

Pediatric HIV Infection

Kathleen K. Graham, PharmD, and Ana M. Puga, MD

INTRODUCTION

Human immunodeficiency virus (HIV) infection is one of the most devastating pediatric diseases in history. At the end of 2015, approximately 1.8 million children (<15 years old) worldwide were living with HIV/acquired immunodeficiency syndrome (AIDS); in 2015 alone, there were 150,000 children newly infected and 110,000 deaths.¹ The majority were infected through perinatal mother-to-child transmission (MTCT) by their HIV-positive mothers during pregnancy, childbirth, or breastfeeding and are living in resource-poor countries.¹

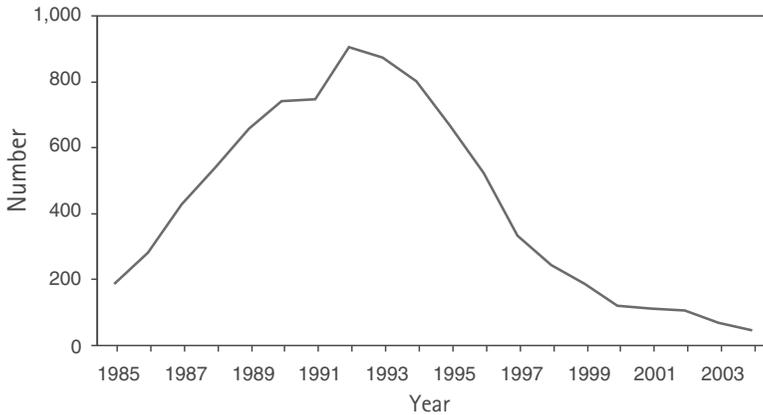
Perinatally Acquired Pediatric HIV Infection

Since the first case reports of perinatally acquired HIV infection in the early 1980s, significant progress has been made in the prevention of mother-to-child transmission (PMTCT). In the early 1990s, the landmark Pediatric AIDS Clinical Trials Group (PACTG) 076 protocol demonstrated that antiretroviral (ARV) prophylaxis given antepartum and intrapartum to the mother, and immediately to the neonate, could significantly reduce transmission by 68%.² Implementation of the PMTCT protocol in the United States has decreased MTCT to <2%, compared to rates of 30% to 40% without prophylaxis (Figure 15-1A).³

Worldwide progress toward the elimination of MTCT is now emerging (<http://www.unaids.org/en/resources/campaigns/HowAIDSchangedeverything/factsheet>). In 2015, 77% of pregnant women living with HIV globally were accessing antiretroviral therapy (ART) to avoid transmission of HIV to their children, and new HIV infections among children were reduced by 58% from 2000 to 2014.¹ The 2016 UNAIDS Prevention Gap report found that the provision of antiretroviral medicines to women living with HIV during pregnancy or breastfeeding has averted 1.6 million new child HIV infections globally (Figure 15-1B).⁴ Future global plans including the Start Free, Stay Free, AIDS Free initiative to prevent MTCT, ensure that children stay HIV-free through life, and prevent progression to AIDS in children and adolescents living with HIV.⁴

Nonperinatally Acquired Pediatric HIV Infection

In contrast to the low rate of new perinatally acquired HIV infection in the United States, the rate of nonperinatally acquired HIV infection (acquired through sexual transmission or injection drug use) in U.S. adolescents is on the rise. Youth aged



*Acquired immunodeficiency syndrome.

† Data adjusted for reporting delays and for estimated proportional redistribution of cases in persons reported without an identified risk factor.

FIGURE 15-1A. Estimated number of cases of perinatally acquired AIDS,* by year of diagnosis – United States, 1985–2004.†

Source: Centers for Disease Control and Prevention (CDC) Achievements in public health. Reduction in perinatal transmission of HIV infection— United States, 1985–2005. *MMWR Morb Mortal Wkly Rep.* 2006;55(21):592–597 pmid:16741495.

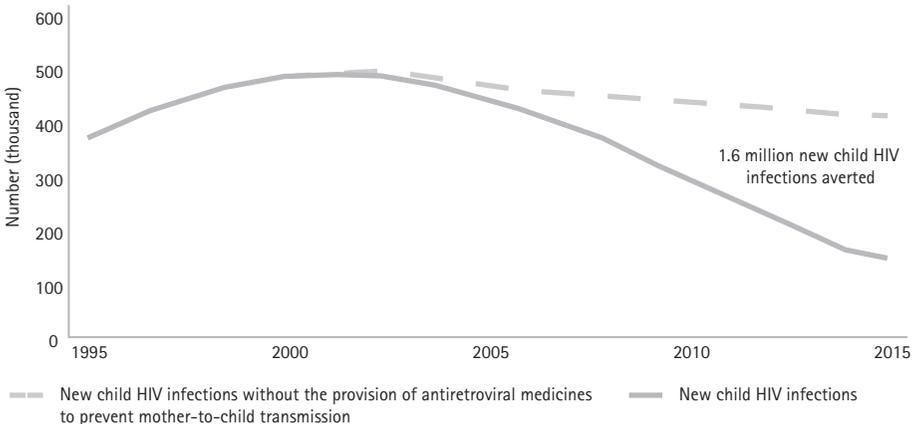


FIGURE 15-1B. New HIV infections among children (aged 0–14 years) with and without the provision of antiretroviral medicines to prevent mother-to-child transmission, global, 1995–2015.

Source: Centers for Disease Control and Prevention (CDC) Achievements in public health. Reduction in perinatal transmission of HIV infection—United States, 1985–2005. *MMWR Morb Mortal Wkly Rep.* 2006;55(21):592–597 pmid:16741495.