

# CDC Global Health *E-Brief*

Improving the Health and  
Survival of Children Globally

Third Quarter 2007

**WELCOME** to the third quarter global health “e-brief,” designed to inform readers about key global health activities at the CDC (Centers for Disease Control and Prevention). Our third issue for 2007 is focused on child health and child survival. Globally, approximately 10.6 million children under age 5 will die in 2007 and about 4 million of these children die within their first month. CDC and its partners are committed to working around the world to improve health conditions and increase survival rates for children. ✧



## Violence Against Children in Swaziland

While only slightly larger than the state of Connecticut, Swaziland’s mountainous terrain and rural communities made implementing a nationwide household survey on violence against children more physically challenging than expected for epidemiologists Avid Reza, MD, MPH and Matthew Breiding, PhD.

“We were going where cars just couldn’t take us,” said Reza, who works as a medical epidemiologist in CDC’s National Center for Environmental Health (NCEH). “You could only drive to the base of mountains and walk from there. Often you couldn’t see from one house to the next. We sometimes relied on children in the village to guide us to the next house.”

The two researchers were in Swaziland after the United Nations Children’s Fund (UNICEF) requested the assistance of CDC researchers to conduct a national survey on violence against children, with an emphasis on sexual violence.

Nearly 40% of adults in Swaziland are HIV-positive, the highest HIV prevalence rate in the world. AIDS has created a vicious cycle in Swaziland by breaking

down the institution of the family. Orphans can fall into poverty, drop out of school, and become vulnerable to violence, rape, and abuse. Sexual abuse can be a route of transmission for HIV.

Understanding the scope of violence against children in Swaziland is difficult. Research on sexual violence against children in sub-Saharan Africa is limited. The 2006 UN World Report on Violence Against Children called attention to this global health problem, but despite the scientific evidence this issue has not received adequate attention in many countries.

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The household survey is the result of collaborative work between CDC, UNICEF, and the President's Emergency Plan for AIDS Relief (PEPFAR), as well as several NGOs and government ministries in Swaziland. The survey, which was administered by a team of Swazi women, was designed to gather information to understand the magnitude of the problem, as well as identify risk and protective factors. It is hoped that responses will shed light on factors related to violence, particularly sexual violence, against children.

"Countries cannot develop effective prevention strategies to address the problem of violence without reliable data," said Reza. "This survey is an important step towards the prevention of violence against children in Swaziland. We hope the survey inspires other countries to take similar steps." ✧

### Promoting Early Childhood Development for Orphans and Vulnerable Children

By 2010, 15 million children are predicted to have been orphaned by AIDS alone in sub-Saharan Africa. AIDS, conflict, natural disasters, endemic diseases such as malaria and tuberculosis, and rising poverty are claiming the lives of millions of productive adults in Africa, leaving many more children orphaned and vulnerable.

Research shows that as many as 200 million children worldwide fail to reach their full potential because of malnutrition, micronutrient deficiency, and lack of stimulation during early childhood. These findings are especially important for Africa, where 15 percent of all orphans, or about 6.5 million children, are younger than 5. Integrated interventions that address health and education as well as child rights, economic empowerment of families and improved community capacities are needed.

Responding to this critical need, CDC is collaborating with CARE International in a program called "The 5x5 Model". This model was designed to deliver early childhood development interventions through community based child care centers catering to the 2-8 year old age group in Kenya, Uganda, Rwanda, and Zambia. The model represents an innovative, community-centered approach



to Early Childhood Development programming. Key collaborators are Emory University, UNICEF, Hope for Africa Children's Initiative, and the Bernard Van Leer Foundation.

Five levels of intervention are addressed including the individual child, the caregiver or family, the child care settings, the community, and the wider policy environment. The 5x5 model has developed interventions for five critical areas: food and nutrition, child development, economic strengthening, health, and child protection.

A great example of this work in action is a project in Uganda. In Busia, Uganda many young, poor women are brought to Uganda from other countries to be sex workers and find themselves pregnant, alone, and far from home. This CDC/CARE collaboration established a comprehensive Early Childhood Development (ECD) center providing the children of these mothers a stimulating and healthy child care environment and nutritious daily meals. The project informs the community about child nutrition, parenting skills, and child rights through radio programming. A local Catholic health center provides prevention and medical treatment services. The ECD is linked with a government child welfare officer to address issues related to child rights violations.

The ECD centers deliver health services to children in

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micronutrients in the SWAP basket, a critical omission in a region where childhood anemia exceeds 60%. Through the efforts of CDC, the Heinz Corporation made a new product, called Sprinkles, available for field testing in Kenya. Field trials showed that Sprinkles reduced anemia in children while providing essential micronutrients like Vitamin A, folate, zinc, and Vitamin C. What was missing was a vehicle for delivering the product. CDC and SWAP were ready to provide that vehicle. This was the genesis of the Nyando Integrated Child Health Education (NICHE) project. This project is a collaboration between CDC, SWAP, the private sector, and people living with HIV/AIDS in the Nyando region of Kenya.

Initial interest in SWAP, which ultimately led to the creation of NICHE, was started by the Atlanta Rotary Club with support of the President of the CDC Foundation and a former CDC Director, both of whom were Rotary members. The SWAP baskets include over 20 health products such as WaterGuard water treatment solution, PuR water purifier (a Procter & Gamble product that was developed in collaboration with CDC), insecticide-treated bednets, condoms, protein-fortified flour, and antiseptic solution for wound treatment.

NICHE is training community leaders, schoolteachers, nurses, religious leaders, and SWAP groups about the health products in SWAP's basket of goods. The SWAP groups are the "Avon Ladies" for health, promoting healthy behavior change and selling low-cost health products to their neighbors while earning money to support their families. CDC is collecting data to measure the health impact of NICHE. In the future, project partners hope to take this model and occupy a similar "niche" in other parts of Kenya and beyond. ✧

## CDC's Global AIDS Program: Helping to Pioneer Innovations in Early Infant HIV Diagnosis

In Botswana, a country with one of the highest rates of HIV/AIDS infection in the world, one in three pregnant women is HIV positive. Without intervention, 35-40 percent of children born to HIV-positive mothers will become HIV-infected during pregnancy, delivery, or breastfeeding. With the right interventions, however, the rates of infection can be reduced to between 1-20 percent. In 1999 Botswana was the first country in Africa to launch a free national program for prevention of mother-to-child transmission (PMTCT) of HIV.

PMTCT programs require data to assess their impact and to make critical policy and program decisions. Early infant HIV diagnosis (EID) can help provide this vital data. The CDC Global AIDS Program (GAP) provides essential support to expand EID services in Botswana, as well as in other resource-limited settings all over the world.

Early infant diagnosis also offers HIV-infected infants early access to appropriate care and treatment, often before the onset of disease progression. If not identified or treated, as many as 50-60% of HIV-infected infants die by

age two. EID requires, however, complex and expensive tests, as well as blood refrigeration and transportation. These tests are often not possible outside of the developed world.

Fortunately, the collection of infant blood by the dried blood spot (DBS) method is expanding opportunities for infant diagnosis in resource-limited settings. With the simple prick of an infant's heel, toe, or finger, whole blood is placed on a card to dry, creating samples that are simple to transport and stable for relatively long periods without refrigeration.

Following a successful pilot program, the Botswana Ministry of Health (MOH), with CDC support, has expanded DBS collection nationwide. EID are now provided to approximately 13,300 HIV-exposed infants born in Botswana each year.

In 2005, with support from the CDC through the US President's Emergency Plan for AIDS Relief, the Botswana MOH published a report on the effectiveness of Botswana's program. Analyses showed that the program has been remarkably effective. Only 7% of infants with HIV-positive mothers were HIV-infected, an 80% reduction from the expected number of infections if no PMTCT program were available. CDC and the Botswana MOH estimated there were 930 infant infections in Botswana in 2005; without the PMTCT program, as many as 4650 infections would have been expected.

The success of Botswana's program has given hope to other under-resourced countries that both PMTCT and infant diagnosis programs can be successful in their settings. ✧



On September 27, 2007, the CDC and the University of North Carolina School of Public Health launched a global health case study. "Public Health is Global Health: An Innovative Approach to Fighting Disease in Uganda" spotlights on innovative intervention to improve health—The Basic Care Package, which was developed with funding from PEPFAR and through a collaborative effort of CDC and other partners. The webcast is free and available for replay. Go to [www.publichealth-grandrounds.unc.edu](http://www.publichealth-grandrounds.unc.edu)