

AIDS research in Brazil

**Pedro Chequer^a, José Ricardo Pio Marins^a, Cristina Possas^a,
Julia Del Amo Valero^b, Francisco Inácio Bastos^c, Euclides Castilho^d and
Norman Hearst^e**

AIDS 2005, **19** (suppl 4):S1–S3

This is the first supplement of *AIDS* in its 20-year history devoted entirely to research in a single country. Why now? And why Brazil?

Brazil has earned international notoriety in the fight against AIDS. It is best known as the first developing country to provide free, universal access to antiretroviral treatment (ART) for all patients. In so doing, Brazil accomplished what many believed impossible: effectively delivering ART in a resource-limited setting while challenging the norms of the international pharmaceutical industry. The success of this effort shattered the illusion that ART could only be for rich countries, jolted cautious international organizations into action, and gave new hope not only to millions of people living with HIV in the developing world but also to their families and communities.

Brazil has also received international recognition for its success in HIV/AIDS prevention. The Brazilian government, aided by a strong non-governmental organization sector, responded early and vigorously to the epidemic with activities targeting both vulnerable groups and the general population. Prevention messages were characterized by frank, open discussion of sexuality and an unwavering commitment to fighting stigmatization. Although it is impossible to know exactly what would have happened otherwise, these efforts are generally credited with achieving relative stability in the number of Brazilians infected with HIV at a much lower level than initially projected.

But what about research? In its own way, Brazil's commitment to AIDS research has been no less impressive than its commitment to treatment and prevention. Brazil fits squarely in the 'middle income' category of nations, with highly developed sectors even while large portions of the population remain poor and uneducated. Although this uneven development creates great challenges in the fight against AIDS, it also means that Brazil has a cadre of professionals capable of conducting AIDS research. Brazil has probably devoted more resources to AIDS research than any other developing country, and a great deal of high quality research has been conducted. Until now, though, this has often been invisible to the international community because the results of this research have seldom been published in top-quality international peer-reviewed journals.

There are many reasons for this, and most of these are not unique to Brazil. Beyond the obvious barrier of language are more complicated barriers of culture. Many investigators in Brazil have neither the incentive nor the experience necessary to publish successfully in international journals. They are likely to be much more familiar with the extensive and comprehensive format of the thesis or the final report to a funding agency than the 3000-word haiku of the research article. Except for the minority of AIDS researchers based in top universities and research institutes, their jobs are unlikely to require them to publish or perish.

^aBrazilian National STI/AIDS Control Program, Brasília, Brazil, the ^bMiguel Hernandez University, Alicante, Spain, the ^cOswaldo Cruz Foundation, Rio de Janeiro, Brazil, the ^dUniversity of São Paulo, São Paulo, Brazil, and the ^eUniversity of California, San Francisco, CA, USA.

Correspondence to Norman Hearst, MD MPH, Professor of Family and Community Medicine and of Epidemiology and Biostatistics, 500 Parnassus MU3E Box 0900, University of California, San Francisco, California 94143, USA.

Tel: +1 415 476 6364; fax: +1 415 476 6051; e-mail: hearstn@fcm.ucsf.edu

Consequently, the results of AIDS research in Brazil, even high quality research, are not published in international journals nearly as often as they should be. Dissemination is more likely to be through presentations at conferences and publications of the National AIDS Control Program and other official agencies. Furthermore, analysis and dissemination sometimes lack the rigor demanded by peer review. Long reports allow investigators to avoid identifying, focusing upon, and fully justifying their key findings.

Whatever the reasons, this relative lack of formal, peer-reviewed publication has unfortunate consequences. Data gathered are not as productively analysed as they should be. Findings often are not disseminated widely, both within Brazil and especially internationally, meaning that they are less known and used than they should be. A substantial proportion of studies published from Brazil have been those directed by investigators from rich countries, sometimes creating the false impression that this represents the majority of AIDS research in Brazil. Meanwhile, Brazilian researchers and research institutions do not receive recognition for their work, limiting their ability to compete for future research funding.

In recent years, the Brazilian National AIDS Control Program has become increasingly aware of this problem. The program realized that requiring investigators to publish their results in peer-reviewed journals would do little good unless they and their institutions were equipped with the skills and guidance they would need to 'play the game'. The program therefore embarked on a multistep process to increase the publication of Brazilian AIDS research.

The first step was to identify research projects, mostly funded by the Brazilian government, which had completed data collection and were believed to have produced important findings that had not yet been published in peer-reviewed journals. Over 30 such studies were identified. Investigators of these studies, many based in non-governmental organizations and public health service settings, were contacted and invited to apply to participate in a series of workshops on how to publish in international journals. Sixteen teams of two investigators from each study were selected to participate in a series of four monthly workshops, each lasting 3–5 days. These workshops were facilitated by investigators experienced in publishing in international journals. They emphasized peer review among the participants themselves and by Brazilian experts. Before the final workshop, draft manuscripts were professionally translated into English. The final workshop involved international peer reviewers who provided feedback on the English versions of the manuscripts.

As a next step, the National AIDS Control Program negotiated with *AIDS* to produce this supplemental issue.

Investigators who had participated in the workshops as well as others who had not were invited to submit manuscripts. Of the articles in this issue, all of which passed through the *AIDS* peer review process, eight resulted from the workshop series and five were direct submissions.

The articles in this issue represent the broad range of AIDS research in Brazil. Several draw lessons from the extensive Brazilian experience with providing ART in a resource-limited setting. The study by Bonolo *et al.* on treatment adherence demonstrates levels of adherence and barriers that are similar to what has been reported in developed countries. Santos *et al.* examined one of these barriers to adherence, self-perceived body changes resulting from ART, in more detail. They found Brazilian HIV/AIDS patients to be no less concerned about such changes than their counterparts in richer countries.

Two reports apply the techniques of survival analysis to examine specific questions in large cohorts of Brazilian AIDS patients in the context of universal access to ART. Campos *et al.* confirmed previous studies showing improvements in survival among Brazilian AIDS patients similar to those observed in rich countries and demonstrated continuing ongoing improvement. They also demonstrated that the survival time can vary substantially depending on the AIDS case definition used. Marins *et al.* reported that AIDS patients co-infected with hepatitis C have a shorter survival, but that this difference seems to be largely caused by the co-infected patients receiving less intensive ART than their counterparts without hepatitis C infection.

Several other articles examined the Brazilian experience with prevention. Silva *et al.* reported a potential unexpected consequence of treatment availability. Among men who have sex with men, those who have more optimistic perceptions about the efficacy of treatment are more likely to practice unprotected anal intercourse. Matida *et al.* demonstrated a more positive impact of treatment on prevention by documenting the substantial progress made in reducing mother-to-child transmission of HIV in São Paulo State. Calazans *et al.* reported high levels of condom use by young people in Brazil, especially with casual partners, but also identified several predictors of non-use. Szwarcwald *et al.* examined AIDS-related knowledge and behavior in the broader adult Brazilian population and found substantial socioeconomic disparities in risk, thus demonstrating the need to target future prevention efforts towards the poor.

Two articles dealt with the needs of special populations that have not received enough attention in AIDS research. Doring *et al.* demonstrated that stigma and racism remain serious barriers to finding foster homes for AIDS orphans. Pinto *et al.* showed that Brazilian women who have sex with women are often at a substantial risk of

HIV and other sexually transmitted infections, a risk that is often unrecognized by them and their healthcare providers.

Three articles are in the field of laboratory and basic science, disproving any notion that such research can only be performed in rich countries. The meticulous evaluation by Ferreira *et al.* of the performance of HIV rapid tests is of obvious practical value anywhere in the world that such tests might be employed. Velasque *et al.* provided insight into the pharmacokinetics of didanosine. Soares *et al.* applied techniques of molecular epidemiology to document how HIV subtype C appears to be displacing subtype B as the predominant strain in southern Brazil.

Transcending the findings of each individual article in this issue is one overall lesson. Research from developing countries has just as much to contribute to the global fight

against AIDS as does research from rich countries. In many ways, it is even more relevant to the poorer countries with the vast majority of the world's HIV infections. Research in developing countries is also relatively inexpensive because personnel costs (the biggest category in most research budgets) are much lower. The studies reported in this issue were conducted for only a fraction of what it would cost to conduct similar research in rich countries. Most had total budgets of under US\$100 000.

How much could be learned from the results of other studies conducted elsewhere in the developing world that were never published? How much more could have been learned from studies that were never conducted for lack of funding? How can we justify spending 95% of the world's AIDS research budget in rich countries? Equity and efficiency cry out for investing far more in AIDS research in the developing world.