 2008

Missinou M.A., Olola C.H.O., Issifou S., Matsiegui PB., Adegnika A.A., Borrmann S., Wypij D., Taylor T.E., Kremsner P.G., *Short Report: piloting paperless data entry for clinical research in Africa*, The American Journal of Tropical Medicine and Hygiene, 2005, Vol. 72, No. 3, Pages 301-303

Molyneux C.S., Peshu N., Marsh K., *Trust and informed consent: insights from a community members on the Kenyan coast*, Social Science and Medicine, 2005, Vol. 61, Pages 1463-1473

Moodley K., Myer L., *Health Research Ethics Committees in South Africa 12 years into democracy*, BMC Medical Ethics, 2007, Vol. 8:1

Moulin A.M., *L'Ethique des essais cliniques au sud*, IRD Institut de Recherche pour le Développement, 2002

Moulin A.M., *Pratique des essais cliniques en Afrique*, IRD Institut de Recherche pour le Développement, (date unknown)

Msellati P., *Compte rendu de la 3ème conférence de l'initiative panafricaine de bioéthique (PABIN Pan-African Bioethics Initiative) sur les bonnes pratiques en recherche en santé en Afrique*, 28-30 Avril 2003, Addis Abeba, Ethiopie

Mtunthama N. et al., *Malawians permit research broncoschopy due to perceived need for healthcare*, Journal of Medical Ethics, 2008, Vol. 34, Pages 303-307

Mudur G., *Indian study sparks debate on the use of placebo in psychiatry trials*, British Medical Journal, 2006, Vol. 332, Page 566

Mulholland K., Hilton S., Adegbola R., Usen S., Oparaugo A., Omosigho C., Weber M., Palmer A., Schneider G., Jobe K., Lahai G., Jaffar S., Secka O., Lin K., Ethevenaux C., Greenwood B., *Randomised trial of Haemophilus influenzae type-b tetanus protein conjugate for prevention of pneumonia and meningitis in Gambian infants*, The Lancet, 1997, Vol. 349, No. 9060, Pages 1191-1197

Mulu Muleta MD, *Research Ethical Review system in Ethiopia*, (date unknown)

Murthy V.H., Krumholz H.M., Gross C.P., *Participation in Cancer Clinical Trials: Race, Sex and Age-Based Disparities*, The Journal of the American Medical Association, 2004, Vol. 291, No. 22, Pages 2720-2726

National Health Council of Brazil, *Resolution on Research involving Human Subjects, Resolution No. 196/96*, 1996

Ndebele P., *Legislative and administrative measures for the implementation of the Universal Declaration on Bioethics and Human Rights in Africa*, 2007

NEBRA – Networking for Ethics on Biomedical Research in Africa, *Final Report*, 2006

Neema S., *Community participation in essential national health research process: Uganda's Experience*, COHRED - The Council on Health Research for Development, 1999

Ndubani P., Masaninga F., Mwinga A., Munkonze F., *Report on the Zambian Consultative Process for the International Conference on Health Research for Development*, COHRED - The Council on Health Research for Development, 2000

Nigeria: Trial of tenofovir as a prophylactic against HIV suspended, IRIN, Humanitarian News and Analysis, UN Office for the Coordination of Humanitarian Affairs, 2005
Nomper A., *Clinical Ethics Committees in Estonia, first steps on a long way*, UK Clinical Ethics Network, (date unknown)

Novak K., *The WTO balance act*, The Journal of Clinical Investigation, 2003, Vol. 112, No. 9, Pages 1269-1273

Nuffield Council on Bioethics, *The ethics of clinical research in developing countries*, 1999

Nuffield Council on Bioethics, *The ethics of research related to healthcare in developing countries*, 2002

Nuffield Council on Bioethics, *The ethics of research related to healthcare in developing countries, A follow-up Discussion Paper*, 2005

Nuremberg Code, 1947

Nuyens Y., *No Development without Research, A Challenge for Research Capacity strengthening*, Global Forum for Health Research, 2005

Nwauche E.S., *A development oriented intellectual property regime for Africa*, 11th General Assembly of the Council for the Development of Social Science Research for Africa (CODESRIA), Maputo, Mozambique, 6-10 December 2005

Of markets and medicines, Big donors are betting on Africa's private sector to improve health, The Economist, December 19, 2007, Page 113

Ogodo O., *Safety concerns halt trials on HIV microbicide*, SciDevNet – Science And Development Network, 5 February 2007

Ogundiran T.O., *Enhancing the African bioethics initiative*, BMC Medical Education, 2004, Vol. 4, No. 21

ORWH – Office of Research on Women's Health, *Inclusion of women in research*, (date unknown)

Ossoukine A., *Le Comité d'Ethique algérien face à la concurrence bureaucratique et religieuse*, Journal International de Bioéthique, 2007, Vol. 18, No. 1-2, Pages 167-176

Packard Love J., *Recent examples of compulsory licensing of patents*, Research Note, 2007:2(1)

Padma T.V., *HIV Prevention Trials 'hindered by obstacles'*, SciDevNet – Science And Development Network, 5 March 2008

Pandit J.M., *Kenya… on the move for Drug Quality, Safety and Efficacy*, Republic of Kenya, Ministry of Health, Pharmacy and Poison Board, 2007

Paris Declaration on Aid Effectiveness Ownership, Harmonisation, Alignment, Results and Mutual Accountability, High Level Forum, Paris February 28-March 2, 2005

Patel V., *Clinical Trials in Kenya*, Stichting Onderzoek Multinationale Ondermingen (SOMO), 2006

Petrini C., *Cronache di Bioetica 2007: Fatti, persone, interpretazioni in Italia e nel mondo*, ISS – Istituto Superiore di Sanità, 2007

Petrini C. (Ed.), *Informed consent to treatment of persons with dementia: ethical, deontological, juridical aspects*, Rapporto ICTISAN 08/03, 2008

Petros B., *Biomedical Research and Ethics in Ethiopia, A Keynote Address*, (date unknown)

Pharmaceutical Research and Manufacturers of America, *PhRMA Annual Membership Survey*, 2006

Pich J. et al., *Role of a Research Ethics Committee in follow up and publication of results*, The Lancet, 2003, Vol. 361, No. 9376, Page 2246

PIC/S – Pharmaceutical Inspection Convention Co-operation Scheme, *Press release: PIC/S Committee Meeting, Geneva, Switzerland 23 May 2007*

Positifs, 2007, Anno XVI, No. 81-82

Poncin J., *Des essais cliniques dans les pays du Sud? Oui, mais…*, IRCM Centre de Bioéthique, L'Observatoire de la Génétique, No. 7, 2002

Public Health Fact Sheet, *Barriers to Access: Medication-Assisted Treatment and Injection-Driven HIV Epidemics*, 2008, No. 4

Rachier A., *Legislative and administrative measures for the implementation of the Universal Declaration on Bioethics and Human Rights in Africa*, (date unknown)

Ramahi I., Silverman H., *Clinical Research Law in Jordan: an Ethical Analysis*, Developing World Bioethics, 12 December 2007

Ramasubbu K., Gurm H., Litaker D., *Gender Bias in Clinical Trials: Do Double Standards Still Apply?*, Journal Of Women's Health & Gender-Based Medicine, 2001, Vol. 10, No. 8, Pages 757-764

Ramsay S., *African health researchers unite*, The Lancet, 2002, Vol. 360, No. 9346, Pages 1665-1666

Rehnquist J., *Clinical Trial Web Site, A Promising Tool To Foster Informed Consent*, US Department of Health and Human Services, Office of Inspector General, 2002

Rehnquist J., *The Globalization of Clinical Trials, A Growing Challenge in Protecting Human Subjects*, US Department of Health and Human Services, Office of Inspector General, 2001

Repubblica Italiana, *Decreto Legislativo n. 211 del 24 Giugno 2003, Attuazione della direttiva 2001/20/CE relativa all'applicazione della buona pratica clinica nell'esecuzione delle sperimentazioni cliniche di medicinali per uso clinico*, Gazzetta Ufficiale n. 184 del 9 Agosto 2003

Repubblica Italiana, *Decreto Legislativo n. 200 del 6 novembre 2007, Attuazione della direttiva 2005/28/CE recante principi e linee guida dettagliate per la buona pratica clinica relativa ai medicinali in fase di sperimentazione a uso umano, nonché requisiti per l'autorizzazione alla fabbricazione o importazione di tali medicinali*, Gazzetta Ufficiale n. 261 del 09 Novembre 2007

Repubblica Italiana, Ministero della Sanità, *Decreto Ministeriale de 15 Luglio 1997, Recepimento delle linee guida della UE di Buona Pratica Clinica per l'esecuzione delle sperimentazioni cliniche dei medicinali*, 1997

Republic of Ghana, Food and Drugs Board, *Guidelines for the registration of vaccines in Ghana*, (date unknown)

Republic of Ghana, Ghana Health Service, *Annual Report 2007*, (date unknown)

Republic of Ghana, Ghana Health Service, *Code of Ethics*, (date unknown)

Republic of Ghana, Ghana Health Service, *Health Research Unit Annual Report 2003*, (date unknown)

Republic of Ghana, *Ghana National Drug Policy*, 2004

Republic of Ghana, *The Constitution of the Republic of Ghana*, 1992

Republic of Kenya, Ministry of Health, *Kenya National Guidelines for Research & Development of HIV/AIDS Vaccine*, 2005

Republic of Kenya, Ministry of Health, Pharmacy and Poisons Board, *Guideline for the national pharmacovigilance system in Kenya*, 2007

Republic of Sierra Leone, Minister of Health, *Regulatory Authorities: Pharmacy Board*, (date unknown)

Republic of South Africa, Department of Health, *Ethics in health research principles, structures and processes, Research Ethics Guidelines*, 2004

Republic of South Africa, Department of Health, *Guidelines for Good Practice in the Conduct of Clinical Trials in Human Participants in South Africa*, 2000

Republic of South Africa, Department of Health, *Health Act No. 61/2004*, Government Gazette, 23 July 2004, Vol. 469, No. 26595

Republic of South Africa, Department of Health, *Law audit applicable to child participation in research and clinical trials*, (date unknown)

Republic of South Africa, Department of Health, *South African Good Clinical Practice Guidelines Second Edition*, 2006

Republic of South Africa, Department of Health, South African National Clinical Trials Register, *Research Ethics Committees*, (date unknown)

Republic of South Africa, Department of Health, *The Patient's Rights Charter*, (date unknown)

Republic of South Africa, Department of Health, *What you should know when deciding to take part in a clinical trial as a research participant*, 2002

Republic of South Africa, Department of Health, *White Paper for the Transformation of the Health System in South Africa*, 1997

Republic of South Africa, Medical Research Council (MRC), *Book 5 Guidelines on Ethics for Medical Research, HIV preventive vaccine research*, 2003

Republic of South Africa, Medical Research Council (MRC), *Guidelines for Good Clinical Practice in Clinical Trials*, MRC Clinical Trials Series, 1998

Republic of South Africa, Minister of Health, *South Africa Medicine & Related Substances Amendment Bill*, 2002

Republic of South Africa, Minister of Health, *National Health Bill*, 2003

Republic of the Gambia, *Constitution of the Second Republic of the Gambia, Adopted on 8 August 1996, entered into force in January 1997, last amended in 2001*

Republic of Uganda, National Council for Science and Technology (UNCST), *National Guidelines for Research involving Humans as Research Participants*, 2007

Republic of Uganda, National Council for Science and Technology (UNCST), *Research Registration and Clearance Policy and Guidelines*, 2007

Republic of Uganda, National Health Research Organization (UNHRO), *An analysis of institutions doing health research in Uganda*, 2000

Republic of Uganda, National Health Research Organization (UNHRO), The Council on Health Research for Development (COHRED), *Essential National Health Research in Uganda, A case study of progress and challenges in implementing the ENHR strategy*, 2000

Republic of Zimbabwe, *Medicine and Allied Substances Control Act*, 1969

Republic of Zimbabwe, *Medicine and Allied Substances Control General Regulation*, 1991

Republic of Zimbabwe, Medicines Control Authority (MCAZ), *Guideline on submission of documentation for registration of multi-source (generic) finished pharmaceutical products (FPPS)*, 2008

Republic of Zimbabwe, Medicines Control Authority (MCAZ), *Guidelines for Good Clinical Practice*, 2002

Republic of Zimbabwe, Medicines Control Authority (MCAZ), *Guidelines for Good Clinical Trial Practice in Zimbabwe*, 2002

Republic of Zimbabwe, Medicines Control Authority (MCAZ), *Guidelines for submitting application for registration of a medicine in Zimbabwe*, (Date unknown)

Republic of Zimbabwe, Medical Research Council (MRC), *Conducting Health Research In Zimbabwe: What researchers need to know*, 2004

République Algérienne Démocratique et Populaire, Ministère de la Santé de la Population et de la Reforme Hospitalière, *Arrêté n. 387 du 31 Juillet 2006 relatif aux essais cliniques*, 2006

République de Guinée, Assemblée Nationale de la République de Guinée, *Loi L/97/021/An portant Code de Santé Publique*, 1997

République de Guinée, *Loi Fondamentale*, 1990

République du Burkina Faso, Assemblé des Députés du Peuple, *Loi n° 23/94/ADP portant Code de la Santé publique*, 1994

République du Burkina Faso, Ministère de la Santé, *Décret N°97-050/PRES/PM/MS portant Code de Déontologie des Médecins du Burkina Faso*, 1997

République du Burkina Faso, *Plan général et Extraits du Code la Santé publique du Burkina Faso relatifs à l'éthique*, 1994

République du Burkina Faso, President du Faso et President du Conseil des Ministres, *Décret n° 2005-100/PRES/PM/MPDH du 23 février 2005 portant création, attributions, composition et fonctionnement du comité interministériel des droits humains et du droit international humanitaire*, 2005

République du Cameroun, *La Constitution du Cameroun*, 1996

République du Cameroun, Le Premier Ministre, Chef du Gouvernement, *Décret n° 98/405/PM du 22 Octobre 1998 fixant les modalités d'homologation et de mise sur le marché des produits pharmaceutiques*, 1998

République du Cameroun, Le Président de la République, *Décret n° 2005/091 du 29 mars 2005 portant organisation du Ministère de la Recherche Scientifique et de l'Innovation*, 2005

République du Cameroun, Ministère de la Santé and COHRED - Council on Health Research for Development, *Cameroon Strong National Health Research Systems Enable Success Of Health Sector Reform Cameroon and COHRED work supports better evidence for the health sector and better donor alignment with national priorities*, 2007

République du Congo, *Constitution*, Texte du 20 Janvier 2002

République du Sénégal, Conseil National de Recherche en Santé, *Règlement intérieur du Conseil National de la Recherche en Santé*, 2006

République du Sénégal, Ministère de la Santé, *Analyse: Arrêté portant création et organisation du Conseil National de la Recherche en Santé*, 2001

République du Sénégal, Ministère de la Santé, *Arrêté ministériel n° 3224 MSP-DERF-DER en date du 17 mars 2004 abrogeant et remplaçant l'arrêté n° 1422 MS-DERF-DER du 2 mars 2001 portant création et organisation du Conseil National de Recherche en Santé/CNRS*, 2004

République Gabonaise, *La Constitution*, 2000

République Togolaise, Comité Consultatif National de Bioéthique and Commission Nationale pour l'UNESCO, *CCNB – TOGO, Réunion Constitutive, Rapport Final*, 2007

République Tunisienne, Comité National d'Ethique Médicale, *Les Essais Cliniques des nouveaux médicaments chez l'homme: impératifs éthiques et cadre juridiques, IXème Conférence Annuelle*, 2005

République Tunisienne, Ministère de la Santé, *Cahier des Charges Relatif à l'expérimentation médicale ou scientifique des médicaments destinés à la médecine humaine*, Arrêté du Ministre de la Santé Publique du 28 Mai 2001 JORT N° 47 DU 12 Juin 2001

République Tunisienne, Ministère de la Santé Publique, *Décret n. 94-1939 du 19 Septembre 1994, fixant les attributions, la composition et les modalités de fonctionnement du comité national d'éthique médicale*,1994

République Tunisienne, Ministère de la Santé Publique, *Décret n. 2001-2133 du 10 Septembre 2001, modifiant et completant le décret n. 94-1939 du 19 Septembre 1994, fixant les attributions, la composition et les modalités de fonctionnement du comité national d'éthique medicale*, 2001

République Tunisienne, Ministère de la Santé Publique, *Dispositions et Principes directeurs relatifs aux Bonnes Pratiques dans les Essais Cliniques*, (date unknown)

République Tunisienne, Ministère de la Santé Publique, *L'Industrie Pharmaceutique*, (date unknown)

République Tunisienne, Président de la République, *Code de déontologie médicale tunisine, Décret n° 93-1155 du 17 mai 1993, portant code de déontologie médicale*, 1993

République Tunisienne, Président de la République, *Décret n° 90-1401 du 3 Septembre 1990, fixant les modalités de l'expérimentation médicale ou scientifique des médicaments destinés à la médecine humaine*, 1990

Richards T., *Developed countries should not impose ethics on other countries*, British Medical Journal, 2002, Vol. 325, Page 796

Ridley R., *Time to analyse tropical disease research*, Real Health News, The Newsletter of Real Action and Research, 2006, No. 5, Pages 25-27

R.K., *L'éthique de la recherche scientifique, Le Maroc n'est pas doté d'un arsenal juridique qui encadre cette activité*, Lematin.ma, 2007

Rothman D.J., *The Ethics of Research Involving Human Subjects: Facing the 21st century*, The New England Journal of Medicine, 1997, Vol. 336, No.12, Pages 882-883

Royaume du Maroc, Ministère de la Santé, *Circuit du médicament au sein de L.N.C.M.*, (date unknown)

Royaume du Maroc, Ministère de la Santé, *Division de la Direction du Médicament et de la Pharmacie*, (date unknown)

Ruger J.P., *Health ad social justice*, The Lancet, 2004, Vol. 364, Pages 1075-1080

Sama M.T., *Situation Analysis of Health Research in Cameroon, A Historical Perspective*, COHRED - The Council on Health Research for Development, 2000

Schipper I., Weyzig F., *Briefing paper on ethics in clinical trials, #1: Examples of unethical trials*, Stichting Onderzoek Multinationale Ondernemingen (SOMO) in collaboration with WEMOS, 2006

Schipper I., Weyzig F., *Ethics for Drug Testing in Low and Middle Income Countries, Considerations for European Market Authorisation*, Stichting Onderzoek Multinationale Ondernemingen (SOMO) in collaboration with WEMOS, 2008

Schneider J.L., *Professional Codes of Ethics: their Role and Implications for International Research*, Journal of Contemporary Criminal Justice, 2006, Vol. 22, No. 2, Pages 173-192

Schwartz R.S., Curfman G.D., Morrissey S., Drazen J.M., *Full Disclosure and the Funding of Biomedical Research*, The New England Journal of Medicine, 2008, Vol. 358, No. 17, Pages 1850-1851

Sen F., *Conducting Clinical Trials Is There An India Advantage?*, The Monitor, 2005, Vol. 19, No. 5

Sen F., Vasantha M., *Capacity Building for Clinical Trials in India*, Indian Journal of Medical Research, 2006, Vol. 124, Pages 605-607

Shah S., *Médicaments du Nord testés sur les pauvres du Sud*, Le Monde Diplomatique, Mai 2007, Pages 18-19

Shapiro H.T., Meslin E.M., *Ethical Issues in the Design and Conduct of Clinical Trials in Developing Countries*, The New England Journal of Medicine, 2001, Vol. 345, No. 2, Pages 139-142

Singer N., *Outsourcing of Drug Trials Is Faulted*, New York Times, February 18, 2009

Singer P.A., Benatar S.R., *Beyond Helsinki: a vision for global Health*, British Medical Journal, 2001, Vol. 322, Pages 747-748

Singh J.A., *Health Research and Human Rights in South Africa*, The Lancet, 2004, Vol. 363, No. 9418, Page 1393

Singh J.A., Mills E.J., *The Abandoned Trials of Pre-Exposure Prophylaxis for HIV: What Went Wrong?* , PLoS Medicine, 2005, Vol. 2, No. 9, Pages 824-827

Slack C., Strode A., Fleischer T., Gray G., Ranchod C., *Enrolling adolescents in HIV vaccine trials: reflections on legal complexities from South Africa*, BMC Medical Ethics, 2007, Vol. 8:5

Society for Women's Health Research, *Background on Clinical Trials Legislation*, (date unknown)

Society for Women's Health Research, *Recruitment and Retention of Women in Clinical Trials*, (date unknown)

Sponsorship, authorship and accountability, Editorial, New England Journal of Medicine, 2001, Vol. 345, No. 11, Pages 825-827

Sprumont D., Baume C., *Survol de la législation en matière de recherche en santé dans quelques pays d'Afrique*, Université de Neuchâtel, Faculté de Droit, Institut de Droit de la Santé, 2006

Struble K.A., Toigo T.A., Behrman R.E., Birnkrant D.B., *Enrollment of Women in HIV Clinical Trials*, United States of America, Food and Drug Administration, Presented at the IX International AIDS Conference, Vancouver, British Columbia, Canada, July 1996

Sugarman J., *Ethics in the Design and Conduct of Clinical Trials*, Epidemiologic Reviews, 2002, Vol. 24, No.1, Pages 54-58

Swiss Commission for Research Partnership with Developing Countries KFPE, *Guidelines for Research in Partnership with Developing Countries, 11 Principles*, Third Edition 2003

Tazi A., *Les Comités d'Éthique au Maroc et dans la région: États des lieux et enjeux*, 2005

TDR – UNDP/World Bank/WHO Special Programme for Research and Training in Tropical Diseases, *Operational Guidelines for the Establishment and Functioning of Data and Safety Monitoring Boards*, 2005

TDR – UNDP/World Bank/WHO Special Programme for Research and Training in Tropical Diseases, *TDR News*, December 2007, No. 79

TDR – UNDP/World Bank/WHO Special Programme for Research and Training in Tropical Diseases, *TDR News*, September 2007, No. 78

Tebeje A., *Brain drain and capacity building in Africa*, The International Development Research Centre (IDRC), 2005

Teka T., *Ethiopian Health Research Ethics Application and Review Process*, Federal Democratic Republic of Ethiopia, Ethiopian Science and Technology Commission, (date unknown)

Temple R.J. *Benefit to trials participants or benefit to the community? How far should the Surfaxin trial investigators' and sponsors' obligations extend?*, in Lavery J.V., Grady C., Wahl E.R., Emanuel E.J. (Eds.), *Ethical Issues in International Biomedical Research: A Casebook*, Oxford University Press, 2007, Pages 155-159

The Top 500 World Universities, Academic ranking of Top World Universities 2007, Institute of the Higher Education, Shanghai Jiao Tong Universities, 2007

Tillet T., *Global collaboration gives greater voice to African journals*, Environmental Health Perspectives, 2005, Vol. 113, No. 7, Pages A452-A454

Tonks A., *A clinical trials register for Europe*, British Medical Journal, 2002, Vol. 325, Pages 314-1315

Transparency International, *Corruption Perception Index*, 2008

Transparency International, *Global Corruption Report*, 2008

Transparency International, *Persistent corruption in low-income countries requires global action, concerted efforts needed in rich and poor countries to stem flow of corrupt monies and make justice work for the poorest*, 2007

Trouiller P., Olliaro P., Torreele E., Orbinski J., Laing R., Ford N., *Drug development for neglected diseases: a deficient market and a public-health policy failure*, The Lancet, Volume, 2002, Vol. 359, No. 9324, Pages 2188 - 2194

Tung T., Organ C.H. Jr., *Ethics in Surgery, Historical perspective*, Archives of Surgery, 2000, Vol. 135, No. 1, Pages 10-13

Uganda AIDS Commission, European Union and the Uganda HIV/AIDS Partnership, *Uganda Guidelines for AIDS Vaccine Research, A Guide for Vaccine Research, Development and Evaluation*, 2006

Uganda edges closer to AIDS treatment for all, Bulletin of the World Health Organization, June 2008, Vol. 86, No. 6, Pages 423-425

Uhl K., Miller M.A., Kennedy D.L., *Complex Clinical, Legal and Ethical Issues of Pregnant and Postpartum Women as Subjects in Clinical Trials*, Journal of Women's Health, 2004, Vol. 13, No. 6, Pages 743-744

UNAIDS - Joint United Nations Programme on HIV/AIDS, *Ethical considerations in HIV preventive vaccine research, UNAIDS guidance document*, 2000

UNAIDS - Joint United Nations Programme on HIV/AIDS, *Experts meet on women and HIV clinic trials*, 2007

UNAIDS - Joint United Nations Programme on HIV/AIDS, *Making HIV trials "work for women?"*, 2007

UNAIDS - Joint United Nations Programme on HIV/AIDS, *The role of women in HIV trials*, 2007

UNECA - United Nations Economic Commission for Africa and African Union, *Science with Africa, Conference Report*, 2008

UNESCO - United Nations Educational, Scientific and Cultural Organization, *ABC Project "Assisting Bioethics Committees"*, 2006

UNESCO - United Nations Educational, Scientific and Cultural Organization, *ABC Project, Meeting to discuss the establishment of the National Bioethics Committee in Malawi*, 2007

UNESCO - United Nations Educational, Scientific and Cultural Organization, *ABC Project, 1st Preparatory Meeting on the Establishment of a National Ethics Committee in Gabon*, 2007

UNESCO - United Nations Educational, Scientific and Cultural Organization, *ABC Project, 1st Preparatory mission on the establishment of a National Bioethics Committee in Mauritius*, Mauritius, 2007

UNESCO - United Nations Educational, Scientific and Cultural Organization, *Cloning, Ethical Issues*, 2004 Updated 2005

UNESCO - United Nations Educational, Scientific and Cultural Organization, Division of Ethics of Science and Technology, *Avicenna and the ethics of science and technology today*, 2004

UNESCO – United Nations Educational, Scientific and Cultural Organization, Division of Ethics of Science and Technology Social and Human Sciences Sector, *Ethics Education Programme, Bioethics Core Curriculum Proposal (Draft)*, 2007

UNESCO – United Nations Educational, Scientific and Cultural Organization, Division of Ethics of Science and Technology, *The Ethics Programme of UNESCO, Ethics of Science and Technology*, 2008

UNESCO – United Nations Educational, Scientific and Cultural Organization, *Evaluation and Management of Risks in Africa, Ethics, Health and Environment*, Third days of Ethics and Bioethics for West and Central Africa, 2007

UNESCO – United Nations Educational, Scientific and Cultural Organization, *Fifth session of the Intergovernmental Bioethics Committee (IGBC)*, 2007

UNESCO – United Nations Educational, Scientific and Cultural Organization, *Final report, Second session of the Intergovernmental Meeting of Experts aimed to finalizing a Draft of a Declaration on Universal Norms on Bioethics*, 2005

UNESCO – United Nations Educational, Scientific and Cultural Organization, *Guide n. 1, Establishing Bioethics Committees*, 2005

UNESCO – United Nations Educational, Scientific and Cultural Organization, *Guide n. 2, Bioethics Committees at Work: Procedures and Policies*, 2005

UNESCO – United Nations Educational, Scientific and Cultural Organization, *Guide n. 3, Educating Bioethics Committees*, 2005

UNESCO – United Nations Educational, Scientific and Cultural Organization, *IBC Work Programme for 2008/2009*, 2007

UNESCO – United Nations Educational, Scientific and Cultural Organization, *International Declaration on Human Genetic Data*, 2004

UNESCO – United Nations Educational, Scientific and Cultural Organization, *List of participants, Second session of the Intergovernmental Meeting of Experts aimed to finalizing a Draft of a Declaration on Universal Norms on Bioethics*, 2005

UNESCO – United Nations Educational, Scientific and Cultural Organization, *Proceedings, Inter Governmental Bioethics Committee (IGBC), Fourth Session*, 2005

UNESCO – United Nations Educational, Scientific and Cultural Organization, *Report of the international bioethics committee of UNESCO (IBC) on Consent*, 2008

UNESCO – United Nations Educational, Scientific and Cultural Organization, *Seoul action plan: Joint Plan of Action for Regional Networking in Bioethics Education Towards Better Bioethics Education*, 2006

UNESCO – United Nations Educational, Scientific and Cultural Organization, *The Ethics and Politics of Nanotechnologies*, 2006

UNESCO – United Nations Educational, Scientific and Cultural Organization, *Universal Declaration on Bioethics and Human Rights*, 2005

United Nations, Commission on Human Rights, Sub-Commission on the Promotion and Protection of Human Rights, *Resolution 2007/7 of 17 August 2000, Intellectual property and human rights*, UN Doc. E/CN.4/Sub.2/2000/7

United Republic of Tanzania, *The Tanzania Food, Drugs and Cosmetics Act*, 2003

United States of America, Department of Health, Education and Welfare, The National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, *The Belmont Report, Ethical Principles and Guidelines for the protection of human subjects of research*, 1979

United States of America, Department of Health and Human Services, *Code of Federal Regulations, Title 45 – Public Welfare, Part 46 - Protection of human subjects*, 2005

United States of America, Department of Health and Human Services, NIH - National Institutes of Health, Office of Extramural Research, *NIH Policy and Guidelines on The Inclusion of Women and Minorities as Subjects in Clinical Research*, 2001

United States of America, Department of Health and Human Services, NIH - National Institutes of Health, Office of Extramural Research, *Sex/Gender and Minority Inclusion in NIH Clinical Research*, 2002

United States of America, Department of Health and Human Sciences, Office for Human Research Protections, *International compilation of human research protections*, 2008

United States of America, National Bioethics Advisory Commission, *Ethical and Policy Issues in International Research: Clinical Trials in Developing Countries*, 2001

United States of America, National Institute of Health, National Cancer Institute, *Children's Assent to Clinical Trials Participation*, 2005

United States of America, Office for Legislative Policy and Analysis, Access to Clinical Trial Information, S. 470 (2005); H.R. 3196 (2005); H.R. 5887 (2006); S. 3807 (2006)

University of Botswana, *University of Botswana Policy on Ethics and Ethical conduct in Research*, 2004

UNODC – United Nations Office on Drugs and Crime, *United Nations Convention against Corruption*, 2004

Van Damme L., Govinden R., Mirembe F.M. et al., *Lack of effectiveness of cellulose sulfate gel for the prevention of vaginal HIV transmission*, New England Journal of Medicine, 2008, Vol. 359, No. 5, Pages 463-472

Van Geertruyden JP., Menten J., Colebunders R., Korenromp E., D'Alessandro U., *The impact of HIV-1 on the malaria parasite biomass in adults in sub-Saharan Africa contributes to the emergence of antimalarial drug resistance*, Malaria Journal, 2008, Vol. 7:134

Van Velzen W., Lucas A.O., Pollock A., Stéphenne J., Sauer F., *Independent External Review Report, European and Developing Countries Clinical Trials Partnership (EDCTP Programme)*, IER/EDCTP Panel, 2007

Varmus H., Satcher D., *Ethical Complexities of Conducting Research in Developing Countries*, New England Journal of Medicine, 1997, Vol. 337, No. 14, Pages 1003-1005

Volmink J., Dare L., *Addressing inequalities in research capacity in Africa, All sides in partnerships must ensure that research aims to improve the health of all*, British Medical Journal, 2005, Vol. 331, No. 7519, Pages 705–706

Von Elm E., Röllin A., Blümle A., Huwiler K., Witschi M., Egger M., *Publication and non-publication of clinical trials: longitudinal study of applications submitted to a research ethics committee*, Swiss Medical Weekly, 2008, Vol. 138, No. 13-14, Pages 197-203

Wager E., *"Good Publication Practice for Pharmaceutical Companies": Where Are We Now?*, Current Medical Research and Opinion, Vol. 19, No. 3, Pages 149-154

Wagner C.S., Brahmakulam I., Jackson B., Wong A., Yoda T., *Science and Technology Collaboration: Building Capacity in Developing Countries?*, RAND Corporation, March 2001

Wasunna M., *Challenges and institutional constraints on bioethics development in Africa*, Kenya Medical Research Institute, 14th Session of the International Bioethics Committee, 2007

Weinfurt K.P., Friedman J.Y., Dinan M.A., Allsbrook J.S., Hall M.A., Dhillon J.K., Sugarman J., *Disclosing Conflicts of Interest in Clinical Research: Views of Institutional Review Boards, Conflicts of Interest Committees, and Investigators*, The Journal of Law, Medicine and Ethics, 2006, Vol. 34, No. 3, Pages 581-591

WEMOS Foundation, *A Bitter Pill, The Risks of Carrying out Clinical Drug Trials in Developing Countries*, 2008

WEMOS Foundation and European Parliament, *Final report of the expert meeting "Clinical trials and protection of trial subjects in low-income and developing countries"*, 2007

WEMOS Foundation, *Do European registration authorities ascertain whether clinical trials in developing countries have been conducted in an ethical manner?*, 2007

Wendler D., Emanuel E.J., Lie R.K., *The Standard of Care Debate: Can Research in Developing Countries Be Both Ethical and Responsible to Those Countries Health Needs?*, American Journal of Public Health, 2004, Vol. 94, No. 6, Pages 923-928

WHO/AFRO – World Health Organization Regional Office for Africa, *Press Release 51st Session of the WHO Regional Committee for Africa*, Health Ministers to discuss Research Bioethics, 27 August-1 September 2001

WHO/EMRO – World Health Organization Regional Office for the Eastern Mediterranean, *Colloque National de Bioéthique, Atelier de Formation à l'éthique de la recherche, Recommendations*, Faculté de Médecine et de Pharmacie de Fès, Fès 8-11 Juin 2005

WHO/EMRO - World Health Organization Regional Office for the Eastern Mediterranean, UNESCO - United Nations Educational, Scientific and Cultural Organization, *First Regional Meeting of National Bioethics Committees*, Cairo 5/7 May 2007

WHO/EMRO - World Health Organization Regional Office for the Eastern Mediterranean, *National Health Research System Mapping in the Eastern Mediterranean Region, A study of ten Countries*, 2008

WHO - UNAIDS HIV Vaccine Initiative, *HIV/AIDS Vaccine Country Profile Botswana*, 2005

WHO - UNAIDS HIV Vaccine Initiative, *HIV/AIDS Vaccine Country Profile Burkina Faso*, 2005

WHO - UNAIDS HIV Vaccine Initiative, *HIV/AIDS Vaccine Country Profile Cameroon*, 2005

WHO - UNAIDS HIV Vaccine Initiative, *HIV/AIDS Vaccine Country Profile Côte D'Ivoire*, 2005

WHO - UNAIDS HIV Vaccine Initiative, *HIV/AIDS Vaccine Country Profile Ethiopia*, 2005

WHO - UNAIDS HIV Vaccine Initiative, *HIV/AIDS Vaccine Country Profile Ghana*, 2005

WHO - UNAIDS HIV Vaccine Initiative, *HIV/AIDS Vaccine Country Profile Kenya*, 2005

WHO - UNAIDS HIV Vaccine Initiative, *HIV/AIDS Vaccine Country Profile Nigeria*, 2005

WHO - UNAIDS HIV Vaccine Initiative, *HIV/AIDS Vaccine Country Profile South Africa*, 2005

WHO - UNAIDS HIV Vaccine Initiative, *HIV/AIDS Vaccine Country Profile Tanzania*, 2005

WHO - UNAIDS HIV Vaccine Initiative, *HIV/AIDS Vaccine Country Profile Uganda*, 2005

WHO - World Health Organization and CIOMS - Council for International Organizations of Medical Sciences, *Déclaration de Manille, Directives Internationales proposées pour la recherche biomédicale impliquant des sujets humains*, 1981

WHO – World Health Organization, Commission on Macroeconomics and Health, *Macroeconomics and health: investing in health for economic development*, Geneva, 2001

WHO – World Health Organization, *Constitution*, as adopted by the International Health Conference, New York, 19-22 June 1946, entered into force in 1948

WHO - World Health Organization, Department of Ethics, Trade, Human Rights and Health Law (ETH), *Global list of National Bioethics Committees with contact details (as of December 2004)*, Geneva, 2004

WHO - World Health Organization, *Executive Summary of Meeting on improving vaccine regulatory capacity*, Weekly epidemiological record, 2008, No. 20, Pages 181-184

WHO – World Health Organization, Global Malaria Program Surveillance, Monitoring and Evaluation Unit, *Impact of long-lasting insecticidal-treated nets (LLINs) and artemisinin-based combination therapies (ACTs) measured using surveillance data, in four African Countries, Preliminary report based on four country visits*, 2008

WHO - World Health Organization, *Guidelines for Good Clinical Practice (GCP) for trials on pharmaceutical products*, WHO Technical Report Series, No. 850, Annex 3, 1995

WHO - World Health Organization, *Handbook for Good Clinical Research Practice (GCP), Guidance for implementation*, 2002

WHO - World Health Organization, *National bioethics committees in the African Region*, (date unknown)

WHO - World Health Organization, *Operational guidelines for Ethics Committees that review Biomedical Research*, 2000

WHO - World Health Organization Regional Office for the Western Pacific, *Ethical Aspects of Health research, in Health Research Methodology: A guide for training in research methods*, in *Health Research Methodology: A Guide for Training in Research Methods, Second Edition*, 2001, Pages 141-146

WHO - World Health Organization, *Report of the First Afro Vaccine Regulatory Forum (AVAREF)*, 19-22 September 2006, Accra, Ghana

WHO - World Health Organization, *Report of the WHO Consultation on Regulatory Technical Package and Model for Regulatory Decision Making*, WHO Headquarters Geneva 27-29 November 2006

WHO - World Health Organization, *Surveying and Evaluating Ethical Review Practices, A complementary guideline to the Operational Guidelines for Ethics Committees that review Biomedical Research*, 2002

WHO - World Health Organization, *The Global Burden of Disease: 2004 update*, 2004

WHO – World Health Organization, *The World Health Report, Primary Health Care – Now More Than Ever*, Geneva, 2008

WHO - World Health Organization, *WHO Technical Consultation on Clinical Trials Registration Standards*, Geneva, 2005

WHO – World Health Organization, *World Health Statistics*, Geneva, 2008

Widdus R., White K., *Combating diseases associated with poverty. Financing strategies for product development and the potential role of a public-private partnership*, Initiative on Public-Private Partnerships for Health, 2004

Willis J.L., *Equality in Clinical Trials. Drugs and Gender, US Department of Health and Human Services*, FDA Consumer Special Report, 1997

World Medical Association, Ethics Unit, *Ethics and Medical Research*, in Medical Ethics Manual, 2005, Pages 94-110

World Medical Association, *Declaration of Helsinki, Ethical Principles for Medical Research Involving Human Subjects*, 1964 (and following amendment)

W.R., *African health ministers lay claim to research*, Real Health News, The Newsletter of real Action and Research, 2006, No. 5, Pages 1-2

Young T., Volmink J., *Promoting evidence-based health care in Africa through training in research synthesis*, Real Health News, The Newsletter of real Action and Research, 2006, No. 5, Pages 28-29

Zarin D.A., Bergeris A., Ide N.C., *Technical Report LHNCBC-TR-2005-003, ClinicalTrials.gov, A Report to the Board of Scientific Counselors*, The Listen Hill National Center for Biomedical Communications, 2005

Zayyoun A., Maaroufi A., Khyati M., *Rapport de recherche: Analyse du système de recherche en santé*, Royaume du Maroc, Ministère de la Santé, DELM-Direction de l'Epidémiologie et de la Lutte contre les Maladies and WHO/EMRO - World Health Organisation Regional Office for the Eastern Mediterranean, 2003

Zilgalvis P.V., *Ethics Committees: the European Convention on Human Rights and Biomedicine, and ethical review of biomedical research*, Acta Medica Lituanica, 2006, Vol.13, No.1, Pages 2-5

Ziraoui Y., *Médecine. Le labyrinthe des tests cliniques*, Tel Quel on-line, 2008, No. 302

Zong Z., *Should post trial provision of beneficial experimental interventions be mandatory in developing countries?*, Journal of Medical Ethics, 2008, Vol. 34, Pages 188-192

List of Acronyms

AHRF	African Health Research Forum
AIFA	Italian Medicines Agency
AMANET	African Malaria Network Trust
ALECSO	Arab League Educational, Cultural and Scientific Organization
AVAREF	The Afro Vaccine Regulatory Forum
CAPRISA	Centre for the AIDS Program of Research in South Africa
CITI	Collaborative Institutional Training Initiative
COMET	Communication, Medicines and Ethics
COHRED	Council on Health Research for Development
COE	Council of Europe
DCVRN	Developing Countries Vaccine Regulators Network
EDCTP	European and Developing Countries Clinical Trials Partnership
EFGCP	European Forum for Good Clinical Practice
EGE	European Group on Ethics in Science and New Technologies
EMEA	European Medicines Agency
EVIPnet	Evidence Informed Policy Network
GCP	Good Clinical Practice
GFHR	Global Forum for Health Research
GFBR	Global Forum on Bioethics in Research
HRETIE	Health Research Ethics Training Initiative in Egypt
IAB	International Association of Bioethics
IRENSA	International Research Ethics Network for Southern Africa
ISESCO	Islamic Educational, Scientific and Educational Organization
IBEST	Islamic Body on Ethics of Science and New Technology
IMANA	Islamic Medical Association of Northern America
IOMS	Islamic Organization for Medical Sciences
KHRC	Kintampo Health Research Center, Ghana
MERETI	Middle East Research Ethics Training Initiative
NEPAD	New Partnership for Africa's Development
PABIN	Pan-African Bioethics Initiative
CReCSS	Research Center on Health, Cultures and Societies

REC	Research Ethics Committee
R&D	Research and Development
RMTC	Research Methodology Training Course
RBM	Roll Back Malaria Partnership
SARETI	South African Research Ethics Training Initiative
SEAICRN	South East Asia Infectious Disease Clinical Research Network
TDR	Special Programme for Research and Training in Tropical Diseases
SIDCER	Strategic Initiative for Developing Capacity in Ethical Review
UNAIDS	The Joint United Nations Programme on HIV/AIDS
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICRI	United Nations Interregional Crime and Justice Research Institute
OHRP	United States of America Office for Human Research Protections
SOPs	Standard Operating Procedures
WAB	West African Bioethics Training Program
WHO	World Health Organization
WHO/AFRO	World Health Organization Regional Office for Africa
WHO/EMRO	World Health Organization Regional Office for the Eastern Mediterranean
WMA	World Medical Association