

Selected Highlights from the Treatment and Management of HIV Infection in the United States Conference

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A JOINT EFFORT OF TEN FEDERAL GOVERNMENT agencies including the Department of Veterans Affairs, multiple agencies of the Department of Health and Human Services, and the Federal Bureau of Prisons, the Treatment and Management of HIV Infection in the United States Conference—held in September in Atlanta—was an inaugural effort to bring together 2,000 to 3,000 HIV-treatment clinicians. This conference was billed as the only general-access state-of-the-science HIV treatment conference in the United States specifically targeting primary providers of HIV care for adults, adolescents, children, and pregnant women.

As promised, the conference delivered high quality education on new developments and research findings in HIV therapeutics and management of HIV infection as a chronic disease that can be rapidly translated into the clinic.

The Program Committee organized a

conference agenda that provided an in-depth program with three central goals. The first goal was to translate the latest developments in HIV clinical science to the delivery of specific medical care to persons with HIV infection. The second goal was to provide attendees with the opportunity to learn from active clinical care providers about their experience in treating persons with HIV. The third and final goal was to review new developments and research findings that could be rapidly translated into clinical practices.

PRN was delighted to connect with two care providers who attended this year's conference: Sharon Lee, MD, Founder and Director of the Southwest Boulevard Family Health Care Services of Greater Kansas City, and Marjorie Williams, MPH, Information Specialist at the Center for AIDS Information and Advocacy in Houston. Dr. Lee was Chair of a session at the confer-

ence, focusing on chronic and lifelong care issues. Ms. Williams attended as a delegate, representing the interests of her HIV-infected clients.

What follows are written reports of specific conference sessions provided by Dr. Lee and Ms. Williams. Almost coincidentally, their summaries review conference presentations that focus on issues that have not been repeatedly or comprehensively reviewed in past issues of *The PRN Notebook*, chiefly the numerous comorbidities that have become significant issues for HIV-positive people as they live longer, as well as the various social and emotional obstacles facing patients as they chart their long lives with HIV infection.

We are honored to publish their reports and look forward to hearing from them—and other care providers—as they return to the second Treatment and Management of HIV Infection scheduled for 2007.

I. The Need for Chronic and Lifelong Care

Sharon Dian Lee, MD

AS HIV SPREAD THROUGHOUT THE UNITED States during the early years of the epidemic, the immune deficiency it caused often led to fatal AIDS-related opportunistic infections, particularly among 20- to 45-year olds. Over the past decade, the use of combination antiretroviral therapy to control HIV has drastically reduced the loss of life to AIDS, and HIV-positive people continue to live longer and healthier lives.

When they die, they die of problems other than those directly related to AIDS.

Most HIV-positive patients in the U.S. are appropriately followed by HIV specialists. "The experience of primary care physicians in the management of AIDS is significantly associated with survival among their patients," Mari Kitahata, MD, and her colleagues wrote in a 1996 issue of the *New England Journal of Medicine* regarding physi-

cians' clinical HIV/AIDS experience as a factor in patients' survival (Kitahata, 1996). In this new era, treatment of HIV is at least moderately successful in converting HIV into a chronic long-term disease. In turn, there is a growing need for HIV specialists to provide generalized chronic medical care and preventive screening for those who have HIV.

The Saturday afternoon session at the Treatment and Management of HIV in

the United States Conference focused on the expanding responsibilities for providing chronic care for those who are living with HIV.

Mortality in the New Era

THE INITIAL SESSION WAS PRESENTED BY Amy Justice, MD, PhD, of the Center for Interdisciplinary Research on AIDS at Yale University, who, interestingly, is a primary care provider and an epidemiologist. First she provided clear information about the increased longevity among treated vs. untreated individuals with HIV. Based on data from the CHORUS HIV Cohort, for each age level and each CD4+ cell count, those on treatment fared far better than those who were not treated with HAART. Dr. Justice then discussed data showing those whose HIV was better controlled lived longer and tended to die of non-AIDS related diseases.

Based on these and other studies, it is evident that there is a growing need for HIV care to include primary care prevention and treatment of other chronic illnesses, as well as to examine risks that may be particularly associated with HIV or the treatment of HIV.

Currently the four most common causes of death for all ages among those with HIV disease are hepatitis, wasting, lymphoma, and non-AIDS-related cancers. Heart disease, while a concern as the HIV-positive population ages, is not currently among the top ten causes of death.

Mental Health Issues: An Important Concern

THE SECOND PLENARY SPEAKER, RENSLOW Sherer, MD, of the University of Chicago, has provided primary care to those living with HIV for twenty years. His presentation built upon that of Dr. Justice's and helped delineate how to utilize the U.S. Preventive Services' Task Force recommendations and focus on chronic care and prevention especially for those who live with HIV disease.

Dr. Sherer noted that people with HIV have greater risks for, and histories of, mental health issues, which leads to a need for better screening and treatment for these issues in HIV specialist settings (see "Managing Depression in HIV Disease, Viral Hepatitis, and Substance Abuse," beginning

on page 19). The American Psychiatric Association noted in a 2004 position paper on comorbidities associated with AIDS that only about half of the HIV-positive patients who met criteria for depression were being treated despite the fact that almost one-third of HIV-positive patients studied were on psychiatric medications (American Psychiatric Association, 2004).

A later speaker, Glenn Treisman, MD, of Johns Hopkins University School of Medicine, who many refer to as the "father of HIV psychiatry," provided his unpublished data regarding the incidence of psychiatric disorders among HIV-positive patients at the time of medical intake examination. Among new medical intakes, 54% had at least one Axis I disorder; major depression was seen in 20% and adjustment disorder was seen in 18%. Substance abuse was reported by 74%, cognitive impairment was seen in 18%, and personality disorder in 26%.

Interestingly, Dr. Justice had earlier noted that in a study of HIV care providers—most of whom were infectious disease specialists—only about one-third were "comfortable" treating patients with depression (Fultz, 2005). This appears to be an area where there is a need for additional training of HIV specialists, particularly in mental health screening, in order to provide referrals for mental health care when needed. Laura Cheever, MD, Deputy Associate Administrator of the HIV/AIDS Bureau of the Department of Health and Human Services' Health Resources and Services Administration, as well as Dr. Treisman, addressed these issues in their case presentations on providing HIV care to patients with substance abuse and/or mental health issues. Both emphasized the need for engagement of the patients in their care and the role of supportive services, such as substance abuse treatment, in improving the response to HIV treatment.

Cardiovascular Disease and HIV

CARDIOVASCULAR DISEASE HAS ATTRACTED A great deal of attention due to the aging of the HIV-positive population, the impact of HIV infection itself, the impact of some medications on lipids, and other associated cardiovascular risks. Dr. Sherer and Dr. Justice reviewed the data from the DAD and Kaiser studies.

DAD is an ongoing observational study established to track long-term antiretroviral safety involving over 23,000 HIV-positive people in eleven cohorts on three continents (Friis-Moller, 2003). The study team's initial findings, published in a 2003 issue of the *New England Journal of Medicine*, found that during more than 36,165 person-years of follow-up, 126 people suffered a myocardial infarction (MI), 36 of which were fatal. Overall, the frequency of reported MI was 3.5 cases per 1,000 person-years of follow-up.

Kaiser's ongoing observational study examines cardiovascular disease and MI hospitalization rates among HIV-positive members of the Kaiser Permanente Medical Care Program of Northern California (Klein, 2002). Comparing HIV-positive and -negative members, the cardiovascular disease hospitalization rate was significantly higher (6.5% vs. 3.8%), and the difference in the MI rate also was higher (4.3% vs. 2.9%).

Taken together, these studies suggest that the ten-year risk of MI among HIV-positive patients is 3.5% to 4.3%, compared to 2.9% among HIV-negative individuals. The 25-year risk is 8.8% to 10.8% among HIV-positive patients, compared to a 25-year risk of 7.3% among HIV-negative patients.

Of particular usefulness for treating physicians was the data presented by Dr. Sherer, suggesting that treatment with lipid-lowering agents was more successful in reducing lipid levels than switching off protease-inhibitor based combination antiretroviral therapy (Calza, 2005). The study involved 142 non-nucleoside reverse transcriptase inhibitor (NNRTI)-naive patients on a protease inhibitor-based antiretroviral regimen for at least 12 months and experiencing increases in their lipid profiles. Patients were randomized to either replace their protease inhibitors with an NNRTI or add a statin and/or fibrate to their current regimen.

Patients that switched to nevirapine (Viramune) saw their cholesterol and triglycerides decrease by approximately 25%; patients that switched to efavirenz (Sustiva) saw their lipid levels decrease by approximately 10%. Among those that added a statin, triglycerides and cholesterol decreased by more than 40%. Similar reductions were seen in patients that added a fibrate to their existing regimen.

The Expanding Significance of Other Comorbidities

DR. SHERER ALSO REVIEWED ASPECTS OF diabetes, osteoporosis, thyroid disease, and other problems. None have been clearly associated with HIV, but some studies conclude that there should probably be a higher index of clinical suspicion for these abnormalities among HIV-positive patients.

Other diseases which were reviewed include chronic respiratory diseases, kidney and liver diseases, and non-AIDS related cancers.

Chronic respiratory disease is most strongly associated with smoking. It seems that people with HIV that smoke have a more rapid progression to lung disease than those that do not have HIV that smoke. A matched study of HIV-positive and HIV-negative smokers revealed an acceleration of emphysema/COPD among the HIV-positive patients. According to the age-matched analysis, the incidence of emphysema among the HIV-positive patients was 15%, compared to 2% among the HIV-negative patients (Diaz, 2000).

Kidney function has been found to be abnormal in up to 30% of HIV infected patients, with AIDS-related kidney disease rising as a cause of end-stage renal disease requiring dialysis (Gupta, 2004; Gardner, 2003; Szczech, 2004). It is recommended that HIV-positive patients be screened annually with at least a serum creatinine evaluation.

Hepatic failure is now the leading cause of death among those infected with HIV (Soriano, 1999; Bica, 2001; Rosenthal, 2004). Recommendations are to closely and periodically monitor liver function, includ-

ing for viral hepatitis, and for alcohol, medication, or other induced injury. Vaccination, particularly against hepatitis B, is strongly encouraged.

Non-AIDS-related cancers continue to plague this population. There are growing incidences of lung and other smoking-associated cancers. Doctors are encouraged to continue recommending and supporting smoking cessation.

Anal cancer related to HPV in males and females with HIV was another case presentation at the conference. Joel Palefsky, MD, of the University of California, San Francisco, has extensively studied HPV screening and treatment for more than twenty years. He reported that in many centers, screening is difficult due to a lack of agreement about the pathologic diagnosis and the appropriate treatment of screening that is positive. Dr. Palefsky pointed out that periodic digital rectal exams are less confusing and are frequently overlooked in the primary care of people with HIV.

HIV medications may have significant toxicity in individual patients, many of whom are on multiple other medications. Blake Max, MD, of the CORE Center of Chicago, reminded participants of the need to carefully watch for side effects and drug-drug interactions. He presented a case where anti-seizure medications interacted with antiretrovirals through cumulative liver toxicity and resulted in a patient's death. Not all medications have been studied in relationship to all other medications, and even typically benign medications may become deadly if they interact with other drugs, or have cumulative toxicity.

Family Planning

A PRESENTATION WITH A MORE OPTIMISTIC premise was provided by Jean Anderson, MD, of Johns Hopkins University School of Medicine. Dr. Anderson presented information about preconception counseling of HIV-impacted couples desiring children. She reviewed HCSUS data showing approximately one-third of HIV-positive adults in care desire children (Chen, 2001). She also reviewed data from two other studies revealing that 18% to 40% of HIV-infected women become pregnant after learning their diagnosis (Stephenson, 1996; Bedimo, 1998). Finally, HIV-positive women using contraception may still become pregnant. A study of the WIHS cohort reported that of those that conceived, 77% reported contraception use (Massad, 2004). Although this study may be confounded by the subjectivity of the reporting, it nonetheless points out the importance of preconception counseling for all patients, even those using birth control.

Conclusion

AFTER THE PRESENTATIONS THERE WAS CLEAR consensus that further studies are needed to clarify the long-term and chronic care needs of people with HIV. It is hoped that some of those studies will be available by the next Treatment and Management of HIV Infection in the United States Conference being planned for 2007. ■■■■

II. Beyond the Labs: Social and Emotional Considerations in HIV

Marjorie Williams, MPH

HIV IS NOT SOLELY A PHYSIOLOGICAL DISEASE. While it undoubtedly comes with numerous medical challenges, it is also accompanied by a significant number of social and emotional obstacles. These obstacles can be, and often are, both frustrating and psychological draining for many HIV-infected individuals, especially the recently diagnosed. Dealing with these issues necessitates the support and guidance of a caring and skilled healthcare team. Unfor-

tunately, not all HIV-treating clinicians have the resources—or even knowledge of their patients' social and emotional troubles—to effectively deal with them. However, for clinicians that attended the Treatment and Management of HIV in the United States conference, overviews of these challenges—and some ways they might be dealt with—were a central theme.

The Value of Information

A DISCUSSION GROUP OF MOSTLY AFRICAN-American and Hispanic HIV-positive mothers, to whom I deliver HIV treatment education once each month, illustrates the need for the type of information that was presented to HIV-treating clinicians at the conference. In December 2004, my group was asked to complete twelve open-ended questions related to HIV. The questions were designed to explore areas of interest for the

sake of generating topics to be addressed during subsequent meetings.

Always candid, the women responded with thoughts on several issues related to HIV disease and their everyday lives. One question asked if they felt they had received enough information about their HIV disease during their first meeting with their health-care providers after their diagnosis. It has always concerned me that some clinicians expect their patients to grasp the facts about their diagnosis almost immediately, despite the fact that many individuals are unable to seek out information on their own. The reasons for this are varied and include fear, depression, or lack of access to educational resources such as the Internet. Answers provided by the women revealed that most felt they had not received enough information about their HIV. In fact, several months post-diagnosis, some of the women still felt as if they did not have enough time to address pertinent issues with their healthcare provider(s). Even if they did have the time, some said, they simply did not grasp many of the issues specific to them that they should be addressing.

There are no easy answers when it comes to finding the reasons why HIV-infected individuals, especially HIV-infected women, are not getting enough information about their HIV disease. However, a presentation at the conference by Harlem Hospital's Wafaa El-Sadr, MD, explored the potential role of clinicians in this regard. First, after diagnosing a patient with HIV, establishing a link to care via case management is vital. Dr. El-Sadr's data illustrated that patients that are connected to a case manager are more likely to further their HIV treatment and stay in care. As HIV-infected individuals remain in care, they are more likely to learn about their HIV disease and both the benefits and drawbacks of therapy. What's more, as patients experience side effects to treatment or complications associated with HIV disease, they will likely be more willing to speak openly and candidly with their clinicians about their HIV concerns.

Dr. El-Sadr also explained that peer education groups are helpful, especially to the more recently diagnosed, as they provide patients with instructions on navigating the medical system for HIV-related services, along with the opportunity for patients to gain information and support from

their HIV-infected peers. Case management and peer education groups help to keep patients engaged in their physical care while providing them with the opportunity to learn about HIV disease and its treatment at a pace that is comfortable to them. Peer-education groups have the added benefit of allowing people living with HIV to learn from the experience of other HIV-infected individuals that have met similar medical, social, or emotional obstacles. Communicating with other HIV-infected individuals that have "made it" to a place where they are accepting of themselves and their diagnosis is a crucial part of the learning process. In short, not only does a well-facilitated peer education group provide HIV-infected individuals with information, it also provides them with hope.

Many clinicians do not have the time, or perhaps even the skills, to provide these types of social and educational outreach to their patients. However, they can assist patients by hiring a health educator/counselor, making referrals to good HIV-specific support services, and — thorough physical, social, and psychological evaluations — identifying any obstacles that need to be addressed. As a part of his presentation, Joel Gallant, MD, MPH, of Johns Hopkins University School of Medicine, touched on the importance of thoroughly evaluating newly diagnosed patients. While it may not be feasible for a provider to complete all aspects of much-needed thorough examinations during a single visit, it is not unreasonable to expect these areas to be addressed during the first year of diagnosis in a population that is not transient, including some HIV-infected women. Of course, the most pressing issues should be addressed prior to those which are less urgent.

I found Dr. Gallant's presentation so informative that I plan to distribute fact sheets, and implement roundtable discussions, to help educate my HIV-infected female clients about the various tests and/or screenings they should be receiving.

Talking About Sex

THE SURVEY RESPONSES FROM MY FEMALE clients highlight a point that I find a lot of clinicians may not readily address: HIV-positive people, much like HIV-negative people, are sexual individuals. My female

clients have frequently expressed desires to have and maintain healthy sexual relationships with either HIV-positive or HIV-negative individuals. However, they remain concerned about passing the virus on to others, talking with potential sex partners about their status, and handling rejection. Fortunately, the conference included a section that addressed sex-related prevention for those living with HIV.

Ron Valdiserri, MD, of the U.S. Centers for Disease Control and Prevention stressed that provider-delivered safer-sex counseling for HIV-positive individuals can be effective if delivered repeatedly in the form of short talks at each clinic visit (Richardson, 2004; Wingood, 2004). Ideally, busy clinicians would have in their employ a staff person trained in health education or counseling who is dedicated to educating clients on sex and prevention issues. The health educator/counselor could also provide longer sex and prevention health education sessions to HIV-infected patients that should be coupled with discussions about disclosure and coping with rejection.

Disclosure is a topic that must be addressed. However, it is a complex issue, especially for the women that I serve. It is difficult for them to address, not just because it requires them to be able to tell potential sex partners their positive status, but because it also requires the following: 1) setting rules that they and others must abide by, and 2) putting these rules into action with a potential sex partner. Setting rules about their sexual behavior is a task that many of the women were unable to do, even before they became HIV-positive.

Looking to the Future

A MORE COMPREHENSIVE APPROACH NEEDS to be taken by clinicians to address the social and emotional obstacles facing their HIV-infected patients. It has been acknowledged that emotional and social difficulties can arise from the stress of constantly living in "crisis mode," including daily confrontations with HIV disease and its circumstances. These difficulties can influence a patient's quality of life and course of medical care. Realizing this, the second Treatment and Management of HIV in the United States Conference scheduled for 2007 should include a section specifically

dedicated to the social/emotional aspects of living with HIV disease. It would be helpful not only to have an examination of the issues, but workshops on topics such as implementing prevention educational program for HIV-infected individuals into clinical practice, addressing sex-related issues effectively, and helping patients face disclosure and rejection.

It was a great opportunity to have attended a conference focusing on the treatment of HIV in the United States. It is my hope that the meeting organizers do not lose sight of this conference's unique qualities by turning it into a gathering that views HIV exclusively as a disease and not the people it affects. ■■■■

Check out the USHIV website for more information: www.ushivconference.org

References

- American Psychiatric Association. Recognition and Management of Substance Use Disorders and Other Mental Illnesses Comorbid with HIV: Position Statement. November, 2004. Accessed November 14, 2005 at: http://www.psych.org/edu/other_res/lib_archives/archives/200407.pdf
- Bedimo AL, Bessinger R, Kissinger P. Reproductive choices among HIV-positive women. *Soc Sci Med* 46(2):171-9, 1998.
- Bica I, McGovern B, Dhar R, et al. Increasing mortality due to end-stage liver disease in patients with human immunodeficiency virus infection. *Clin Infect Dis* 32(3):492-7, 2001.
- Calza L, Manfredi R, Colangeli V, et al. Substitution of nevirapine or efavirenz for protease inhibitor versus lipid-lowering therapy for the management of dyslipidaemia. *AIDS* 19(10):1051-8, 2005.
- Chen JL, Philips KA, Kanouse DE, et al. Fertility desires and intentions of HIV-positive men and women. *Fam Plann Perspect* 33(4):144-52, 2001.
- Diaz PT, King MA, Pacht ER, et al. Increased susceptibility to pulmonary emphysema among HIV-seropositive smokers. *Ann Intern Med* 132(5):369-72, 2000.
- Friis-Moller N, Sabin CA, Weber R, et al. Combination antiretroviral therapy and the risk of myocardial infarction. *N Engl J Med* 349(21):1993-2003, 2003.
- Fultz SL, Goulet JL, Weissman S, et al. Differences between infectious disease-certified physicians and general medicine-certified physicians in the level of comfort with providing primary care to patients. *Clin Infect Dis* 41(5):738-43, 2005.
- Gardner LI, Klein RS, Szczech LA, et al. Rates and risk factors for condition-specific hospitalizations in HIV-infected and uninfected women. *J Acquir Immune Defic Syndr* 34(3):320-30, 2003.
- Gupta SK, Mamin BW, Johnson CS, et al. Prevalence of proteinuria and the development of chronic kidney disease in HIV-infected patients. *Clin Nephrol* 61(1):1-6, 2004.
- Kitahata MM, Koepsell TD, Deyo RA, et al. Physicians' experience with the acquired immunodeficiency syndrome as a factor in patients' survival. *N Engl J Med* 334(11):701-6, 1996.
- Klein D, Hurley LB, Quesenberry CP Jr, et al. Do protease inhibitors increase the risk for coronary heart disease in patients with HIV-1 infection? *J Acquir Immune Defic Syndr* 30(5):471-7, 2002.
- Massad LS, Springer G, Jacobson L, et al. Pregnancy rates and predictors of conception, miscarriage, and abortion in US women with HIV. *AIDS* 18(2):281-6, 2004.
- Richardson JL, Milam J, McCutchan A, et al. Effect of brief safer-sex counseling by medical providers to HIV-1 seropositive patients: a multi-clinic assessment. *AIDS* 18(8):1179-86, 2004.
- Rosenthal E, Pialoux G, Rey D, et al. Liver-related mortality in human immunodeficiency virus-infected patients in France (GERMIVIC cohort study, 1995-2003) [Abstract 572]. 55th Annual Meeting of the American Association for the Study of Liver Diseases, Boston, 2004.
- Soriano V, Rodriguez-Rosado R, Garcia-Samaniego J, et al. Management of chronic hepatitis C in HIV-infected patients. *AIDS* 13(5):539-46, 1999.
- Stephenson JM, Griffioen A. The effect of HIV diagnosis on reproductive experience. Group for the Medical Research Council Collaborative Study of Women with HIV. 10(14):1683-7, 1996.
- Szczech LA, Hoover DR, Feldman, et al. Association between renal disease and outcomes among HIV-infected women receiving or not receiving antiretroviral therapy. *Clin Infect Dis* 39(8):1199-206, 2004.
- Szczech LA, Gange SJ, van der Horst C, et al. Predictors of proteinuria and renal failure among women with HIV infection. *Kidney Int* 61(1):195-202, 2002.
- Wingood GM, DiClemente RJ, Mikhail I, et al. A randomized controlled trial to reduce HIV transmission risk behaviors and sexually transmitted disease among women living with HIV: The Willow Program. *J Acquir Immune Defic Syndr* 37 Suppl 2:S58-67, 2004.

LOOKING AHEAD: HIV/AIDS CONFERENCES IN 2006

13th Conference on Retroviruses and Opportunistic Infections

February 5-9, 2006
Denver, Colorado

WEBSITE: <http://www.retroconference.org>

The 13th Conference on Retroviruses and Opportunistic Infections (CROI) is a scientifically focused meeting of the world's leading researchers working to understand, prevent, and treat HIV/AIDS and its complications. It remains one of the most scientifically important HIV/AIDS conferences of the year.

4th European HIV Drug Resistance Workshop

March 29-31, 2006
Monte Carlo, Côte d'Azur

WEBSITE: <http://www.virology-education.com>

The format of the meeting will be a two and a half-day program consisting of invited lectures, case presentations, guideline discussions and poster sessions. The workshop will address important topics such as mechanisms of drug resistance, viral fitness, transmission of drug resistance, subtypes, HIV-HCV coinfection, resistance to other viruses, interpretation systems, guidelines, drug resistance in Africa, and therapeutic drug monitoring.

Keystone Symposia: HIV Pathogenesis

March 27, 2006-April 2, 2006
Keystone, Colorado

WEBSITE: <http://www.keystonesymposia.org/Meetings/ViewMeetings.cfm?MeetingID=805>

The agenda for the Pathogenesis meeting is organized in 10 plenary sessions, each showcasing the latest insights gained from studying a particular aspect or model of HIV and HIV-related illness.

17th International Conference on the Reduction of Drug Related Harm

April 30, 2006-May 4, 2006
Vancouver, Canada

WEBSITE: <http://www.harmreduction2006.ca>

This conference will provide an environment where consumers, healthcare workers, corporations, advocates, programs, and governments can collaboratively develop realistic, responsive, and effective harm reduction strategies that save lives.

7th International Workshop on Clinical Pharmacology

April 20-22, 2006
Lisbon, Portugal

WEBSITE: <http://virology-education.com>

This conference will provide a comprehensive update of various topics, such as newly detected drug-drug interactions, pharmacokinetic modeling and simulations, drug-induced toxicity (including hepatotoxicity), pharmacokinetics of investigational agents, and post-marketing surveillance projects. The workshop will also present the current state-of-the-art on therapeutic drug monitoring (TDM) and its uptake in various clinical guidelines such as DHHS, BHIVA, etc. A special session will be devoted to developments of generic antiretroviral drugs.

XVI International AIDS Conference

August 13-18, 2006
Toronto, Ontario

WEBSITE: <http://www.aids2006.org/>

AIDS 2006 Toronto brings over 20,000 delegates to share current knowledge on a full spectrum of issues about the global HIV/AIDS epidemic. AIDS 2006 is open to people from around the world, and aims to advance knowledge of HIV/AIDS.