

Alliance For International Medicine



PROMOTING HEALTH AMONG THE WORLD'S POOREST CHILDREN

Spring 2008

Newsletter

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Report from the Executive Director



Rodney Finalle, M.D.
Executive Director
AIM

I am feeling quite blessed to report the many exciting developments with the Alliance for International Medicine since our last newsletter. We are conducting business as usual with a successful visit to the DR last November fulfilling our mission to care for the children of the bateyes. On another front, beginning January 1st of this year, Dr. Andrew Steenhoff, CHOP/AIM pediatric infectious disease specialist brought a children's health facet to the Penn-Botswana

Partnership. Dr. Steenhoff is co-sponsored by The Children's Hospital of Philadelphia and the School of Medicine at the University of Pennsylvania.

A major and thrilling expansion is a gift from Mr. David Pincus that not only establishes Global Health Fellowships at The Children's Hospital of Philadelphia but also forges new clinical collaborations in the Dominican Republic and South Africa. Also, with this gift, AIM can now hire local staff to sustain the pediatric care between AIM medical visits.

In this Newsletter you can read about the health care needs in Botswana and the exciting news of support for Dr. Steenhoff's work there. Geri O'Hare reports on our fall trip to the DR where our team battled the elements as well as childhood diseases.

This issue contains a new feature, "AIM Research Report". Two studies are examined where teams of Children's Hospital and Dominican providers seek to determine the impact of two medical concerns in the poverty ravished communities AIM serves. Dr. Samir Shah describes the extent of Tuberculosis in the region. Dr. Shirley Huang reports on a Nutrition study that seeks to learn about and address malnourishment in the Consuelo bateyes.

Last, but perhaps foremost, I am so indebted to the many people that give their time, talents and treasure to advance AIM's work. I marvel at the many medical professionals that finance their visits to the DR or Botswana to work in difficult settings caring for needy children. I'm humbled by AIM's friends that engineer fund raising events to purchase necessary medications and medical supplies as well as underwrite mission trips. And I am grateful for all our contributors that attend our events and donate to AIM's work. To all, I offer a thunderous "GRACIAS".

Rodney Finalle, M.D.

Visit the website at:

<http://www.chop.edu/AIM>

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Two New AIM Initiatives Funded AIM Offers Fellowships in Global Health PEPFAR To Support Botswana Work

The Alliance for International Medicine is delighted to report recent grants for its global health efforts in the developing world.

AIM is pleased to announce a new *AIM Global Health Fellowship* stemming from the extraordinary gift of Philadelphia philanthropist David Pincus. The donation establishes two new fellowships at Children's Hospital for a pediatrician to work in the Dominican Republic and Africa and will develop new collaborations. In the DR, the AIM fellow will work with Dr. Stephen Nicholas of Columbia University and his pediatric AIDS program in city of La Romano near to AIM's base in Consuelo. The fellow assigned to Africa will work with Dr. Steenhoff at Princess Marina Hospital in Gaborone, Botswana and the Sparrows' Nest AIDS orphanage in nearby Soweto, South Africa.

The Pincus contribution significantly enhances AIM's DR program. The funds provide the means for AIM to employ a year round pediatric care team in the Dominican Republic that would include a physician, nurse, a team assistant and health promoters for each of the bateyes. AIM leadership anticipates the improved care will result in recognition of the value of the program and subsequent long-term funding support.

AIM proudly commends Dr Andrew Steenhoff (AIM's Director of Programs in Africa) and Dr Harvey Friedman (PI and Director of the Botswana-UPenn Partnership) for being awarded a President's Emergency Plan for AIDS Relief (**PEPFAR**) grant to improve the **care of children in Botswana that are afflicted by the dual plagues of TB and HIV**. AIM and Botswana-UPenn Partnership will join colleagues in the CDC and BOTUSA (the CDC's on-the-ground team in Botswana)

The project aspires to improve three aspects of TB care in Botswana. First, the effort will focus on contact tracing. Contact teams will be deployed to the homes of TB-infected adults and children and screen family members for TB. Contact tracing is critical to maximize the success of any TB control program – once one family member presents with TB, the best practice is to screen everyone else as there is a high likelihood that others may be infected. This aspect of the project has the potential to model improved contact tracing throughout Botswana.

Secondly, the program will address the difficulty of diagnosing TB in children. The team will optimize TB diagnosis by introducing a cough team to a district hospital in Botswana. The third component of the effort is to provide in-patient pediatric care in Francistown, an area of the country with a particularly high prevalence of HIV and TB. Two pediatricians will join the team at Nyangabgwe Referral Hospital and provide both in- and out-patient care. (See the "Help Wanted" notice on page 4)

Botswana Beginnings – A Report From AIM'S Newest Site

By Andrew Steenhoff, M.D.

Beginning this year, January 1, 2008, the Alliance for International Medicine established an initiative at the Princess Marina Hospital in Gaborone, Botswana. Botswana is among the world's countries most devastated by HIV - prevalence rates approached 35% of the population at the highest point of the epidemic. Botswana is also plagued by the scourges of tuberculosis (3rd highest prevalence in the world) and malaria.

Botswana has a population of 1.8 million people and given the deaths from AIDS, 35% of the people are under age 14. Nearly 80% of the population belongs to the Tswana tribe, just three percent are Basarwas and members of the Kalanga tribe form the largest minority representing 11% of the population. Finally seven percent are comprised of other ethnicities including people of European and Asian heritage. Languages reflect the ethnic distribution. Most, about 78%, speak Setswana, eight percent speak Kalanga and three percent, Sekgalagadi. English is the official language but only a little more than two percent speak it as their first language.

Botswana's democratically elected government met many successful landmarks including an 81% literacy rate, a relatively high economic growth rate of 4.7% and an increase in per capita GNP to \$11,000. Diamond mining, beef and financial services are among the largest industries. Tourism also generates foreign currency - Botswana is famous for its safaris in the Okavango delta, the Chobe National Park and the Kgalagadi Park. Other natural resources include coal, nickel, potash, salt, iron ore and silver. Despite a growing economy the unemployment rate remains high in the region of 20% and many people earn their livelihood through subsistence farming.

The disease burden in Botswana reflects that seen in the neighboring countries of South Africa, Zimbabwe and Namibia. Infectious diseases namely HIV and TB exact the heaviest toll while water borne illnesses like bacterial diarrhea and hepatitis A; and vector borne illnesses, particularly malaria also have an impact on the nation's health. Health conditions are dramatically different from those in the United States and health disparities between the two countries are vast. Life expectancy in the United States is 77 while in Botswana the average age of death hit a low at 36 but now stands at only 50 years. The US infant mortality rate is 7.2 per 1,000 live births whereas in Botswana the rate is 44 per 1,000 live births and was as high as 82 deaths at the peak of the HIV epidemic. The HIV infection rates are dramatically different - in Botswana the HIV prevalence rate is now estimated to be between 22 and 25% of the population compared to the US where the rate is less than 0.4%. TB infection rates in Botswana are about 550/100,000 population while US rates are almost 100 times lower at around 6/100,000.

Botswana's health care system is considered by some as relatively developed compared to other African nations. The healthcare infrastructure is a four-tiered system that includes 222 clinics and 740 mobile clinic locations, 17 primary hospitals, 12 district hospitals and three referral or Tertiary hospitals. The horrific impact of AIDS had drawn considerable international support to improve health in the country. For example, in 2000, the Botswana/Gates/Merck partnership (ACHAP) was formed to build institutional and management capacity, strengthen Botswana's health care system, promote behavior change and support grassroots efforts to tackle HIV/AIDS that crippled health care in the country. The Merck Company Foundation and the Bill & Melinda Gates Foundation as well as a number of other international entities including a number of countries have contributed millions of dollars to enhance health care delivery capability in Botswana.

Patients with minor diseases are seen at primary hospitals. District hospitals provide regionalized care at a higher level of expertise including to some of the more remote regions of the country. The patients with serious ailments are referred to the Botswana Referral hospitals by the Primary and the District hospitals. These three referral hospitals include Nyangabgwe Hospital in Francistown, Lobatse Mental Hospital and Princess Marina in Gaborone. All patients of this government health system are cared for at subsidized rates. The Gaborone Private Hospital is available for people of greater financial means.

At this time, like most African countries, Botswana's health system suffers shortages of all kinds, ranging from serious scarcity of medical staff, to space in the wards, to equipment, supplies and even bedding. Periods of overcrowding in the wards are a serious problem at many of the nation's hospitals, including Princess Marina Referral Hospital in Gaborone, and

reflect the high disease burden caused by HIV/AIDS patients, TB and traffic accidents. Princess Marina Hospital has recently operated with only 150 out of a standard staff of 450 nurses and only 30 of the required 110 staff doctors. The hospital has a normal capacity of 507 beds, but officials say the average admission has gone up to 665 at any given time.

Despite ongoing international support, Princess Marina and Botswana's health care system have many needs. The shortage of trained medical personnel is an acute one and the planned opening of the nation's first medical school will be a welcome step towards alleviating this. Despite the scarce resources, Botswana faces the same blight of other developing nations - an exodus of its health care professionals to western countries where improved remuneration exerts a strong influence. Creating partnerships with Universities and Hospitals to offer on-going training is another strategy to increase the numbers of capable health care providers. Penn, Baylor and Harvard are major university programs making contributions in this realm.

The Alliance for International Medicine at Childrens Hospital has begun to help in this regard in two areas. Firstly, the fulltime placement of an Infectious Diseases pediatrician, Andrew Steenhoff, MD at Princess Marina and, secondly, through efforts led by Denise Ramsden, RN who is mustering nurse volunteers from Children's Hospital to go to Gaborone to assist the pediatric nurses at Princess Marina Hospital and elsewhere in Botswana.



Mother with recovering child at Princess Marina Hospital

The health care system in Botswana has many specific needs in the field of pediatrics. Countrywide, pediatric care has to be improved across all levels from the mobile clinics to tertiary centers. Since 2006, Children's Hospital's CLEAR Initiative (Clinical Leadership Education, Advocacy and Research) founded by Children's Hospital's Dr. Peter Meaney has been working with both the University of Pennsylvania's Botswana program and the Ministry of Health to improve inpatient pediatric care both in the pediatric ward at referral hospitals as well their general ICU's. Pediatric care in disease specific areas is wanting. For HIV, advancements in prevention (although strides have been made), treatment and particularly medication adherence are vital. Prevention of the spread of TB is critical as is improved diagnosis, treatment and monitoring. Increasing education to prevent and manage diarrhea in its acute stage needs to be improved as should early referrals for pneumonia.

The Children's Hospital of Philadelphia has current opportunities for staff to serve in Botswana. A one month elective available to medical residents commenced in January 2008 and three senior residents have already traveled to Botswana. The rotation includes in-patient pediatrics at Princess Marina and day to day care at the Ambulatory Care service. A nursing team will soon travel to Botswana to build opportunities and solidify existing linkages for nurses to provide direct care as well as mentor local nurses on US nursing practices. Current opportunities exist for two pediatricians to work for the Botswana-University of Penn-CHOP Partnership. The Baylor AIDS Corps, a newly funded initiative for young doctors to work in Botswana (and other African nations where HIV is prevalent) provides another great alternative for those seeking to work internationally.

The AIM newsletter, website and general email address are channels to keep informed for News from Botswana or to learn of opportunities to be part of the AIM initiative there.

AIM RESEARCH REPORT

Nutritional Status of Children after Food Supplementation in Migrant Communities of the Dominican Republic

By Shirley Huang, M.D.

The extreme poverty of the bateyes of the Dominican Republic is well documented. As Alliance for International Medicine volunteer providers have witnessed, children in these shanty towns live in minimal barracks-like housing where poor sanitation systems and access to drinking water are common. Hence children are prey to diarrhea, respiratory infections, and parasites. Because the bateyes are often located deep within the sugar cane fields, the isolation limits the access to medical attention for serious illnesses. Parents have low levels of education, literacy and little information about healthful living. Within this context, malnutrition is often widespread among the children.

Children's Hospital of Philadelphia practitioners are keenly aware that malnutrition in children lowers resistance to infection and increases mortality from common illnesses like diarrhea and respiratory infections. To address this profound deficiency, the AIM not only sought to investigate and document the need among the children in the bateyes where AIM provides health care services, but also sought to address the problem by including a dietary intervention.

The research team is headed by Kavita Parikh, MD and includes, Shirley Huang, M.D.; Gabriela Marein-Efron, a medical student; Samir S. Shah, MD.; Geraldine O'Hare, CRNP, AIM Caribbean Director; and Rodney Finalle, AIM Executive Director. Two Dominican physicians were partners in the research, namely, Francisca Vasquez, MD, and Juddy James, MD.

The study hypothesized the combination of distributing food supplements with the reinforcements of routine healthcare visits and nutritional information would decrease the incidence and severity of malnutrition among the children in the bateyes served. The research study compared the baseline assessment conducted of malnutrition rates in children of migrant workers in 2005 and the subsequent rates a year later in 2006 after initiation of a food supplementation program in conjunction with routine healthcare visits. The research design was cross-sectional study conducted in five rural communities or bateyes in the Dominican Republic. Children ages birth to 18 years were eligible for participation if they received routine care from AIM's clinical partner in the DR, the Centro de Salud. Centro de Salud Mobile Clinics were coordinated to make regular visits to the bateyes in the region designated for the research. Acute malnutrition was defined using WHO Child Growth Standards for children less than 5 years of age and the Waterlow criteria with US CDC growth charts for children age five and older. Chronic malnutrition was defined using the Kanawati and McLaaren criteria with US CDC growth charts. Chi-square or Fisher exact tests were used to compare rates of malnutrition.

Researchers found the study results confirming. The study population in 2005 comprised 175 children, 52% was female, mean age was 5.3 years, and 59% were less than five years. Among 148 children in the study in 2006, 48% were female, mean age was 5.6 years, and 57% were under years of age. Compared to the baseline data, fewer overall children were identified with acute malnutrition after the food supplementation intervention. That is, 34 of 114

(Continued on page 4)

Tuberculosis in the Economic Migrant Population of Two Dominican Republic Bateyes

By Samir Shah, M.D.

Tuberculosis remains a global pandemic despite the availability of effective preventive measures and therapeutic regimens. Tuberculosis is a particularly important problem in children since spread of the infection from the lungs to other sites including the brain is more common than among adults. Furthermore, those who survive untreated childhood tuberculosis infection may serve as reservoirs of contagious disease as they mature into adolescence and adulthood, preventing elimination of the disease from the community.

Children's Hospital of Philadelphia practitioners sought to better define the magnitude of the problem of tuberculosis in rural areas of the Dominican Republic. The Alliance for International Medicine team consisted of Keri Cohn, MD, Rodney Finalle, MD, Geraldine O'Hare, CRNP and Samir S. Shah, M.D., M.S.C.E. in partnership with our Infectious Disease colleagues from Robert Reid Cabral Hospital, Dr. Jesus Feris and Dr. Josefina Fernandez. The team enrolled all children living in two Dominican Republic bateyes. The study was approved by the Ministry of Health of San Pedro de Macoris and the CHOP Institutional Review Board.

The research design was cross-sectional study conducted in two rural communities or bateyes in the Dominican Republic. Children ages 18 months to 18 years were eligible for participation if they received routine care from AIM's clinical partner in the DR, the Centro de Salud. Centro de Salud Mobile Clinics were coordinated to make regular visits to those bateyes in the region designated for the research. There are many logistical barriers to studying tuberculosis in children in rural communities. To ensure that all eligible children were enrolled, school roster lists, church lists, and home visits were conducted. Another potential problem is that the diagnosis of tuberculosis can be difficult to confirm since tuberculin skin testing does not reliably identify the disease in children, particularly in the setting of malnutrition. To address this limitation, malnourished children had chest x-rays performed to look for lung abnormalities that would indicate the presence of tuberculosis.

The parents also completed a questionnaire to determine their child's risk factors for tuberculosis. The questionnaire was administered verbally in the primary language of the families, either in Spanish or in Creole, by one of two fluent local health care providers. Acute malnutrition was defined using WHO Child Growth Standards for children less than 5 years of age and the Waterlow criteria with US CDC growth charts for children age five and older. Chronic malnutrition was defined using the Kanawati and McLaaren criteria with US CDC growth charts. Logistic regression statistical modeling techniques were used to identify factors associated with the presence of tuberculosis.

Researchers found a high prevalence of tuberculosis in this population. Several risk factors for tuberculosis were identified. The results of this study were presented at the Annual Meeting of the Pediatric Academic Societies.

A NOVEMBER TO REMEMBER

AIM Team Outlasts Rain To Deliver Pediatric Care During Fall Consuelo Trip

By Geri O'Hare CRNP

The period from October 27, 2007 to November 10, 2007 marked the sixth full CHOP~AIM team visit with our colleagues in the Proyecto de los Bateyes at the Centro de Salud Divina Providencia. Hurricane Noel made this visit different than the previous five. The severity of the storm and the state of emergency within the Dominican Republic required canceling the Health Promoter Workshop and the first 2 days of clinics. Although frustrating for a group of health care professionals to not 'get out and work', the storm and its devastating effect on the communities in the West and South of the Dominican Republic as well as the bateyes surrounding Consuelo gave the team a deeper understanding of the extreme vulnerability of the poor.

The team covered 14 of the 20 bateyes. Despite the weather curtailed schedule, 423 children were treated, not far under the average of 500 patients when 20 bateyes are visited. Nearly an equal number of males and females were seen. Service focused on younger patients as 51% of the children seen were under the age of 5.

The team observed both positive and negative developments during the visit. On the plus side, the AIM crew observed patients and families have had access to ongoing primary health care over the past three years by the Batey Outreach team/Aim collaborative as demonstrated by records of past medical histories. Patients and care givers were aware of common health promotion activities and treatments such as scabies, prevention of dehydration and use of ORS. New collaborative protocols were used to standardize the diagnostic criteria and treatment options. In two of the bateyes new or improved government health centers were operational.

On the minus side, the team was disheartened not to see every pediatric patient who needed care. Children with obvious health issues did not come to clinic either due to financial issues or a lack of a caregiver to bring them. A number of children were brought to clinic by a health promoter instead of the primary caregiver.. The team treated a significant number of Kreyol speaking patients; but in the final batey no Health Promoter was present to help translate for the Kreyol patients. Also the weather forced the cancellation of much of the health promoter training.

The team followed up on the Nutrition Initiative by collecting new data in 2007. Comparisons of 2005, 2006 and 2007 data suggests a leveling off of the impact of the Nutrition Program. The Batey Outreach physicians believe that social risk factors seem to have a greater impact on a child's nutritional status than the availability of with medication and food packages. These observations along with the 2007 data suggest the next step in the Nutrition Program may be more community involvement and mutual support for mothers of malnourished children

This visit was the first time AIM ordered and purchased all medication used during a visit. The team did an outstanding job of collecting children's chewable vitamins with iron prior to the visit and was able to donate the unused vitamins to the mobile clinic at the end of the visit along with all albuterol MDI's, aerochambers and medications that would expire before the June 2008 trip. As with previous visits, the various diagnoses of children's illnesses were charted. These diagnoses were consistent with previous visits with parasites topping the list. The frequency of diagnoses is used along with formulary in calculating the volume of medications needed for the June 2008 pharmacy order.

HELP WANTED

International Pediatric Opportunity: Botswana

The AIM/Botswana program seeks two dynamic pediatricians to be based in the Francistown Referral Hospital (NRH). The work is 60% in-patient and 40% outpatients. For both jobs, work entails day-to-day care of children especially for HIV and TB. Teaching local interns and medical officers and outreach to the city's clinics and the regional hospitals create a stimulating mix of responsibilities. The candidate will commit to at least two years. International experience is an asset but not a prerequisite. Position begins as early as May 1, 2008. Email (senanto@hotmail.com) CV, a personal statement, 2 letters of reference and a cover letter to: Mrs. Dintle S. Tshitswana – Molosiwa, Botswana-UPenn Partnership; Attention: Dr Andrew Steenhoff.

Pediatric Global Health Fellowships Dominican Republic & Botswana

AIM is now recruiting two pediatricians for Fellowships in Global Health. One physician fellow will serve in the Dominican Republic, the second in Botswana and South Africa. Email Dr. Rodney Finalle: finalle@email.chop.edu for information.



The Fall 2007 Team was prepared for the elements – Hurricane Noel Beware!

Nutrition Study - continued from page 3

children or 23% in 2006 vs. 70 of 175 children, or 40% in 2005 ($p=0.001$) has acute malnutrition. The reduction in malnutrition was noted in both males ($p=0.044$) and females ($p=0.010$), in four of the five bateyes, and depended on the patient age. Between the two time periods, nutritional status improved for children less than five years of age ($p=0.002$) and six to eleven years of age ($p=0.033$) but not children ages twelve and older. ($p=0.8$).

The rates of chronic malnutrition decreased from 33% to 18% after food supplementation ($p=0.003$). This effect was seen in all five bateyes though the magnitude of effect varied substantially by bateye. The decrease in chronic malnutrition was seen among ($p=0.007$) but not females ($p=0.1$). Chronic malnutrition rates were not different when stratified by age. The study showed improvement of acute and chronic malnutrition by category between the two points, 2005 to 2006.

Thus the study showed improvement of acute and chronic malnutrition by category between 2005 and 2006 after food supplementation was initiated. Researchers concluded the concept of food supplementation given in the context of routine healthcare visits did decrease the prevalence of childhood acute and chronic malnutrition, and warrants further exploration as a way to reduce childhood malnutrition in resource scarce areas.