UNMET NEEDS

- Provide HIV/AIDS funding consistent with the Centers for Disease Control and Prevention (CDC) Professional Judgment Budget.
- Support HIV surveillance so that funds can be allocated where they are needed most.
- Provide resources so that new HIV diagnostic and screening technologies can be validated and implemented in public health laboratories.
- Enable laboratories to detect HIV infections in their earliest (and most infectious) stages by supporting the newest and most advanced testing technologies, including nucleic acid amplification testing and fourth-generation immunoassays.
- Improve laboratory capacity to monitor and confirm HIV-2 infections.
- Evaluate the newly proposed alternative HIV testing algorithms to improve the speed, accuracy and efficiency of HIV diagnosis and surveillance.
- Facilitate HIV disease management by enabling laboratories to conduct viral load testing, genotyping and antiretroviral resistance monitoring.

BACKGROUND

More than 25 years after the first documented cases, HIV/AIDS continues to be a major public health burden in the United States. There are more than one million people living with HIV in the US today, and this number is growing. While HIV affects all racial, socio-economic, regional and age groups, African-Americans, Latinos and men who have sex with men have been disproportionately affected by the epidemic.

Recent advances in surveillance technology have allowed CDC to more accurately estimate the incidence (or number of annual new infections) of HIV. There were 56,300 new HIV infections in 2006, 40% greater than the 40,000 that was previously estimated. CDC estimates that for every 100 people living with HIV, five new infections will occur per year. Early diagnosis of HIV is crucial to limiting the number of new infections.

CDC has developed an ambitious plan to combat HIV/AIDS in the US. By 2020, they hope to reduce the HIV transmission rate from 5% to 2.5% and to reduce the proportion of infected individuals who are unaware of their status. Current data show that in 2006, 21% of HIV-infected individuals (more...
than 200,000 people) don’t know they are HIV positive, and CDC wants this number cut in half.

To achieve these goals, CDC developed a professional judgment budget that outlined the ideal approach to fighting HIV/AIDS in the US. A vital part of this plan includes scaling up HIV testing initiatives, improving HIV monitoring systems and developing new tools to aggressively fight HIV/AIDS. State and local public health laboratories would play a key role in this initiative, and an increase in laboratory resources would be necessary in order for it to succeed.

Currently, public health laboratories provide services crucial to the diagnosis of HIV infections. Public health laboratories serve as referral and reference laboratories for HIV testing and support the work of other public and private sector laboratories. These laboratories are instrumental in conducting disease surveillance and provide the data necessary to monitor trends in HIV infection. With the increasing number of people living with HIV/AIDS in the public healthcare system, public health laboratories will have an increasing role in disease management as well. Developing this capacity by providing viral load testing, antiretroviral resistance monitoring and CD4/CD8 cell counts, will improve both patient care and public health surveillance. HIV-2, a less common but closely related strain of HIV, poses another challenge to public health laboratories. At present, there is limited capacity for the confirmation and management of HIV-2 infections. Infections by this strain are mostly limited to West Africa, but this gap must be addressed to improve public health laboratory preparedness.

In recent years, new technologies have arisen that have greatly improved the speed and accuracy of HIV screening and diagnosis. Most HIV tests rely on the detection of antibodies against HIV, which can sometimes take months to develop. Unfortunately, it is during this same period that HIV-infected individuals are most infectious. New technology, such as nucleic acid amplification tests and fourth-generation immunoassays are capable of detecting infection much earlier than was previously possible and could be crucial in breaking the transmission cycle. While these tests are more expensive than traditional HIV tests, their ability to detect infection at the most transmissible stage could significantly improve our ability to prevent new infections.

APHL has been working with CDC and state and local public health laboratories to develop new testing algorithms that incorporate the most advanced HIV diagnostic tools.