

GLOBAL HEALTH MATTERS

Fogarty International Center
 National Institutes of Health
 U.S. Department of Health and Human Services

Fogarty Organizes NIH Event to Launch Global Theme Issue

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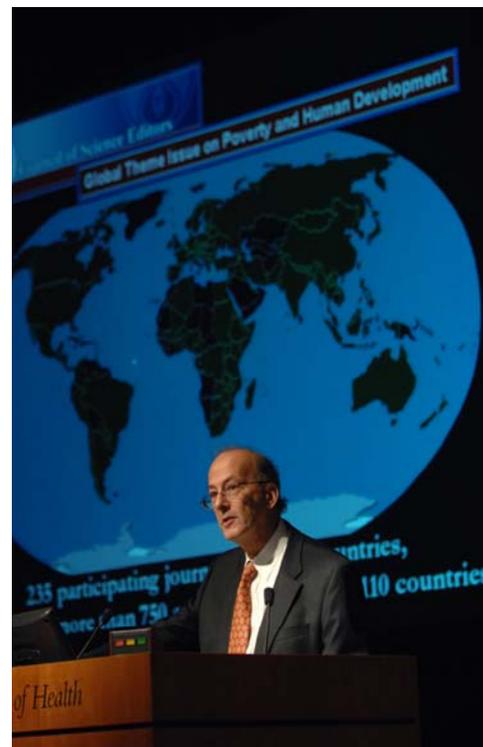
In an effort to focus attention on global health, Fogarty joined with the Council of Science Editors (CSE) on Oct. 22 to promote its 2007 international theme issue on poverty and human development. Fogarty, in conjunction with the National Library of Medicine (NLM), hosted the launch event on the NIH campus, to coincide with the simultaneous publication of related research by more than 235 scientific journals in 37 countries. At least 1,000 articles were disseminated, representing research projects taking place in 85 nations.

“Without access to medical literature, without state-of-the-art knowledge, the practice of medicine and public health becomes woefully out-of-date,” said Fogarty Director Dr. Roger I. Glass, during his opening remarks. “Having access to the most current knowledge can be lifesaving.”

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Global Theme Issue Stats

- 235 journals participating worldwide
- 37 countries have journals participating
- 750+ articles are being published
- Representing research taking place in 110 countries



Fogarty Director Dr. Roger I. Glass welcomed guests to the NIH Global Theme Issue Launch Event.

Fogarty Co-sponsors Polio Symposium Examining Eradication Efforts



WHO's Dr. Bruce Aylward discussed polio eradication efforts.

While international efforts to eradicate polio have made significant progress, complete elimination of the virus is proving to be more difficult than expected. Scientists, funders, government officials and policy makers gathered to discuss the challenges recently at an NIH symposium sponsored by Fogarty and the National Institute of Allergy and Infectious Diseases. The two-day meeting, *Polio Immunization: Moving Forward*, included presentations on the current status of eradication, the challenges impeding progress, available vaccine options and the research agenda needed to advance the effort.

Welcoming remarks were made by Fogarty Director, Dr. Roger I. Glass, who gave a personal perspective of the epidemic that created such fear during his childhood.

Since 1988, the World Health Organization's eradication efforts have eliminated wild poliovirus from more than 100 countries, with only four currently identified as endemic and 13 as reinfected, or having more than two cases in the same transmission, according to Dr Bruce Aylward, WHO's Director for Polio Eradication. He reports that the number of paralyzed children has dropped by 99 percent since the \$5.3 billion effort began.

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Fogarty Organizes NIH Event to Launch Global Theme Issue

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As part of the initiative, Dr. Glass co-authored an essay in the *Journal of the American Medical Association (JAMA)* titled, "Bridging the Coverage Gap in Global Health."

Seven of the most outstanding articles from these journals addressing critical issues of global health research and policy were selected by a review committee of NIH and CSE experts for presentation at the conference. Two panels of international scientists presented new research examining interventions and projects to improve health and reduce health-care inequities among the poor. Subject areas included: childbirth safety, HIV/AIDS, malaria treatment, food insufficiency and sexual behavior, interventions to improve child survival, physician brain drain from the developing world, and influenza's impact on children.

The scientific presentations were moderated by Dr. Catherine DeAngelis, Editor-in-chief, *JAMA* and Dr. Fiona Godlee, Editor-in-

chief *British Medical Journal (BMJ)*, with both prestigious journals also publishing global theme issues.

"There was really a marvelous effort that CSE put in to mobilize the global community of researchers to study the issue of poverty as the greatest threat to human health and development worldwide," said CSE President Dr. Ana Marusic, who is also Editor-in-chief of the *Croatian Medical Journal*.

Two previous global theme issues have been organized by the editors of *JAMA*. In January 1996, more than 200 articles on emerging and reemerging global microbial threats were published by 36 journals from 21 countries. In 1997, just under 100 journals in 31 countries published on the theme of aging.

"It is gratifying that the number of journals participating in the 2007 Global Health theme issue is more than double the number involved in a similar effort a decade ago," said Betsy Humphreys, MLS, NLM deputy director. "This reflects progress in



CSE President Dr. Ana Marusic spoke of efforts to mobilize the global community of researchers to study the issue of poverty.

scientific journal publishing in the developing world, as well as increased recognition that global health disparities affect the well-being of all of us."

The symposium was webcast live and is archived for viewing at:
<http://videocast.nih.gov/Summary.asp?File=14087>

Scientific Papers Presented at the NIH Event to Launch Global Theme Issue

The scientific papers presented at the NIH global theme issue launch include:

- "Food insufficiency is associated with high-risk sexual behavior among women in Botswana and Swaziland," published by *PloS Medicine* and presented by Dr. Sheri Weiser, University of California San Francisco and Dr. Nthabiseng Phaladze, Department of Nursing Education, University of Botswana.
- "Reduced in-hospital mortality after improved management of children less than five years of age hospitalized with malaria— A randomized trial," published by *BMJ* and presented by Dr. Sidu Biai and Dr. Amabelia de Jesus Pereira Rodrigues, Bandim Health Project (Guinea Bissau, West Africa).
- "Human resources for treating HIV/AIDS: Needs, capacities, and gaps," published by *AIDS Patient Care and STDs* and presented by Dr. Salal Humair, Lahore University of Management & Sciences (Lahore, Pakistan) and Dr. Till Barnighausen, University of Kwa Zulu-Natal (South Africa).



The meeting's scientific presenters address global poverty and development issues.

- "Too Poor to Leave, Too Rich to Stay" Developmental and global health correlates of physician migration to the United States, Canada, Australia, and the United Kingdom," published by *American Journal of Public Health* and presented by Dr. Onyebuchi Arah and Dr. Uzor Ogbu, University of Amsterdam Medical Center (Amsterdam, The Netherlands).

- "Improving child survival through environmental and nutritional interventions: The importance of targeting interventions towards the poor," published by *JAMA* and presented by Dr. Majid Ezzati, Harvard School of Public Health (Boston, Mass.).
- "Cellular and humoral responses to influenza in Gabonese children living in rural and semi-urban areas," published by *Journal of Infectious Diseases* and presented by Dr. Maria Yazdanbakhsh, Leiden University Medical Center (Leiden, The Netherlands).
- "Chlorhexidine vaginal and neonatal wipes in home births in Pakistan: A randomized controlled trial," published by *Obstetrics & Gynecology* and presented by Dr. Sarah Saleem, Aga Khan University (Karachi, Pakistan).

For the complete list of participating journals, visit:
<http://www.councilscienceeditors.org/globalthemeissue.cfm>

Fogarty Director Accompanies HHS Secretary to Africa to Visit US-supported Programs

Fogarty International Center's Director Roger I. Glass recently accompanied HHS Secretary Mike Leavitt and a group of senior U.S. government leaders to the African nations of South Africa, Mozambique, Tanzania and Rwanda, in order to observe U.S. government programs that are delivering health care to underserved communities.

The delegation visited communities that receive funding through the President's Emer-



In Tanzania, the US delegation met with Fogarty grantee, Dr. Kisali Pallangyo, (at right) of Muhimbili University of Health and Allied Sciences. From the left, HHS Secretary Mike Leavitt, CDC Director Dr. Julie Gerberding, Fogarty Director Dr. Roger I. Glass and CDC official Dr. Stephan Wiktor.

gency Plan for AIDS Relief (PEPFAR), the President's Malaria Initiative (PMI), and the Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund). The visits allowed Secretary Leavitt to assess the impact of U.S.-supported programs in Africa and to reinforce the need for sustainable partnerships with host-country governments and local organizations. In each country, the delegation met with government officials, health care providers and scientists, and visited sites such as urban hospitals, rural health clinics, home-based-care settings, programs for orphans and academic institutions.

The group toured the Gasabo District Residential Community and Primary Care Clinic, in the Kirongi District of Rwanda, where the PMI supports the home-based management of fever by training community health workers to diagnose and treat symptoms of malaria-induced fever in children six months to five-years-old. The PMI-funded program has dramatically reduced the number of hospitalizations for malaria in the surrounding area. "I saw that the programs are having an impact on the ground because every child with fever can get medicine; they demonstrated that this was a very successful program," Secretary Leavitt said.

While visiting Tanzania, the delegation met with Dr. Kisali Pallangyo, Vice Chancellor of Muhimbili University of Health and Allied



Fogarty Director Dr. Roger I. Glass receives a gift from local Zulu leader, Inkosi S. Zondi, at the Centre for the AIDS Program of Research in South Africa.

Sciences (MUHAS) in Dar es Salaam. MUHAS participates in a number of Fogarty-supported collaborations that provide training in informatics, infectious disease research, and AIDS research.

Another highlight of the trip was a visit to the Centre for the AIDS Program of Research (CAPRISA) site in Vulindlela District, KwaZulu Natal Province, South Africa, a non-profit HIV/AIDS research, treatment and care center program supported by Fogarty's AIDS Training and International Research Program.

NIH Delegation Meet With India's Political and Scientific Leadership

Fogarty's Director Dr. Roger I. Glass and the National Institute of Biomedical Imaging and Bioengineering's Director Dr. Roderic Pettigrew accompanied Dr. Elias Zerhouni, Director of NIH, on his Oct. 4-5, 2007 visit to New Delhi, India. The NIH delegation met with India's senior political and scientific leadership, including India's Prime Minister Manmohan Singh, the Minister of Science and Technology Kapil Sibal, the Minister of Health and Family Welfare Anbumani Ramadoss, and the Secretary of the Department of Biotechnology Dr. Majaraj K. Bhan.

Dr. Zerhouni gave two widely attended and well received keynote lectures—at a national symposium on translational research hosted by India's Department of Biotechnology and at the Indian Council of Medical Research Annual Oration Day. In New Delhi, Dr. Zerhouni and Dr. Glass also met with the President of the Public Health Foundation of India, the President of the All India Institute of Medical Sciences, senior NIH grantees and NIH trainees, and the U.S. Ambassador to India.

Fogarty played a key role in organizing all aspects of Dr. Zerhouni's recent visit.



NIH Director Dr. Elias A. Zerhouni speaks to the media during his visit to India.

Obesity in Mexicans Linked to Socio-economic Status



More than 60 percent of Mexican women are overweight or obese.

(Photo: WHO, Herminio Oliveira)

Education to promote exercise and moderate consumption of sugary and alcoholic beverages may be as important in the developing world as it is in the U.S., according to a recent study supported by Fogarty International Center.

A house-to-house survey conducted of 12,873 rural, poor Mexican adults found that those with a higher socio-economic status are more likely to be overweight or obese, according to a recent paper published in *Social Science Medicine*. Within the poorest quintile of the Mexican population, body mass index (BMI) was positively associated with socio-economic status (SES) regardless of how it was measured: as education, occupation, household income, housing, assets or subjective social status. The sample was designed to be representative of the poorest, rural communities in seven of Mexico's 31 states.

"The prevalence of overweight or obesity in Mexico is over 60 percent in women and 50 percent in men, and these estimations of prevalence are as high in adults from poor, rural areas as they are in a nationally representative sample of adults," according to a paper, written by University of California at Berkeley Professor Lia Fernald. "Obesity is a serious, chronic condition that contributes to numerous preventable diseases, including hypertension, diabetes and cardiovascular disease which are already present in a large number of Mexicans."

According to the World Health Organization, it is estimated that 60 percent of the burden of chronic diseases will occur in developing countries by 2020. A critical remaining concern is whether there is variation within middle-income countries, such as Mexico, that could leave certain segments of the population more vulnerable to chronic diseases than others.

Positive associations between SES and BMI in Mexico's low-income, rural population are likely to be related to the changing patterns of food availability, food composition, consumption patterns and cultural factors. Interventions to prevent and treat overweight and obesity and to assist individuals with weight control are urgently needed in Mexico, according to the article, especially among economically vulnerable segments of the population.

The author suggests that there is a portion of the population—the more affluent and health-conscious—who already demand diet products including low-carbohydrate and sugar-free foods and beverages. However, these foods and fads are not likely to be accessible, nor necessarily appealing, to the rural poor.

The findings suggest it is important to consider the issues and concerns of low-income populations separately from those of the country as a whole. The data also indicate within the poorest quintile of the population, women, particularly those who are older and have received some primary education, are a critical group to target when designing and developing interventions to address obesity.

The project was supported by the National Institutes of Child Health and Human Development, the Fogarty International Center, the John D. and Catherine T. MacArthur Research Network on Socioeconomic Status and Health, and the Mexican government.

Socio-economic status and body mass index in low-income Mexican adults. Lia Fernald L. *Soc Sci Med* 2007 May;64(10): 2030-2042.

To access the study, visit: <http://www.pubmedcentral.nih.gov/picrender.fcgi?artid=1924923&blobtype=pdf>



(Photo: WHO)

World Health Organization's Facts about Overweight and Obesity

- WHO's latest projections indicate that globally in 2005 approximately 1.6 billion adults (age 15+) were overweight and at least 400 million adults were obese.
- WHO further projects that by 2015, approximately 2.3 billion adults will be overweight and more than 700 million will be obese.
- At least 20 million children under the age of five are overweight globally in 2005.
- Once considered a problem only in high-income countries, overweight and obesity are now dramatically on the rise in low- and middle-income countries, particularly in urban settings.

<http://www.who.int/infobase/report.aspx?rid=112&ind=BMI>

Mortality Rates Decrease in HIV-Infected Children Initiating HAART

A study of HIV-infected children in Thailand, funded by Fogarty's Global Research Initiative Program for New Foreign Investigators (GRIP) program, offers new data to support the effectiveness of a life-saving treatment known as highly active antiretroviral therapy (HAART). The treatment has been shown to slow the progress of disease and prolong survival in HIV-infected adults; similarly HAART has changed the course of HIV disease in children.

There are an estimated 15,000 children with HIV/AIDS in Thailand. In 2002, the Thai Ministry of Public Health launched the National Access to Antiretroviral Program for People Living with HIV/AIDS program with the aim of providing universal access to treatment for all HIV-infected Thai patients who meet national-guidelines criteria for the initiation of antiretroviral therapy. The program provides generic antiretroviral drugs produced in-country with the average cost of \$1 per day. This program enabled Chiang Mai University Hospital's Dr. Thanyawee Puthanakit and her research team to evaluate hospitalization and mortality among HIV-infected Thai children after receiving HAART.

The team observed all HIV-infected children who began receiving HAART, from August 2002 to March 2005, at four hospitals in northern Thailand. The 192 patients included in the study were HIV-infected children who were antiretroviral naïve, except for exposure



A five-year old girl with HIV/AIDS after two months of HAART.

(Photo: T. Puthanakit)



Dr. Thanyawee Puthanakit and her team have studied HIV-infected children in northern Thailand.

(Photo: T. Puthanakit)

to antiretroviral drugs as part of the prevention of mother-to-child HIV transmission.

All of the children, except two, were infected perinatally. The mean age at the time of HAART initiation was 7.6 years. The children received a three-drug regimen: 113 received stavudine, lamivudine and nevirapine; 73 were given stavudine, lamivudine and efavirenz; and six received zidovudine, lamivudine and nevirapine. They were observed for at least 48 weeks and data were censored at 144 weeks.

The study documented the effectiveness of the HAART program. There was significant reduction in the mortality rate from 5.7 percent in the first six months of therapy to 0 to 0.6 percent during the following six-month interval. The hospitalization rate was also remarkably reduced from 30.7 percent in the first six months after HAART to 6.7 percent and 2.3 percent in the second and third years after initiation of HAART.

The research team found identification of the causes of hospitalization and deaths are essential to decrease the high early mortality rate of children initiating HAART. The higher early mortality in low-income populations is likely due to low CD4 cell counts, more advanced clinical stage, and the prevalence of coexisting infections at the time of HAART initiation.

Dr. Thanyawee Puthanakit's GRIP award supported research examining the effect of the HIV epidemic on children in Thailand.

Hospitalization and Mortality among HIV-Infected Children after Receiving Highly Active Antiretroviral Therapy.
Puthanakit T, Aurpibul L, Oberdorfer P, Akarathum N, Kanjananit S, Wannarit P, Sirisanthana T, Sirisanthana V. *Clinical Infectious Disease* 2007;44(4):599-604.

To access the paper, visit: <http://www.journals.uchicago.edu/CID/journal/issues/v44n4/40343/40343.web.pdf>

Underestimated Parasite Prevalence in Malaria Test Populations Studied by Fogarty Research Team



The anopheles mosquito is a vector that helps to spread malaria.

(Photo: CDC)

The intensity of malaria transmission is often measured by looking at the fraction of individuals infected at a given point in time. However, malaria infections in individuals are dynamic, leading to uncertainty about whether a cross-sectional survey that represents a single snapshot in time is a useful representation of a temporally complex process.

In a recently published analysis in the *Journal of Tropical Medicine and Hygiene*, a research team funded and led by a Fogarty International Center scientist examines the impact of parasite density fluctuations on the measurement of parasite prevalence. The results show that parasite prevalence may be underestimated by 20 percent or more, depending on the sensitivity of parasite detection.

The endemicity of malaria is often characterized by the prevalence of infection in a cross-section of the exposed population. However, point-prevalence surveys cannot capture or account for the dramatic fluctuations in parasite density in infected individuals, which can periodically fall below detectable levels.

The researchers examined the consequences of taking a static snapshot of dynamic processes, by constructing test populations of infected individuals from daily charts of observations in individuals undergoing malaria therapy for neurosyphilis, and measuring prevalence on random days. The prevalence in the test group was known to be one but fluctuations in detectable parasitemia led to a more

than 20 percent underestimation of parasite prevalence. When the test population was altered to include uninfected individuals, the underestimation of true parasite prevalence scaled linearly with true parasite prevalence. As expected, declining sensitivity of detection leads to greater underestimation of parasite prevalence.

The natural history of infection in an individual depends on previous exposure. Therefore, the types and distribution of dynamic profiles of infection in a population will be related to the local transmission intensity. The research results depend very strongly on the amount of time that parasite densities remain at, or near, the limit of detection during an infection. Individuals with little or no prior exposure to malaria, either very young children or people living in low-transmission areas, are more likely to experience high parasitemias with large fluctuations, similar to the individuals in the study's test population who were experiencing their first malaria infection.

Thus, this test population is an appropriate comparison for studies in which parasite prevalence in children younger than ten years of age is used to characterize transmission. Persistent, low-density infections are more likely to occur in semi-immune adults and older children. Results suggest that parasite prevalence measured in semi-immunes may be underestimated to an even greater extent if they do indeed maintain very low-density infections.

This study was funded by Fogarty and the Division of Parasitic Diseases, Center for Disease Control and Prevention.

Parasite Prevalence: A Static Measure of Dynamic Infections, Prudhomme-O'Meara W, Collins WE, McKenzie FE. *Am. J. Trop. Med. Hyg.*, 77(2), 2007, pp. 246-249.

To access the paper, visit: <http://www.ajtmh.org/cgi/content/full/77/2/246>

Identification and Treatment of Persistent Vector Sites May Reduce Transmittal of Chagas

The key problem in long-term vector control is preventing re-establishment of populations at sites where the vector has been eliminated by insecticide application. A study supported by Fogarty International Center has found that in addition to seasonal timing of insecticide spraying, treatment of a few major sites with large, persistent bug populations could increase the efficiency of insect vector control and reduce transmittal of chagas. The research, published in the *Journal of Applied Ecology*, was conducted as part of Dr. Uriel Kitron's Ecology of Infectious Diseases grant awarded to the University of Illinois at Urbana-Champaign.

Chagas disease is caused by the parasite *Trypanosoma cruzi*, which is transmitted to animals and people by insect vectors. According to the Center for Disease Control, it is estimated that as many as 11 million people in Mexico, Central America and South Amer-

ica have chagas disease. If unrecognized and untreated, even silent infection can be life-threatening.

Triatoma infestans, the main vector of chagas disease, re-infested sites in three villages in north-western Argentina after community-wide insecticide spraying in Oct. 1992. Ten surveys at 156 sites were carried out at six-month intervals from Nov. 1994 to May 1999, by Rockefeller University's Dr. Heinrich Zu Dohna and his research team. It was discovered that three of 156 sites where bugs were found were estimated to be the source of more than 50 percent of establishment events. These three sites were the only ones with large, persistent bug populations.

This work is the first attempt to identify the link between infestation and bug establishment from data on *Triatoma infestans*. The results indicate the number of dispersing bugs from a given site was proportional to

the number of bugs found at the site, with a six-month time lag between sites becoming infested and the beginning of bug dispersal from such sites. There might be a dispersal season but more research into the seasonal variation of the sensitivity of the sampling method is required to confirm this hypothesis. The study results suggest that targeting a few major source sites could greatly increase the efficiency of control.

Re-establishment of local populations of vectors of Chagas disease after insecticide spraying, Zu Dohna H, Cecere MC, Gurtler RE, Kitron U, Cohen JE. *Journal of Applied Ecology*. 2007 February; 44(1): 220-227.

To access the paper, visit: <http://www.rockefeller.edu/labheads/cohenje/PDFs/334DohnaCecereGurtlerKitronCohenReestablishmentChagasJApplEc.pdf>

Fogarty Co-sponsors Polio Symposium Examining Eradication Efforts



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However, Aylward identified significant impediments to eradication, including the biological nature of the virus, the reversion properties of the oral vaccine, difficulties conducting surveillance, epidemiological features of the disease under different field situations, among others. A two-pronged approach is needed to both strengthen strategies and improve their application, he suggested, while acknowledging the situation will need long-term attention. “After interruption of wild poliovirus transmission globally, the concerted program of work to stop all polio disease will need to continue,” he said.

Dr. Jacob John of the Christian Medical College in India, chaired a panel of representatives from India, Nigeria, Pakistan and Ghana—who discussed a range of scientific evidence related to challenges of polio eradication in their countries. Security issues prove a challenge in Pakistan and Afghanistan, while cultural issues were cited by Nigeria.

Other presentations reviewed the latest data regarding live trivalent and monovalent polio vaccines as compared to the inactivated polio vaccine. Further discussions included possible alternatives in the research pipeline, as well as consideration of the most effective approach once eradication has been achieved.

For meeting presentations visit:

<http://www3.niaid.nih.gov/news/events/meetings/polio/>

High Distribution of HPV Found in HIV Patients in Lusaka, Zambia

A strong association between positive HIV status and the prevalence of high-risk (HR) human papillomaviruses (HPVs) has been discovered in an existing cohort of patients at University Teaching Hospital in Lusaka, Zambia. Because the immune system becomes weaker as the HIV infection progresses, the person becomes more susceptible to so-called opportunistic infections, such as HPVs—potentially providing an explanation for the high-rates of cervical cancer in Zambia, according to the study supported by Fogarty’s AIDS International Training and Research Program (AITRP).

HPV is the primary etiological agent causing 95 percent of cervical cancers. Over 200 HPV types have been recognized and approximately 40 have been shown to infect the genital tract. However, two genotypes of HPV viruses—HPV16 and HPV18—account for 70 percent of all cervical cancer cases worldwide. Even though genital HPV infection is one of the most common sexually transmitted infections, only about 10 percent of people in the U.S. have active HPV infections, with four percent having cytological abnormalities and one percent showing evidence of genital warts.

This retrospective cross-sectional study, led by Fogarty AITRP fellow Christopher Ng’andwe from the University of Nebraska-Lincoln, reports findings on the association and effects of HIV on HPV infections in patients at University Teaching Hospital (UTH) in Lusaka, Zam-

bia. The objective of this study was to assess HPV prevalence, genotype distribution, and to identify co-factors that influence HPV infection. The average rate of HIV infection in Zambia is approximately 25.4 percent in urban areas and 11.5 percent in rural areas. Forty-five percent of patients in the study group were HIV positive. This high rate of HIV infection indicates that this population is at a higher relative risk for sexually transmitted disease. Patients who are admitted to UTH are aware that they are having health problems and often this is indirectly related to their HIV status.

There appeared to be a number of socio-demographic factors that were predictive of HPV status. Older patients, between the age of 23-39 or 31-38, were at least two-fold more likely to be infected with an high-risk HPV than patients who were 15-22 years old. Similarly, patients between the ages of 23-30 were two-fold more likely to be infected with low-risk HPV than the 15-22 year old groups. Most of the patients, 90.5 percent, were married.

The study team determined that most common HPV genotypes detected among these Zambian patients were HPV16 and HPV18 (21.6 percent each), which is approximately three-fold greater than the rates for HPV16, and ten-fold greater than the rates for HPV18 in the U.S. The worldwide prevalence of HPV16 is approximately 14 percent and HPV18 is five percent. The overall ratio of

high-risk to low-risk HPVs in the patient cohort was 69 percent and 31 percent respectively; essentially identical to that for distributions worldwide.

The team discovered that HIV-positive patients were two times as likely to have a high-risk HPV as HIV-negative individuals, while the distribution of low-risk HPVs was unaffected by HIV status. Interestingly, the team observed a nine-fold increase in HPV18 infection frequency in HIV-positive versus HIV-negative individuals.

In conclusion, the study suggests a high level of interaction between HIV and HPV that is likely to derepress the replication of high-risk HPVs. The high rates of HPV16 and HPV18 in Zambia are, at least partly, due to the prevalence of HIV infection and the immunosuppressive effects of HIV. The team suggests that this raises the question as to whether there is an increased rate of transmission of particular high-risk HPVs in couples in which one or both of the partners are HIV-positive.

The distribution of sexually-transmitted Human Papillomaviruses in HIV positive and negative patients in Zambia, Africa. Ng’andwe C, Lowe JJ, Richards PJ, Hause L, Wood C, Angeletti PC. *BMC Infectious Disease.* 2007; 7: 77.

To access paper, visit: <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=1949816>

Host Factors Such as the Immune Response Play an Important Role in Controlling Leishmaniasis



The phlebotomine sandfly spreads leishmaniasis.

(Photo: WHO/TDR/

Leishmaniasis is possibly the most complicated vector-borne tropical disease in the world in terms of etiology and genomics. It is transmitted by the bite of an insect vector, the phlebotomine sandfly. There are no inexpensive drugs to treat the disease and little understanding of its peculiarities.

In humans, leishmania chagasi parasites can produce subclinical infections, atypical cutaneous leishmaniasis (ACL) and visceral leishmaniasis that is potentially fatal if not treated in a timely fashion. *L. chagasi* parasites that cause both the ACL and visceral disease appear to be genetically similar, which suggests that host factors such as the immune response play an important role in controlling infection, according to a Fogarty-funded study recently published in *Parasite Immunology*.

Leishmaniasis affects vast areas of the Americas and puts millions of people at risk. Those affected by it tend to be the most vulnerable—the poor and indigenous peoples who live in isolated rural areas or in shantytowns on the fringes of large cities, where access to health services is scarce. It is severely debilitating and exacts an economic toll on individuals and their families, as well as society at large.

ALC causes permanent disfigurement—it is sometimes mistaken for leprosy—while the visceral virus which causes enlargement of the liver and spleen—is often fatal. Young age being a risk factor, children are especially hard-hit by this form.

The research team evaluated the immunologic response in ACL using peripheral blood mononuclear cells of 37 subjects divided into three groups: active ACL cases, asymptomatic cases, and persons with no history of leishmania infection.

The supernatants of stimulated blood mononuclear cells were analyzed for production of

- IL-10 (known as human cytokine synthesis inhibitory factor);
- IFN-gamma (i.e. IFN- γ , has antiviral, immunoregulatory, and anti-tumor properties); and
- IL-2 (a type of biological response modifier—a substance that can improve the body's natural response to disease—that enhances the ability of the immune system to kill tumor cells and may interfere with blood flow to the tumor).

Robust production of IL-10 in response to leishmania stimulation was observed in active ACL cases, compared to low levels in asymptomatic cases and negative controls. Serum levels were not significantly different among the three groups. In addition, ACL cases displayed depressed levels of all



A child with cutaneous leishmaniasis (left) and two young boys suffering visceral leishmaniasis with distended abdomens (right) are examples of the disease.

(Photos: (right) PAHO; and (left) WHO/TDR/Marsden, Wellcome Trust)

cytokines in response to mitogen. Thus, this first characterization of the immune response in ACL suggests a role for IL-10 as well as partial immunosuppression.

Atypical cutaneous leishmaniasis cases display elevated antigen-induced interleukin-10. Rodriguez B, Beatty R, Belli A, Barreto A, Palacios X, Marin F, Harris E. *Parasite Immunol.* 2007 (6):277-82.

To access the paper, visit:
<http://www.blackwell-synergy.com/doi/abs/10.1111/j.1365-3024.2007.00944.x>

Hopkins' Research Ethics Training Program Strengthens Capacity in Africa

Debates about cross-cultural research have sparked growing interest in international research ethics and have initiated collaborative efforts to address concerns. The importance of reinforcing principles of equity and respect for research participants is an ever more essential component in the training of research investigators, according to a recently published case study by Johns Hopkins Fogarty African Research Ethics Training Program (JHF).

Funded by Fogarty's International Research Ethics Education and Curriculum Development Award (BIOETH) program, JHF's objectives are to improve the quality of interna-

tional ethics training by supporting the development of courses to provide the skills for teaching and research related to bioethics and the conduct of medical research in developing countries; support the advance training of developing country professionals who can assume the roles and responsibilities of bioethicists involved in ethical review or clinical trial design in research and clinical investigations in their countries; and develop and provide intensive short courses specifically designed for individuals directly involved in human subjects research ethical review and in conducting clinical trials in developing countries.

The paper describes the JHF program in detail, assesses its outputs during a four-year period (2001-2004), and analyzes the prospects for the program's expansion.

A Case Study of Research Ethics Capacity Development in Africa. Hyder AA, Harrison RA, Kass N, Maman S. *Acad Med.* 2007; 82:675-683.

To access the paper, visit:
www.academicmedicine.org/pt/re/acmed/fulltext.00001888-200707000-00008.htm

FOGARTY UPCOMING PROGRAM ANNOUNCEMENTS

Program	Contact	Receipt Date	Eligibility
International Research Ethics Education and Curriculum Development Award (BIOETH)	Barbara Sina, PhD sinab@mail.nih.gov	December 14, 2007	U.S. citizens or permanent residents; applicant must have doctoral or medical degree, or equivalent, in social science, behavioral science or health science field earned within past seven years; applicant must have U.S. sponsor or mentor affiliated with internationally recognized low- to middle-income research facility.
AIDS International Training and Research Program (AITRP)	Jeanne McDermott, PhD mcdermoj@mail.nih.gov	December 21, 2007	U.S. (or pre-approved non-U.S.) nonprofit, public or private institutions with HIV/AIDS and HIV-related research collaborations with low- to middle-income country institutions.
Planning Grants for International Malaria Clinical, Operational and Health Services Research Training Programs (MALARIA ICOHRTA)	Barbara, Sina, PhD sinab@mail.nih.gov	January 13, 2008	Research Institutions in the President's Malaria Initiative (PMI) countries or U.S. institutions with PMI country research institution.
Fogarty International Research Collaboration Award—Basic Biomedical (FIRCA-BB)	Kathleen Michels, PhD firca@nih.gov	January 21, 2008	Principal Investigator of U.S. based NIH-sponsored research project grant that will be active for at least one year beyond submission date of application, in collaboration with partner institutions in low- to middle-income countries.
International Research Scientist Development Award (IRSDA)	Barbara Sina, PhD sinab@mail.nih.gov	February 16, 2008	Only U.S. citizens or permanent residents, applicants must have doctoral or medical degree, or equivalent, in social science, behavioral science or health science field earned within the past seven years; applicant must have U.S. sponsor or mentor affiliated with internationally recognized low- to middle-income research facility.



Fogarty's program research grants or research training grants are listed at: www.fic.nih.gov/funding

FOGARTY UPCOMING EVENTS

Event	Date	Location	Summary
American Indian and Alaskan Native Health Research Symposium	November 7, 2007 1:30 p.m.	Natcher Auditorium (Building 45)	The event is being organized by the NIH American Indian and Alaskan Native Employee Council and co-sponsored by Fogarty and the National Institute of Alcohol Abuse and Alcohol.
Dr. Margaret Chan WHO Director <i>David E. Barmes Global Health Lecture</i>	December 10, 2007 3 p.m.	Masur Auditorium (Building 10)	This annual lecture series honors the late David E. Barmes, a long-standing World Health Organization employee and ardent spokesman for global health. The series is sponsored by Fogarty and the National Institute of Dental and Craniofacial Research.

PEOPLE



Biodiversity Investigator Receives Ernest Guenther Award

Dr. David Kingston, a Fogarty International Cooperative Biodiversity Group principal investigator who works in Suriname and Madagascar, has received the prestigious Ernest Guenther award from the American Chemical Society. He is being honored for his contributions to biodiversity conserva-

tion and economic development through the discovery and development of new natural products as pharmaceuticals. Dr. Kingston and his team study plant extracts from Suriname and Madagascar to discover products with potential anticancer or antimalarial activity.

The Guenther award is given to those who have accomplished outstanding work in the analysis, structure elucidation and chemical synthesis of natural products. Special consideration is given to the independence of thought and originality.

As a pioneer of the biodiversity program in Suriname and Madagascar, Dr. Kingston and this research team have trained nationals in the techniques of natural products chemistry and in conservation and botanical methods to support projects. One of the indirect fruits of Dr. Kingston's work has been the establishment of new protected nature reserves in Suriname and Madagascar.

Acting US Deputy Secretary of Health Named

Dr. Anand Parekh has been designated as Acting Deputy Secretary for Health upon Dr. John Agwunobi's departure. He also will be operationally in charge of the Office of Public Health and Science and will serve in this role until an Acting Assistant Secretary for Health is named.

Dr. Parekh completed his undergraduate studies in political science as well as his graduate school training in medicine and public health at the University of Michigan. He subsequently completed his residency training in the Osler Medical Training Program of the Department of Medicine at Johns Hopkins Hospital. In addition to engaging in health services research at Johns Hopkins, Dr. Parekh has completed separate stints as a research fellow at the Centers for Medicare and Medicaid Services, the U.S. House Government Reform Committee, and the Institute of Medicine.

Dr. Parekh maintains a position at Suburban Hospital in Bethesda, Md. and is an adjunct assistant professor at Johns Hopkins Hospital. He serves on the Board of Governors of the University of Michigan School of Public Health Alumni Society and is also an active member of the Presidential Scholars Alumni Society and the American College of Physicians.



Former Fogarty Trainee Receives National Exemplary Physician Award from Vietnamese Government

Former Fogarty trainee Dr. Trung Tu Lam, of the Danang Psychiatric Hospital, has been awarded the National Exemplary Physician award by the Vietnamese government. Dr. Trung participated in the International Clinical Operational and Health Services Research Training Award (ICOHRTA) program. He is only the second psychiatrist in Danang, a city of more than one million residents, to have received the award.

The honor was given to Dr. Trung in recognition of his research programs, started through the ICOHRTA. He was cited for work in identifying a series of seizure disorder misdiagnoses in children that actually were somatization disorder.

The most common characteristic of the somatoform disorder is the appearance of physical symptoms or complaints which have no organic basis. Such dysfunctional symptoms tend to range from sensory or motor disability, hypersensitivity to pain. Dr. Trung is continuing this work by conducting a study that compares predictors of individual versus group somatization.

Dr. Trung's training was provided by a Fogarty ICOHRTA grant to Vanderbilt University, Department of Psychology and Human Development for their program, "Training of Child Intervention Researchers in Vietnam."

To learn more about the ICOHRTA program, visit: http://www.fic.nih.gov/programs/training_grants/icohrta/index.htm



Elementary school children take Dr. Trung's mental health survey in a rural village in Danang Province.

(Photo: Bahr Weiss)

FOGARTY IN THE NEWS

Fogarty-Supported Investigator Speaks on Danger of Arsenic in World's Water Supply

"Most countries have some water sources with dangerous levels of arsenic, but only now are we beginning to recognize the magnitude of the problem," said Dr. Allan Smith, University of California at Berkeley's director of the Fogarty-supported Arsenic Research Program, whose presentation at the Royal Geographical Society in London was covered by *Reuters* news agency.

Dr. Smith, who is involved in international research projects in Argentina, Chile, India and Bangladesh, as well as U.S.-based investigations in California and Nevada, said that arsenic in drinking water continues to surprise. "Invisible, tasteless and odorless, yet in the long term one in ten persons with high concentrations of arsenic in their drinking water will die from it—other environmental exposures do not result in commensurable mortality risks."

World Health Organization guidelines set a safe limit of ten-parts per billion of arsenic in water supplies, but tens of millions of people in the world drink unsafe water above that level. Naturally occurring arsenic in drinking water poses a growing global

health risk as large numbers of people unknowingly consume unsafe levels. The problem is more significant than scientists had thought, as it affects nearly 140 million people in more than 70 countries, according to new research presented at the meeting.

"The major long term health impacts of arsenic in drinking water surprisingly occur in the lungs. Arsenic provides the first clear-cut evidence that early life exposure to an environmental toxin can result in marked increase in mortality in young adults from lung cancer. Lung cancer is not the only long-term pulmonary outcome," said Dr. Alan. "In India subjects with arsenic-caused skin lesions have an increased prevalence of bronchiectasis. In Chile young adults aged 30-49 have a more than 40-fold increase in mortality from bronchiectasis if they had in utero exposure to arsenic in drinking water. The marked increases in long-term health risks which greatly exceed those from any other drinking water contaminant mean that all drinking water sources in the world should be tested for arsenic."



An Indian child uses a community water pump.
(Photo: WHO)

Rosenthal Interviewed on Deforestation

Fogarty's Dr. Joshua Rosenthal was interviewed in the *Environmental Health Perspective*, "Certified Coffee: Does the Premium Pay Off?" As fair trade and organic certifications for coffee promise that the beans are grown under sustainable fair conditions, researchers work to determine whether this is actually making a difference in the environmental impacts of coffee growing regions—with respect to both forest health and human well-being. This type of research is of importance because, according to Dr. Rosenthal, diverse old-growth forests buffer the effects of infectious diseases, while deforested areas have higher infection rates, harbor animals that can spread disease and reduce the landscape's ability to retain and purify water.

Miller Quoted in Nature News

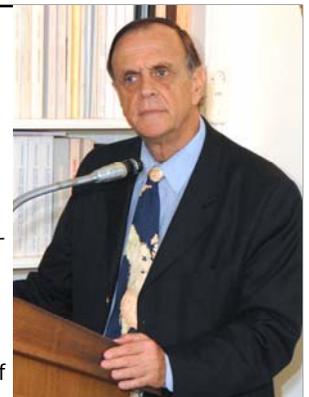
Fogarty's Dr. Mark A. Miller was quoted in *Nature News*, on a paper he co-authored, "Do flu vaccines work for the elderly?" Studies of influenza vaccines have analyzed elderly populations and concluded that vaccines reduce mortality by about 50 percent. Dr. Miller argues the real benefit is probably smaller. He recommends vaccines continue to be delivered while more work is done to determine their effectiveness. He also suggests exploring other options for the elderly—such as changing the type of vaccine they receive or upping the dosage. He states, "the reality is that the vaccine is one of the best available tools that we have, so if it is even marginally helpful to the elderly, it should be used."

Reproductive Genetics Specialist Speaks on Birth Defects and Prematurity

Argentinian geneticist, Dr. Enrique Curt Gadaw, presented the ninth annual Lawton Chiles International Lecture on *Maternal and Child Health in the Americas* at the NIH in September, titled *Prevention of Birth Defects and Prematurity: Myths and Facts*.

Dr. Gadaw is head of the Department of Research and Chief of Genetic Unit at the Center for Medical Education and Clinical Research in Buenos Aires.

The event took place at the Lawton Chiles International House, named for Senator Lawton Chiles, a member of Congress from Florida from 1971 to 1989. It was sponsored by the Fogarty International Center; the National Institute of Child Health and Human Development, and the Lawton and Rhea Chiles Center for Healthy Mothers and Babies of Tampa.





Fogarty Names Robert Eiss Senior Advisor

The Fogarty International Center has named Robert B. Eiss as senior advisor to its director, Dr. Roger I. Glass. Mr. Eiss previously has served as the center's senior advisor for strategic initiatives and acting director of the Division of International Relations, and earlier as an international program officer. Mr. Eiss led the effort to create the center's first

long-range plan, reorienting FIC programs toward the persistent burdens of communicable disease and emerging chronic disease trends in low- and middle-income countries. He also was lead writer for the National Science and Technology Council's reports on U.S. Government Science and Technology Relations with Russia, as well as European Economic Integration and Science and Technology Cooperation.

In addition to his positions at NIH, Mr. Eiss has been chief executive officer of a non-governmental organization supported by the Rockefeller Foundation to promote innovative management of intellectual property to speed the development of medical products for developing countries. He also has served as associate director for planning and budget at the White House Office of National Drug Control Policy, where he was responsible for the development of policy and budget recommendations in support of the national drug control strategy.

Mr. Eiss holds a bachelor's degree from the University of Maryland, a master's degree from Oxford University, and has been a volunteer at the NIH Children's Inn.

NIH and France Agree to Encourage Research Training

Dr. Elias Zerhouni, Director of NIH and Dr. Arnold Migus, (left) Director-General, Centre National de la Recherche Scientifique (CNRS), signed a letter of intent to cooperate on a research training program during a recent meeting at Fogarty International Center's Stone House.



The five-year program is intended to promote research training, professional growth and career development of French postdoctoral fellows who will train at the NIH and then return to CNRS in France as research fellows.

The signing event and reception were attended by Fogarty's Director Dr. Roger I. Glass, and Dr. James Herrington, Director of the Division of International Relations.

Global Health Matters

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World Health Organization Facts on Chronic Diseases

80% of chronic disease deaths occur in low- and middle-income countries.

Chronic diseases, such as heart disease, stroke, cancer, chronic respiratory diseases and diabetes, are by far the leading cause of mortality in the world, representing 60% of all deaths. Out of the 35 million people who died from chronic disease in 2005, half were under 70 and half were women.

<http://www.who.int/chp/en/>

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