The Shame of Medical Research

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Until the 1990s American medical researchers performed most of their experiments on other Americans—frequently choosing subjects who were poor and vulnerable. Now, however, they are increasingly likely to conduct their investigations in third world countries on subjects who are even poorer and more vulnerable. Part of the reason is AIDS—the first modern infectious disease to strike the developed and developing world simultaneously and to bring with it no hope to find a cure. Part of the reason, too, is the mounting financial and regulatory burdens of research in the rich nations, which cause investigators, both from universities and drug companies, to go to the poorer countries to test new treatments.

Whatever the reason, practice has overwhelmed ethics. The major international codes on human experimentation, including the principles proclaimed at Nuremberg in 1947 and the World Medical Association’s Declaration of Helsinki in 1964, all say that the well-being of the subject always should take precedence over the needs of science or the interests of society, and that doctors must obtain “the subject’s freely informed consent.” But neither these codes nor the Western groups concerned with medical ethics have had the developing countries in mind. Countries in which clinical trials are now conducted are often too poor to pay for the medicines that are successfully tested. And the people recruited for these trials very seldom get the kind of medical care the participants in trials in prosperous countries can expect. Whether Western principles covering the treatment of people who are the subjects of research can and should be applied to the world beyond Asia has become a bitterly debated question.

1. The question was first posed by the research that followed the 1994 finding that is known by its grant number—576—in the Pediatric AIDS Clinical Trials Group’s (PACTG) consortium of university-based investigators funded by the National Institutes of Health (NIH). The purpose of the research, everyone agreed, was to learn how to prevent the transmission of HIV from HIV-positive pregnant women to their children. The dispute that arose concerned whether the research was conducted ethically.

In 1976, American investigators proved conclusively, through clinical trials in the US, that giving AZT to HIV-positive pregnant women during their pregnancy and immediately before labor, and then to their newborn infants for six weeks, significantly reduced the rate of transmission of HIV. Without AZT, roughly one third of the infants transmitted the virus to their newborn babies. With AZT, mothers passed on the virus only 5 percent of the time, for a total reduction of 66 percent. Clearly, AZT provided extensive protection against the spread of AIDS from mother to child.

Even the 1976 trial raised some arguments. AZT is a highly toxic drug, with many serious side effects, and investigators were administering it to pregnant women of whom only one third would have passed on the disease if they had been left to chance. It was ethical to subject the fetuses of the other two thirds to a toxic drug, when, in fact, none of the women gave informed consent, they would not have suffered any adverse consequences?

This question has to be submitted to the institutional review boards (IRBs) at the researchers’ home institutions. By federal regulations, all human experiments supported with federal funds must first be approved by an IRB, and practically every university, hospital, or company doing such research has established one. The regulations spell out how an IRB should be organized (e.g., with fewer than five members, with at least one not affiliated with the institution) and what standards it should enforce (research benefits must outweigh risks and investigators must give potential subjects enough information to assure informed consent).

But the final decision on what is or is not ethical research is left to the individual IRBs. There is no regular review of their decisions, and, despite some requests to create one, there is no national IRB to supersede them. In the AIDS research on pregnant women, all the IRBs took the position that since no one could identify in advance which newborn would be spared the disease and which would unwittingly be infected, it was ethical to subject all of them to the risk of toxic effects.

Giving AZT to HIV-positive pregnant women and newborn infants immediately became the standard of care in American hospitals. (Some doctors and public health officials even advocated compulsory HIV testing of pregnant women.)

But the positive findings did nothing to reduce the intensity of the debate over whether the control groups should be given some medical treatment. The basic issue was one of the ethical obligations to a control group facing deadly disease when an effective therapy was available. The efficacy of AZT against mother-to-infant transmission was fully established, why not give the control groups the long course of AZT and use this as the base against which to measure outcomes for the short course?

Was this precisely the position adopted by Maria Angell in a forthcoming editorial in The New England Journal of Medicine? Did she conclude that control groups should always receive the “best proven diagnostic and therapeutic method,” which in this case meant the long course of AZT? When researchers in southern Africa and Thailand gave control groups placebo, Angell wrote, the trial “was not properly structured.” She then went on to compare the research to the Tuskegee study, the most notorious American research scandal, in which, from the 1930s through the 1960s, the US Public Health Service had purposely withheld known effective treatments from black men suffering from syphilis. Angell charged that investigators were giving effective treatments to black women and children in Africa suffering from AIDS. “It seems,” concluded Angell, “as if we have to come away from Tuskegee after all. Those of us in the research community need to redouble our commitment to the highest ethical standards, no matter where the research is conducted.”

Her position was supported by Sidney Wolfe and Peter Lurie, the physicians who head the Health Research Group of Public Citizen, the organization founded by Ralph Nader.

They calculated that as of 1997, sixteen research projects were investigating the effectiveness of short course AZT, using as subjects some 17,000 men and women in developing countries. In fifteen of the sixteen projects, nine of which were funded by the NIH or the Centers for Disease Control (CDC), the control groups did not receive AZT. (The one exception was a Harvard School of Public Health project in Thailand.)

Wolfe and Lurie could find no justification for allowing future patients to adopt lower standards abroad than they used in the US. "Researchers working in developing countries," they wrote, "have an ethical obligation to provide treatment that conforms to the standard of care in the sponsoring countries, when possible." They concluded that if achieving that standard required exerting some effort, like building an intensive care unit, the requirement could be waived. If the test involved a drug that the manufacturer could, and sometimes did, provide free of charge, then a different standard was truly a double standard, and this, they concluded, "creates an incentive to use as research subjects those with the least access to health care."
atented and, as did Michael Merzen, executive director of the WHO Global Program on AIDS. The long course of AZT, they said, was too expensive but required frequent medical monitoring that was beyond the capacity of developing countries. So giving AZT could mean the cost of building an intensive care unit. The argument also pointed out that it might not be fair to use AZT in a population that was seriously undernourished and suffering from malnutrition, and that placebo trials were also quicker than others in getting an answer.

Since critics contested each of these points, defenders of postnatal AZT went on to insist that research ethics in developing countries should not be dictated by the United States. Local ethics committees, they claimed, were competent to make decisions and since Africans and Asians had approved these trials, outsiders should not second-guess them. Varmus and Satcher quoted from a letter written by the chairman of the Uganda Cancer Institute research committee: "These are Ugandan studies conducted by Ugandan investigators in Uganda. It is not possible for women as research subjects, investigators took swabs of there from a placenta, they would be able to request funding to reduce by half the number of newborns infants infected by HIV. Just how irreconcilable are the differences between the two camps becomes apparent in the provisions of the 1993 "International Ethical Guidelines for Biomedical Research involving Human Subjects." Drafted by the Council for International Organizations of Medical Sciences and the WHO, the document attempts to regulate research ethics in developing countries with particular attention to combating AIDS. However, the document is ambiguous about the post-076 trials. First, it declares, "investigators must respect the ethical standards of their own countries." They "risk harming their reputation by pursuing work that host countries find unacceptable but their own countries find offensive." But it then adds that investigators must "consider the ethical implications of the societies in which research is undertaken and are not to "transgress the cultural values of the host community by inciting controversy to the expectations of their own society."

2. More and more instances of AIDS research that follows the post-076 model are coming to light, and their defenders are attempting to amend the Helsinki Declaration so that it will agree with their position. At the same time, efforts to develop an AIDS vaccine are raising new and troubling questions about ethics in research. And quite apart from the sheer amount of research in developing countries both by academic and drug company investigators is expanding enormously.

AIDS investigations in developing countries withholding effective treatments from research subjects. It is true that AZT or antiviral drugs are expensive and difficult to administer under conditions of poverty probably as crucial is the fact that providing treatment frequently undermines the research. For example, under the NIH grants, investigators from the University of Nairobi examined genital shedding of HIV-1 DNA and RNA during pregnancy, in order to analyze HIV transmission from mothers to their unborn children. (This research program, or "protocol," and the others discussed below were obtained through the Freedom of Information Act.) Using HIV-positive women as research subjects, investigators took swabs of mucus from around the cervix and genital tract and also drew a blood sample during and after their pregnancy. The consent form told prospective participants:

We... want to know more about the virus in the birth canal. We want to know whether every mother has the virus in her birth canal, or whether some women have the virus here. We... want to know whether there are reasons why some women might have the virus in the birth canal.

The researchers took their swabs at the twenty-fourth, thirty-second, and thirty-sixth weeks of pregnancy and then again two weeks and six months after delivery. If they discovered evidence of a sexually transmitted disease other than AIDS, they treated it. But they did not treat HIV, and they did not themselves provide the pregnant women with AZT to prevent transmission to their offspring. Although they acknowledged the efficiency of short-course AZT, their progress report to NIH noted:

It remains essential to understand the mechanism of vertical [mother to infant] HIV-1 transmission in order to design feasible intervention strategies to decrease transmission.

If they had administered AZT, they would have been unable to conduct their study.

They didn't have another protocol, researchers from Johns Hopkins in collaboration with Mulago Hospital and Makerere University in Kampala, Uganda. Using AZT and AZT-like drugs the investigators successfully treated the infected version of gamma globulin (HIV-1) in preventing HIV transmission from mothers to infants. They gave three groups of HIV-infected mothers different doses of the HIV-1 vaccine; all of them received AZT. "The expense of AZT, compliance, and toxicity considerations," the researchers claimed, "make widespread use of this approach in developing countries impractical."

It's rather than try to learn about the use of AZT in developing countries might comply with the demanding AIDS regimen and whether it was actually more toxic than for American women, they expressed their new agent. The research could not have been conducted in the US because it would have jeopardized women of a drug known as IA by adopting a different set of rules, it could be conducted in Uganda.

In the fall of 1997, several months before the efficacy of short-course AZT was demonstrated, a team from the Walter Reed Army Institute of Research, Johns Hopkins, and Lampang Hospital in northern Thailand, with funding, investigated transmission of HIV from mothers to infants by collecting blood and vaginal fluids from pregnant women. The consent form alerted the subjects to the possibility of taking AZT:

A drug, called AZT, has been proven effective in reducing the risk of HIV transmission from infected mothers to their babies in studies performed in the United States and Europe. At present, it is unknown whether AZT would reduce risk of HIV transmission from infected mothers to their babies in Thailand.

The Ministry of Public Health, the form explained, was planning such studies and the subjects were given the name of a doctor to contact for information. The consent form said: "We would encourage you to consider joining this AZT study."

At least two problems arise with this approach. First, the team did not itself offer to provide the subjects with AZT, those who wanted it would have to enroll in the Thai trials. The NIH in the US Surgeon General's office reviewed the project and asked whether this arrangement satisfied its own regulation that "any study must meet the same standards of ethics and safety that apply to research conducted within the United States, for US citizens." The NIH decided that it did, on the grounds that "ethical objections are alleviated by unequivocal consent form endorsement of the use of perinatal AZT." It's knowledge that IRBs would not have approved a project in the United States in which researchers' endorsed but failed to provide an effective treatment to their subjects.

Why did the researchers in Thailand not give women AZT? Because the project was enrolling pregnant women who, lacking the drug, were transmitting the disease to their children—which was precisely what the investigators needed to happen in order to do their study. As they told the NIH reviewers of their project, "The advent of AZT use was a concern of the [NIH] study section... [because] our analysis plan was based on identifying approximately 25-30 transmission events in the population." But the concern, the investigators declared, was unnecessary. "We will have at least 100 deliveries without HIV-1," the study's principal investigator predicted.

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exposure to AZT in any form yielding about 20 transmissions." Only be-
cause the virus continued to be passed on was the study workable.2

Another NIH-supported project from the University of Washington
explored the genital transmission of HIV. The subjects were four hundred
HIV-positive prostitutes in Mombasa, Kenya, who had received AZT
or antiretroviral therapy. Three hundred of the group who had, in addition to AIDS,
other sexually transmitted diseases were treated in order to
learn how treatment affects the trans-
mission of HIV. The question being
posed was whether antibiotics adminis-
tered for syphilis or gonorrhea (both
STDs that share a common trans-
misical pathway) would affect the sexual
transmission of HIV. After six months, sixty women,
received oral contraceptives or inject-

ing progesterone to learn whether
methods of contraception affect the
rate of HIV transmission. Finally, an-
other ten women were examined daily
for one month to learn if the quantity of
cervical and vaginal HIV changes during
the menstrual cycle. The inves-
tigators believed these studies would
help to create new ways to prevent
sexual transmission of HIV. Such a study
could not be conducted in the United
States, because it withholding a
known effective treatment.

In Rwanda and Zambia, University of Alabama investigatores are enrolling
couples (men and women) to study their
for their studies of HIV transmission. They
follow the medical history of couples in
which one partner is HIV-positive and
the other is HIV-negative — about 20 per-
cent of all couples tested — to learn
when, and under what conditions, the
negative partner turns positive. These
studies, they say, are "natural history"
studies, because they merely observe
people. Since prescrip-
tions for antire-

totality are rare in both countries,
the researchers are ostensibly following
the natural course, that is, untreated, history of the
disease. They do, they say,
dispens "commonly available medica-
tions for infectious diseases" to
the subjects, although not to local people
for fear that they provide "general health education on
ways to avoid AIDS," they do not distribute con-
traceptives. The genocide in Rwanda
crippled the supply of "oral contraceptives; or"
protective staff," the team reported,
"are known dead or remain missing
and less than half of our study subjects
have returned to Kigali." But work
of the University of Alabama,
were able to distinguish between
subjects who were "rapid progressors" to
death and those who were "long term survivors," and participate that un-
derstanding the viral and epidemi-
ological differences between the
two groups would produce effective public
health and treatment strategies. Again
the research depends on withholding
treatment from subjects and not supplying contraceptives.

"Heterosexual Transmission and Nat-
ural History of HIV in Zimbabwe," NIH grant R01 AI49511-04,

A Ugandan woman answering an AIDS questionnaire on sexual habits, circa 1995

1. In an effort to free researchers from the constraints of existing ethical
codes, a number of investigators and bioethicists, led by Robert Levine, a
male physician, have proposed to the World Medical Association some
fundamental revisions to the Declaration of Helsinki.10 The code currently
reads: "In any medical study, every patient—including those of a control
group, if any—should be assured of the best proven diagnostic and ther-
apeutic method. Their amended ver-

cion reads: "Patients should be informed that he or she will not be denied access
to the best proven diagnostic, prophylactic or therapeutic method that
would otherwise be available to him or her.""11

A disclosure may be in order. Levine and I were opposing expert witnesses in a recent case brought against Vander-
bilt University for research it con-
ducted between 1945 and 1947. In that study, pregnant women were fed radio-
active iron (to study iron absorption), and told that they were receiving a
"vitamin cocktail." Levine argued that
such research was unethical because it was in keeping with the
ethical norms at the time. I insisted that such deception violated already
recognized ethical principles governing
human experimentation, and that the Nuremberg Code (issued a few months after the protocol ended) incorporated
longstanding principles and did not in-
vent them. Vanderbilt settled the case for $10 million and issued an apology,
read in court, to the plaintiff.

that there may be few answers that apply to every situation.

2. "The Critical Causal Factor was the "viral load," that is, the degree of infection
that the HIV-positive person was carry-
ing. Higher loads led to higher rates of
HIV transmission. It was this finding
that the researchers submitted for pub-
lication in The New England Jour-

al of Medicine.

3. Since the policy of The New England Journal of Medicine is not to publish the
results of unethical research, and since this particular protocol, like
other post-70s ones, withheld effective
treatment, Angell felt it necessary to
explain why the report on it was ac-
cepted. She scrupulously identified all
the conditions that made the protocol such
research from being done in the
US, including, in most states, the need
to inform the infected spouse that
the partner was HIV-positive and to
treat HIV disease when discovered.

She did not believe that the later iden-
tification of the couples was a mitigating
circumstance. Nor did she accept the
mitigating circumstance the fact
that, according to the researchers, offic-
ial Ugandan policy advises against
partner notification. Faced with such a pol-
icy, she said, the researchers should

4. "F. C. Quinn et al., "Viral Load and Heterosexual Transmission of

5. The Helsinki Declaration allows the use of placebos only "in studies where no proven diagnostic or therapeutic method exists." The

6. When the guidelines for the outcome measures are neither death
nor disability, placebo or other non-
treatment controls may be justified on
the basis of cost. Placebos may be
better than nothing, but they do not
provide any benefits beyond the
placebo effect, and if a real treat-
ment becomes available, the use of pla-
cebos is unethical. The new rules
shall not be allowed to confuse the
research.

7. The two changes substantially reduce investigators' responsibilities. Under
the Helsinki principles, they must supply their research subjects with the
best possible care that has been de-
veloped; in the future, they would
need only not interfere with subjects' re-
ceiving therapies. Subjects would no
longer be kept from receiving the
best proven therapy; instead, they
would "not be denied access" to them.
Moreover, the revision would allow
subjects to provide subjects, in-
cluding control groups, only with those
therapies that were available to them
in their own country; in effect, re-
searchers would not be obligated to
provide first world treatments in the
third world. Finally, the revision opens
the door more widely to placebo trials.
Placebos are effective when effective
treatments are locally available if the
injuries that would follow from not
giving such treatments fall short of
death or disability. In effect, the
proposed change to Helsinki would
render ethical all the protocols I have
described here.

Modifying the Helsinki standards would immediately affect the design of
AIDS vaccine trials, which raise in par-
ticular distressing questions about
the consent of HIV-infected human subjects in
developing countries.

An AIDS vaccine is truly the best hope for stopping the ravages of the
disease worldwide; the difficulties can be surmounted. The very potential
of an AIDS vaccine to save thousands of lives makes the ethics of testing it
more complex. The NCI and several others have begun testing HIV
vaccines not only in the United States but in Thailand, and plans are
underway to conduct vaccine trials in China, India, South Africa, Haiti,
and Trinidad.

The first difficulty is that testing the vaccine requires subjects who
have been exposed to AIDS; otherwise no useful findings on its
efficacy will be forthcoming. Necessity, then, subjects will be drawn from vulnerable populations, includ-
ing drug users, commercial sex work-
ers, and sexually active, risk-prone gay
men, all of whom may be easily co-
coerced into joining the research. How
to guard against coercion is by no
means obvious. Second, both Ameri-
can and Helsinki standards would re-
quire that subjects in such a trial ini-
tially receive effective counseling,
clean needles, condoms, and perhaps
even drug abuse treatment and voca-
tional counseling. Thus, research ethics
undercurrents of efficacy; if every subject
received the advice and took the
protective measures, the efficacy
of the vaccine tests would be seriously impaired. This is why subject's later to contract AIDS either as a result of a faulty vaccine or because of their own failure to take necessary precautions, a strong case could be made for their being given, at researchers' expense, AZT or the latest antiretroviral drugs. Judging by their past performance, researchers are not likely to expend the thousands of dollars necessary to meet this commitment.

By contrast, adopting local, not international standards would make the trials cheaper (because no treatment would have to be provided) and in-crease their efficiency (because by not supplying clean needles or condoms, subjects would be more frequently exposed to HIV). If, however, households in which contracted AIDS were not given AZT or antiretrovirals, researchers would learn more about other properties of the vaccine, including whether it reduced the severity of the disease or the infectiousness of the virus.

With these advantages in mind, Barry Bloom, chair of the UNAIDS Vaccine Advisory Committee, recently observed: "Determination of the protective efficacy of HIV vaccine candidates may only be possible in trials in developing countries where the resources are not available to provide antiretroviral drugs." Although aware of the ethical dilemmas of having science take advantage of a country's poverty, he and many colleagues say they cannot put aside the benefits of the knowledge to be gained. "If the best proven therapy was standard of the industrialized countries was literally applied without qualification," Bloom argues, "could there ever be efficacy trials of AIDS vaccines or of many other interventions?" His conclusion is guarded but his preference clear: the Helsinki standards require clarification and perhaps modification.

The attraction of conducting research in developing countries are not limited to AIDS or to academic investigators. Over the past ten years, American drug companies have been reducing their reliance upon universities to do their research, turning instead to for-profit contract-research organizations (CROs). (In 1991, according to one analysis, half of drug industry funding for clinical trials went to academic medical centers; by 1998, the figure had dropped by half.) The CROs locate the research sites, recruit patients, and in some cases even draw up the study design and perform the analysis. And increasingly, the sites and patients they choose are abroad, particularly in developing countries.

In London last February, a two-day meeting, sponsored by a number of major pharmaceutical companies and addressed by CRO representatives, was devoted to "Unlocking the Untapped Potential of Clinical Trials in Southeast Asia," including China, South Korea, and Malaysia. The program announcement said: "Per patient trial costs are up to 25 percent lower than in the US & Europe. Lower per patient trial costs is just one of the benefits available to you by undertaking clinical trials in Southeast Asia." It also explained that the changing "discourse profile" of Southeast Asia made them more like Americans and Europeans. For example, cardiovascular disorders, from which drug companies make huge profits, are fast replacing infectious diseases as the leading cause of death in these countries. Asians were also better subjects for clinical trials because they were "treatment naive," that is, previously unexposed to other medical interventions. Not explicitly stated but well known to all researchers is the additional fact that most Southeast Asian countries do not have effective review boards, or, for that matter, highly in-}

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nature of the procedure they had undergone and 45 percent could give even one major risk or cite a possible complication resulting from it. Such findings may possibly be explained by the age or education of the patients, poor communication by physicians or a blind trust by patients. But whatever the reason, consent is hardly foreseen.

The same must be true in developing countries. No one subject in the placebo-based protocols simply because Ugandan or Thai subjects consented to join them. Not only would the subject face all of the liabilities in getting information that their Western counterparts do, but they may well be encountering alien concepts. Take the idea of randomization. Subjects are informed (by folks in white-coated assistants) that a toss of a coin will determine whether they receive treatment or placebo. The proposition is not self-evident, requiring as it does an understanding of rules of chance and an appreciation of the unusual fact that a doctor may not be giving treatment. Americans are often convinced of this; but when Iraj Kohani and his colleagues questioned American drug users being recruited for a randomized HIV vaccine trial, 26 percent did not understand that some of the volunteers would receive vaccine and others placebo. An investigator in Bangkok recently explained to me that there is no Thai word for placebo. The best the team could come up with is a term most accurately translated as "mimic." Accordingly, subjects in some of the Thai post-076 trials were told that they were getting meditation or the substance that mimicked medication. Whether the term was understood as a stand-in for medicine or as a non-action, it was anybody's guess.

Finally, in some developing countries "consent" may be deceptive. In 1998 a team of South African doctors and public health researchers questioned subjects who had enrolled in an HIV-transmission study about their knowledge of the disease. It turned out that they had an accurate understanding of HIV transmission, but in an unexpected finding, they also made it clear that they had no choice about enrollment: 84 percent said they felt they had been compelled to participate. Just why they felt this way we do not know, but they were evidently under pressure of some kind. A follow-up question asked whether the hospital would permit them to quit the study, and 88 percent said no. So much for the voluntary nature of informed consent.

5. The immediate effort to relax international standards may not succeed. The WMA debated revisions to the Helsinki Declaration at its 1990 meeting in Tel Aviv and the participants, without exception, said that the proposed changes violated the fundamental principles of research and human beings. At the WMA's October 2000 meeting held in Edinburgh, delegates resolved that any new treatment had to be tested against "the best current prophylactic, diagnostic, and therapeutic methods," thereby maintaining a commitment to a universal standard for research. And some organizations in the US are trying to strengthen the ability of developing countries to review research protocols. The Fogarty International Center of the NIH, for example, has begun a program that will provide representatives from developing countries with training in ethics, particularly American research ethics. Such training will not guarantee that local ethics committees will be more concerned with protecting fellow citizens than with cooperating with well-financed foreign investigators. And it is not surprising that when Nevirapine itself was tested, the control group was given AZT not in its proven short-course regimen, but only from the onset of labor through delivery. The original protocol called that the short course was too complicated to be administered in a developing country.

6. There are strong practical as well as principled reasons for Americans to follow American ethical standards when they do research abroad. IRBs have too little familiarity with developing countries to set different standards. They are ill-equipped to differentiate among the poor and customs of Thailand, China, Uganda, or Zambia. They cannot possibly know whether the word "placebo" has been accurately translated. Moreover, if human rights relative to social and economic conditions in distant countries could come back to haunt us, Appalachia is not World Health Country and the morbidity statistics in Harlem are worse than those in Bangladesh. Will American researchers be allowed to provide less treatment in our own impoverished countries than our reformed ones? The question is not idle, for this is the position that the US Public Health Service adopted in conducting and rationalizing the Tuskegee research.

As Atrey Neier, former head of the ACLU, has pointed out, American courts often must balance local values against national standards. When the stakes are not life-threatening, the courts have been respectful of local values, most notably in education. (The American get to decide their children's education to their own criteria, not those of the majority.) But in a matter of life or death, courts enforce national values. (A Jehovah's Witness parent may not drown his child, but death is preferable to receiving a transfusion.) A good case can be made that AIDS research in developing countries should follow this same rule.

Finally, object poverty is harsh enough without people having to bear the additional burdens of serving as research subjects. When we take account of the misery of the oppressed hopes of people in Uganda, it is not enough for investigators to say that their research left them no worse off. That Ugandans did not have access to AZT before the research, during the research, or after the research does not resolve the ethical issue. As compensation to their subjects for enrolling in the research, investigators who come to Uganda should be required to leave their subjects better off. And the Ugandans should receive all of the benefits of research now, not in some distant future when pharmaceutical companies may, or may not, reduce the price of their drugs or vaccines so that citizens in poor countries can afford them. Do unto others as we do unto ourselves—a principle for researchers everywhere.