ELIZABETH GLASER PEDIATRIC AIDS FOUNDATION

Every child deserves a lifetime.

Research Programs and Accomplishments

The Foundation continues the legacy of Elizabeth Glaser, who tirelessly fought for the lives of her own children and all children infected with HIV/AIDS. From the days when no HIV research addressed the unique needs of children, the Elizabeth Glaser Pediatric AIDS Foundation has pioneered a new strategy of investing in scientists who developed innovative, groundbreaking projects that otherwise would not have been launched, much less achieved results that saved lives. A deep and unwavering commitment to pediatric HIV research is at the very heart of the Foundation's work and legacy.

Through its 19-year commitment to research, the Elizabeth Glaser Pediatric AIDS Foundation has contributed to the most significant breakthroughs on HIV in children. These discoveries have helped to reduce the rate of mother-to-child transmission of HIV around the world.

Today the Foundation focuses on research, international prevention and treatment programs, and advocacy because, while tremendous progress has been made, there are still children counting on a new medication or a new treatment to survive. For millions of them, the kind of research the Foundation funds is the best – and, in some cases, the only – hope for a vaccine or for therapies that will block mother-to-child transmission and help HIV-positive children and families live longer, healthier lives. We need to keep working until there are better treatments, a vaccine and, ultimately, a cure.

The Basic Research Grants program is a cornerstone of the Foundation. Beginning with awards in 1989, the Foundation has funded more than 240 basic research grants for $24 million dollars. In recent years, the Basic Research Program has advanced scientific understanding of:

- mother-to-child transmission of HIV;
- breast milk transmission;
- novel drug therapies;
- HIV/AIDS and Hepatitis C virus co-infection during pregnancy; and
- Kaposi's sarcoma and Measles in HIV-infected children.

The Basic Research Program generated 72 publications and $15,678,102 in leveraged funding from just 2000 to 2003.

The Scholar Award program is designed to draw the most talented young HIV researchers into the pediatric field, giving many their first exposure to HIV research and solidifying their commitment to a career focused on children. Six scholars went on to receive Elizabeth Glaser Scientist Awards and seven later received Basic Research Grants. Since 1989, the Foundation has funded 102 scholar awards (including renewals) for a total of $7 million dollars. Eighty-seven percent of the awardees are still in HIV research and nearly half (45 percent) are in pediatric-specific HIV research. These scholars have published more than 200 papers just since 2000, and they include some of the most impressive and respected talents in HIV research today.

The Elizabeth Glaser Scientist Award (EGSA) program has funded bright young scientists and clinicians poised to make critical breakthroughs in pediatric HIV. To date, the Foundation's investment of $22 million for 36 awards has been leveraged into $205 million in additional research funding. These scientists have published more than 700 peer reviewed papers, and are frequent keynote speakers at the most prominent and scholarly national and international conferences. Elizabeth Glaser Scholar Awardees continue to study critical questions in HIV prevention and treatment specific to children. More examples of current EGSA research directly benefiting children are as follow:

1996 EGSA Richard Koup, MD, Vaccine Research Center, National Institutes of Health
- Studied resistance to infection in infants born to HIV-positive women
- Discovered the second receptor for HIV and a major genetic defect that makes some individuals resistant to infection

1996 EGSA Donald B. Kohn, MD, Children's Hospital, Los Angeles and USC
- Performed the first clinical trial of gene therapy for children with HIV in 1997

1997 EGSA Katherine Luzuriaga, MD, University of Massachusetts Medical Center
- Among the first to study the immune response to HIV in children
- Involved in the first trials of early combination antiretroviral therapy for HIV-positive children

2001 EGSA Sunil Ahuja, MD, University of Texas Health Science Center
- Studied genetic reasons why Jake Glaser has not progressed while his sister Ariel died at age 7
- Has identified several genetic factors that are involved in HIV transmission from mother-to-child and disease progression

2005 EGSA Deborah Persaud, MD, Johns Hopkins University
- Studies the development of HIV drug resistance in children and the consequences of this resistance for future treatment options

2006 Jewelers for Children EGSA Margaret Feeney, MD, Harvard Medical School
- Studies children who are long-term survivors of HIV infection and the immune responses that might be related to their well-being

The International Leadership Award (ILA) program invests in trained individuals working in resource-poor countries to develop programs that will have a direct impact on the pediatric HIV epidemic in their nations. For this Award, the Foundation identifies individuals who are likely to have an enduring impact on control of the epidemic. Recipients are required to mentor a minimum of three people who can help them achieve their goals. By supporting and training these leaders, the ILA program has helped build the human capacity needed to fight pediatric AIDS in countries hardest hit by the epidemic. ILAs have mentored 62 staff members, trained 802 doctors, nurses, counselors and technicians, raised $6.5 million in leveraged funding, and published 26 papers. Highlights of the program include:

- A pediatric HIV leadership initiative in Kingston, Jamaica that has directly benefited 150,000 women and 300 HIV-exposed infants
- A low-tech laboratory system in Uganda specifically designed to improve HIV diagnosis among infants and young children in that country
- Creating a network of scientists in South Africa dedicated to understanding the immune system of newborns and children exposed to HIV
- A "health passport" program in Malawi that has improved care and treatment of HIV-infected children; and
- A pediatric HIV treatment and research program in Kampala, Uganda that is uncovering important data on ARV therapy in children.

More Examples of Major Accomplishments of Research Funded by Elizabeth Glaser Pediatric AIDS Foundation

- Contributed to the understanding of the mechanisms of vertical transmission of HIV
- Contributed to the discovery of CCR5, a second receptor for HIV entry into cells
- Contributed to the discovery of DC-SIGN as a major viral attachment site on immune cells
- Contributed to the recent discovery of an intracellular inhibitor of the virus (APOBEC-3G), which is overcome by the presence of the viral protein Vif
- Contributed to the understanding of the early immune response in pediatric infection and the generation of immune-escape viruses
- Demonstrated the transmission of immune escape-viruses from mother to child
- Developed a model for breast milk transmission of virus in neonatal macaques which is being used to evaluate interventions to prevent such transmission
- Helped uncover the viral evolution and origin of HIV
- Contributed to the understanding of T cell receptor excision circles (TREC) and the production of T cells from the thymus in HIV infection
- Contributed to evaluation of early HAART therapy for children and the discovery of alternative measurable immune responses of HIV-infected infants
- Demonstrated in Zambia that nevirapine can be delivered to women who don't know their HIV status as well as women who know their status in order to treat more women
- Recognized the magnitude of gut-associated lymphocyte responses and the findings that certain infected immune cells in the gut reflect the high level of virus detected in blood
- Helped to incorporate gene therapy into areas of HIV research and establish the first Center for Gene Therapy of children with AIDS
- Demonstrated the basis for why single-dose nevirapine appears to prevent HIV infection of children via early breastfeeding and intrapartum virus transmission
- Demonstrated the role of cytokines in HIV replication in the thymus

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