

Division Members

Professor & Head
Dr. Julio Montaner

Associate Professor
Dr. Paul Harrigan

Assistant Professor

Dr. Thomas Kerr
Dr. David Moore

Clinical Associate Professor
Dr. Evan Wood

AIDS



Dr. Julio Montaner
Professor and Head

DIVISION OVERVIEW

Since the creation of the Division of AIDS in April 2007, we have been able to enhance our ability to attract and retain academic staff with the wide range of expertise needed to address this truly interdisciplinary challenge. We have decreased the demands that the HIV/AIDS group has placed on the Division of Infectious Diseases, which naturally continue to be involved in HIV/AIDS, but with a much more specific sub-specialty focus. In 2008, we welcomed Dr. David Moore to our Division. Dr. Moore is also the Director of the Community Medicine Residency Program within the School of Population and Public Health at UBC.

Under the leadership of Drs. Thomas Kerr and Evan Wood, the epidemiology group has been very productive and continues to benefit from long-term analyses emerging from VIDUS, SEOSI, ACCESS, ARYS, and MAKa. A major focus has been the evaluation of the supervised injection site in the Downtown Eastside of Vancouver that is a key intervention in a comprehensive approach to reducing HIV and Hepatitis C transmission in this community.

Dr. Thomas Kerr received scholarship funding from the Michael Smith Foundation for Health Research Scholar. Grant funding was obtained from the Michael Smith Foundation for Health Research, Canadian Institutes of Health Research, National Institutes of Health in the United States and a number of pharmaceutical companies.

The research laboratory, headed by Richard Harrigan, PhD, and based at the B.C. Centre for Excellence in HIV/AIDS (BC-CfE) has established itself not only as a leading force in Canada, but also as a centre with considerable international influence. Much of the laboratory's research is focused on HIV drug efficacy and resistance, and the human and viral parameters that influence HIV disease progression, including the development of strategies to slow this process. The clinical implications and predictors of HIV drug resistance continue to be investigated, both at the BC-CfE and as part of international collaborations with researchers at the University of Alberta, McGill University, University of California Los Angeles, Microsoft, and with the Ontario Ministry of Health.

The research laboratory focuses on developing tools with clinical applications that may be employed in the near future. These include techniques for monitoring the side effects and degree of adherence to medications, as well as tracking variations in the HIV and human genomes which are associated with response to HIV therapy, and virus pathogenicity. In addition to providing HIV drug resistance testing as a clinical service to most of Canada and investigator-driven trials, the research lab has also received peer-reviewed funding for several studies from the Canadian Institutes of Health Research, Michael Smith Health Research Foundation, and the Ontario HIV Treatment Network. Dr. Harrigan currently holds both the Glen Hillson Professorship in Clinical Virology, and the CIHR/GSK Research Chair in HIV/AIDS at the University of British Columbia. Novel testing applications in the laboratory continue to provide testing support for Phase III clinical trials. Most recently, the laboratory has designed software which greatly cuts down on the

time required to analyze DNA sequences, and is planning to make this software available on the internet as a form of open source software to researchers worldwide. The lab continues to work on developing novel research tests to eventually integrate into clinical testing in hopes of advancing care for people living with HIV across Canada.

Under the direction of Dr. Julio Montaner, our Division continues to be actively involved in clinical research including randomized clinical trials. Areas of particular interest are optimizing the use of newer antiretroviral agents, diagnosis and management of drug-related toxicities, and management of hepatitis B and C co-infections.

A number of new antiretroviral agents that became available in the past year, including darunavir, etravirine and raltegravir, were investigated by the clinical research team. A randomized trial completed in 2008 studied the impact of immediate vs. delayed substitution of dual ritonavir-boosted protease inhibitors with darunavir/ritonavir. This strategy, if successful, would significantly reduce pill burden and drug-related side effects for patients taking complex multiple drug regimens. Results of this study will be presented at the 18th Annual Canadian Conference on HIV/AIDS Research in 2009. Regarding etravirine, a Canadian consensus document that provides guidelines to clinicians for the optimal use of this new agent in HIV-infected patients, will be published in the Canadian Journal of Medical Microbiology and Infectious Diseases early in 2009. A study describing a novel use of raltegravir as a substitute for enfuvirtide among multidrug-resistant patients was presented at the 15th Conference on Retroviruses and Opportunistic Infections [CROI] in February 2008 and published in AIDS later in the year. Another publication in AIDS during 2008 described a previously unrecognized association of raltegravir with depression in some patients.

Seek and Treat for Optimal Prevention of HIV/AIDS (STOP HIV/AIDS)

Under the leadership of Dr. Julio Montaner, in the mid-90's the BC-CfE team developed a new and highly effective HIV treatment currently known as Highly Active Antiretroviral Therapy (HAART). Widespread availability of HAART has dramatically decreased yearly rates of AIDS-related diseases and death in BC by over 90% since 1996 among those engaged in care.

The overall success of HAART, however, has been limited because of uneven access to therapy among various groups of HIV infected individuals. In BC, despite a universal health care system (which includes the provision of antiretrovirals free of charge), HAART coverage remains suboptimal among young men who have sex with men (MSM), Aboriginal individuals, the homeless, the poor, the mentally ill, and injection drug users (IDUs). As a result, marginalized and hard-to-reach individuals continue to bear a disproportionate burden of HIV/AIDS related morbidity and mortality in the province.

More recently, strong evidence has become available indicating that HAART can impact transmission of HIV. In brief, HAART

rapidly and effectively renders HIV undetectable in blood and genital secretions and this is associated with decreased risk of transmission. Our group has developed a mathematical model to predict the potential impact of expanding HAART coverage among those in medical need on the spread of HIV in BC. The model used data on the natural history of HIV infection, risk factors, HIV-1 RNA and CD4 cell counts, and the sources of transmission to derive the probable incidence of HIV in the coming years. Based on the available BC data, the model indicates that the status quo (i.e.: initiation of HAART at CD4 counts of 200 cells/mm³ or less, with coverage levels of 50% of those in medical need, and current compliance levels of 78.5%) will result in a continued 10% annual increase in new HIV cases. In contrast, the model predicts that an increase in HAART coverage to 75%, 90% and 100% of those in medical need would result in a decline in the annual incidence of new HIV cases by 37%, 54% and 62%, respectively, resulting in very significant savings over the long term.

Based on these results, we have proposed the implementation of a novel and aggressive strategy, which the provincial government plans to adopt, specifically designed to enhance and expand coverage among hard to reach HIV infected individuals in BC. This effort will specifically target the most vulnerable among those infected with HIV, including Aboriginal individuals, the homeless, the poor, the mentally ill, and injection drug users. This program will aim to decrease AIDS-related diseases and death among those already infected with HIV and to decrease the emergence of new HIV infections. This program will be used as a platform to fully characterize the benefits associated with the expansion of HAART to hard to reach populations and to show the world how to do it.

International Health

We are currently working in close collaboration with several countries to continue developing resources, training, services and research. These countries include Argentina, Mexico, Africa (Kenya, Uganda, Malawi) and China. There is active collaboration with Médecins Sans Frontières and the World Health Organization to develop antiretroviral guidelines for injection drug users in Eastern European countries and South East Asia, as well as their HIV Drug Resistance Network. We are also involved in a number of international cohort collaborations including the NA-ACCORD and ART Cohort Collaboration.

Awards & Distinctions

Harrigan, P Richard

CIHR/GSK Research Chair Award
2008-2011 (\$70,000), University of British Columbia

Kerr, Thomas

Research & Mission Award, Providence Health Care

Scholar Award

2006-2009 (\$45,000)

Michael Smith Foundation for Health Research

Montaner, Julio SG

President, IAS

2008-2010, International AIDS Society

“Placa al Mérito” from Asociacion de Profesores Hispano-Canadienses, Consulate of the Republic of Argentina

Moore, David

New Investigator Award for Population Research in HIV/AIDS
Canadian Institutes for Health Research

AIDS Research Program

The AIDS Research Program continues to refine the role of antiretroviral therapy for the treatment of HIV infection. The main areas of research continue to be epidemiology, basic science and clinical science. In the following report we summarize the program's activities and areas of concern for the year 2008.

Epidemiological Research

The epidemiology group has been very productive and continues to benefit from long-term analyses emerging from VIDUS, SEOSI, ACCESS, ARYS, and MAKA cohorts under the leadership of Evan Wood, MD, PhD; Thomas Kerr, PhD; and Mark Tyndall, MD, ScD. A major focus has been the evaluation of the supervised injection site in the Downtown Eastside of Vancouver that is a key intervention in a comprehensive approach to reducing HIV and Hepatitis C transmission in this community.

The Drug Treatment Program, under the leadership of Robert Hogg, PhD, has emerged as a key contributor to our understanding of the dynamics of the HIV epidemic as well as the effect of treatment. Epidemiological studies conducted through the Drug Treatment Program fall under one of two projects, the Canadian Observational Cohort (CANOC) Collaboration, and the Longitudinal Investigations into Supportive and Ancillary Health Services (LISA) Project.

The CANOC Collaboration is an integrated research, mentoring, education and knowledge translation Canadian research team, comprised of 6 cohort databases across British Columbia, Ontario and Quebec. The team is designated to evaluate the impact of antiretroviral care on the health and well being of persons infected with HIV/AIDS in various regions of Canada. CANOC researchers assist in the training of new practitioners and researchers and disseminate research findings in ways that will improve current practice guidelines for treatment and care.

The LISA Project is a 3-year study funded by the Canadian Institute of Health Research (CIHR). The LISA team is comprised of core staff from the BC Centre for Excellence in HIV/AIDS (BC-CfE), and undergraduate and graduate students. The aim of LISA is to get a better understanding of how HIV-positive individuals are coping with HAART, and to provide them with the opportunity to voice the challenges and successes in their daily lives. To date, the LISA Project has resulted in the writing of several manuscripts ready for submission, and the presentation

of posters and oral presentations at national and international conferences.

Members of our team have received funding from the Canadian Institutes of Health Research for senior scholar research (Mark Tyndall), Michael Smith Foundation for Health Research Scholar (Thomas Kerr), and masters, doctoral and post-doctoral training. Grant funding was obtained from the Michael Smith Foundation for Health Research, Canadian Institutes of Health Research, National Institutes of Health in the United States and a number of pharmaceutical companies.

Basic Science

The research laboratory, headed by Richard Harrigan, PhD, and based at the B.C. Centre for Excellence in HIV/AIDS (BC-CfE) has established itself not only as a leading force in Canada, but also as a centre with considerable international influence. Much of the laboratory's research is focused on HIV drug efficacy and resistance, and the human and viral parameters that influence HIV disease progression, including the development of strategies to slow this process. The clinical implications and predictors of HIV drug resistance continue to be investigated, both at the BC-CfE and as part of international collaborations with researchers at the University of Alberta, McGill University, University of California Los Angeles, Microsoft, and with the Ontario Ministry of Health.

The research laboratory focuses on developing tools with clinical applications that may be employed in the near future. These include techniques for monitoring the side effects and degree of adherence to medications, as well as tracking variations in the HIV and human genomes which are associated with response to HIV therapy, and virus pathogenicity. In addition to providing HIV drug resistance testing as a clinical service to most of Canada and investigator-driven trials, the research lab has also received peer-reviewed funding for several studies from the Canadian Institutes of Health Research, Michael Smith Health Research Foundation, and the Ontario HIV Treatment Network. Dr. Harrigan currently holds both the Glen Hillson Professorship in Clinical Virology, and the CIHR/GSK Research Chair in HIV/AIDS at the University of British Columbia. Novel testing applications in the laboratory continue to provide testing support for Phase III clinical trials. Most recently, the laboratory has designed software which greatly cuts down on the time required to analyze DNA sequences, and is planning to make this software available on the internet as a form of open source software to researchers worldwide. The lab continues to work on developing novel research tests to eventually integrate into clinical testing in hopes of advancing care for people living with HIV across Canada.

Clinical Science

Drs. Julio Montaner, Peter Phillips, Silvia Guillemi, Mark Hull and Marianne Harris are actively involved in clinical research including randomized clinical trials. Areas of particular interest are optimizing the use of newer antiretroviral agents, diagnosis and management of drug-related toxicities, and management of hepatitis B and C co-infections.

A number of new antiretroviral agents that became available in the past year, including darunavir, etravirine and raltegravir, were investigated by the clinical research team. A randomized trial completed in 2008 studied the impact of immediate vs. delayed substitution of dual ritonavir-boosted protease inhibitors with darunavir/ritonavir. This strategy, if successful, would significantly reduce pill burden and drug-related side effects for patients taking complex multiple drug regimens. Results of this study will be presented at the 18th Annual Canadian Conference on HIV/AIDS Research in 2009. Regarding etravirine, Dr. Harris is first author on a Canadian consensus document that provides guidelines to clinicians for the optimal use of this new agent in HIV-infected patients, to be published in the Canadian Journal of Medical Microbiology and Infectious Diseases early in 2009. A study describing a novel use of raltegravir as a substitute for enfuvirtide among multidrug-resistant patients was presented at the 15th Conference on Retroviruses and Opportunistic Infections [CROI] in February 2008 and published in AIDS later in the year. Another publication in AIDS during 2008 described a previously unrecognized association of raltegravir with depression in some patients.

The clinical team works actively with the BC-CfE Laboratory to study the pharmacokinetics of antiretroviral drugs. One such study accepted for publication in the Journal of Clinical Pharmacology in 2008 examined the effect on lopinavir plasma levels of switching from high-dose Kaletra (lopinavir/ritonavir) capsules to the new formulation of Kaletra tablets. This was the first such study looking at this important issue which can affect multiple drug-experienced patients who need higher drug levels to overcome drug resistance. The Therapeutic Drug Monitoring program is accumulating a large database, which incorporates information on all HIV positive patients undergoing antiretroviral drug level testing in the province. Linkage of this information with the Drug Treatment Program database will enable us to explore the complex relationships between antiretroviral drug levels and drug efficacy and toxicity, with respect to demographic factors (e.g. gender, age, and ethnicity), comorbid conditions, concomitant medications and other factors. A major focus has been the use and study of pharmacokinetics to optimize and individualize care. Ongoing research is exploring factors which impact variability in the pharmacokinetics of these drugs such as gender, age and co-infection with hepatitis C.

Toxicities of antiretroviral therapy continue to be a major focus of research by the clinical group. Colleagues in the Healthy Heart Program are collaborating with our group to study metabolic disorders and cardiovascular disease risk among HIV-infected adults, and their association with antiretroviral drugs. Together these groups are spearheading a large Canada-wide randomized controlled trial examining the effect of rosuvastatin versus placebo on markers of cardiovascular risk including carotid intima media thickness among HIV+ patients receiving antiretrovirals, which commenced enrollment at St. Paul's Hospital in 2008. A large cross-sectional study examining the incidence of and risk factors for osteoporosis and osteopenia among 300 HIV-positive patients was completed, analyzed and submitted for publication during 2008 by the clinical research group. Preliminary results were presented at the CROI conference in February of that year. In addition, a paper describing

our clinical observations of high rates of adrenal suppression secondary to interactions between the commonly used antiretroviral agent ritonavir and inhaled corticosteroids was completed and submitted for publication.

The clinical group also participated in number of studies ongoing during 2008 examining the important issues of complications and management of hepatitis B and C co-infection in the HIV-infected population:

- An observational study describing rapid rebound in hepatitis B DNA in previously undetectable hepatitis B/HIV co-infected patients switching from tenofovir to entecavir therapy, presented at the 9th International Congress on Drug Therapy in HIV Infection, Glasgow, U.K., November 9-13, 2008.
- A CIHR-funded study examining the effect of mitochondrial toxicity in the liver caused by HIV and hepatitis C treatment (with Helene Cote at UBC).
- A national prospective HIV/hepatitis co-infection cohort (with Marina Klein at McGill University in Montreal).
- A randomized clinical trial of citalopram among patients initiating therapy for hepatitis C (with Marina Klein at McGill University in Montreal).
- HIV therapy, HCV infection, antibiotics and obesity, and mitochondrial toxicity (with H Cote at UBC).
- Tenofovir-based rescue therapy for advanced liver disease. Clin Infect Dis. 2008 Feb 1;46(3):e28-30.

There has been significant research developments in the area of HIV and primary care at the Immunodeficiency Clinic, under the supervision of Dr. R Barrios. This research examines monitoring of health care indicators and quality improvement measurement, as well as the impact of a comprehensive HIV primary care model on the utilization of hospital resources in the Emergency Room and AIDS inpatient ward.

Integrated Primary and Specialty Care

The John Ruedy Immunodeficiency Clinic (IDC), under the direction of Drs. Julio Montaner and Rolando Barrios, provides primary and specialty care to HIV-infected patients. The clinical team includes individuals with expertise in all areas of HIV care with specific emphasis on primary care, infectious diseases, lipid disorders, anal dysplasia, neurology, dermatology, psychiatry, addiction medicine, internal medicine, counseling and psychology, nephrology, and clinical trial operations. The clinic operates 5 days a week with after-hours on call coverage. A comprehensive team of family physicians, nurses, social workers, nutritionist, pharmacist, and a substance use counselor is available to all patients. A large database has been generated with information on primary care initiatives, allowing a comprehensive assessment of the patient's health status as well as immunizations, co-morbidities, medications, substance use, and other factors of interest.

The IDC serves the purpose of assisting the rapidly growing HIV population with very complex medical issues. The IDC philosophy is to provide a comprehensive and interdisciplinary approach to HIV positive patient care, which include the following services:

- Primary Care Clinic
- Side Effects Clinic
- AIDS Clinic
- Addiction Services
- Hepatitis C Clinic
- STD Clinic
- Specialists Clinic
- TDM Clinic
- Other Services (pharmacist, nutritionist, social workers, addictions counseling, community support groups, nurse)

Inpatient HIV/AIDS Care

The inpatient HIV Ward, under the direction of Dr. Peter Phillips, was opened in February 1997 and was expanded from 17 to 20 beds in March 2006. During that nine-year period, there have been approximately 400 admissions to the Ward annually. Approximately 70% of the patients admitted to the Ward are active or previous injection drug users. There are medical diagnoses accounting for hospitalizations including HIV-related opportunistic infections, malignancies, injection drug use-related infections (e.g. cellulitis, endocarditis, osteomyelitis), complications of chronic liver disease (e.g. hepatitis B and C) and adverse effects related to antiretroviral therapy. The Ward provides a multidisciplinary service and has linkages with various other care facilities and support groups in the community. Various policies and procedures have been developed which are specific for HIV/AIDS care. The Ward has attracted trainees from across the country at all levels of undergraduate and postgraduate training.

Outreach HIV/AIDS Care

The Downtown Community Health Clinic (DCHC), Vancouver Native Health (VNH), and the Street Health Outreach Clinic (SHOC) in South Surrey all receive HIV clinic support through consultancy services provided by Mark Tyndall. A number of innovative care and support programs including the Maximally Assisted Therapy (MAT) program at DCHC and the Chronic Care Model of HIV Care at VNH are ongoing programs of research.

Undergraduate, Graduate, Post-graduate Education

The following Teaching Rounds are available for all levels:

- Complex Care Patient Rounds at the IDC (previously known as the IDC Multidisciplinary Rounds).
- 10C Rounds-daily bedside teaching to rotating medical students & residents, and residents in the Infectious Dis-

eases and Medical Microbiology training programs on the AIDS Ward (10C), as well as the outpatient clinics.

- AIDS Care Rounds-targeted to audiences including AIDS Care Group physicians, nurses (10C and community), IDC physicians, nurses, pharmacist, social workers etc.
- Infectious Diseases Intracity Rounds-Weekly city-wide teaching rounds available to medical students, medical residents, and residents in the Infectious Diseases and Medical Microbiology training programs.
- Academic Half Day Rounds-available weekly to fellows within the Infectious Diseases and Medical Microbiology training programs.
- WiP (Work in Progress) Research Rounds-Forefront.
- Web-based HIV teaching-offered via the BC-CfE website where selected rounds and events are posted.
- Noon Hour Subspecialty Rounds-available to core internal medicine residents at St. Paul's Hospital and at Vancouver Hospital & Health Sciences Centre.
- Department of Medicine Grand Rounds.
- ABC Educational Program-a basic HIV/AIDS educational program for health care professionals and the community that travels across the province.
- HIV/AIDS Updates-these one-day programs are conducted twice a year by the BC-CfE.
- UBC Co-op and TRID Studentships.
- IDC Journal Club: By-monthly event, target to the care givers at the IDC and attending trainees, 10C and IDC Morbidity and Mortality monthly rounds for health care providers in those units.

The Preceptorship Program at IDC, coordinated by Dr. Silvia Guillemi, is available at the Post-graduate level:

This is a program for family physicians offered within the IDC at St. Paul's Hospital. The main objective is to enhance their skills in HIV/AIDS. This program consists of an approximate 3-month rotation where physicians are exposed to an interdisciplinary approach to the management of HIV/AIDS, as well as participating in primary and specialized care of patients. The rotation involves 50% in primary care at IDC and 50% in academic and research activities. This program is available to physicians participating in the Skill Enhancement Program at UBC, as well as a full year postgraduate training in HIV/AIDS at a family practice residency level. The IDC is an important resource for family medicine, infectious diseases and other related residency programs from across Canada and internationally.

STUDENTS/RESIDENTS/POSTDOCTORAL RESEARCH FELLOWS

| STUDENT NAME | PROGRAM TYPE | DATES | SUPERVISOR(S) |
|------------------------|--|-------------------------------|--------------------------------|
| Sheila McCarthy | Graduate Student, Epidemiology | 2003-present | Patrick D, Wood E, Jolly |
| Karissa Johnston | PhD | 2005-2008 | Levy A, Hogg RS, Montaner J |
| Kate Shannon | PhD, Epidemiology | 2005-2008 | Tyndall MW, Kerr T |
| Peter Cheung | Postdoctoral Fellow, Research Virology Lab | 2005-present | Harrigan PR |
| Vikram Gill | MSc student, Research Virology Lab | 2005-present | Harrigan PR |
| Wil Small | PhD | 2005-present | Shoveller J, Wood E, Tyndall M |
| Brandon Marshall | MSc, Epidemiology PhD, Epidemiology | 2006-2008 2008-2011 | Kerr T, Shoveller J |
| MJ Milloy | MSc, Epidemiology PhD, School of Population & Public Health | 2006-2008 2008-2011 | Mathias R, Kerr T |
| Tessa Chaworth-Musters | MSc student, Research Virology Lab | 2006-2008 | Harrigan PR |
| Alan Wood | Graduate Student, Nursing | 2006-present | Kerr T, Wood E |
| Marissa Jitratkosol | MSc student, Research Virology Lab | 2007-2008 | Harrigan PR |
| Kora DeBeck | PhD-Drug Policy | 2007-present | Montaner J, Kerr T, Wood E |
| Paula Ochoa | Postdoctoral Fellow | 2007-present | Montaner J |
| Brian Cho | Medical Resident Research Elective | 2008 | Kerr T, Wood E |
| Christina Lim | Internal Medicine Resident Elective | 2008 | Kerr T, Wood E |
| David Knapp | Co-op Student, Research Virology Lab | 2008 | Harrigan PR |
| Justin Yeung | Medical Resident, UHRI Elective | 2008 | Kerr T, Wood E |
| Marla McKnight | Medical Resident Research Elective | 2008 | Kerr T, Wood E |
| Scott Hadland | Visiting Medical Student Elective | 2008 | Kerr T, Wood E |
| Steven Huang | Co-op Student, Research Virology Lab | 2008 | Harrigan PR |
| Ramesh Saeedi-Saghez | Postdoctoral Fellow-CIHR and CTN | 2008-2009 | Bondy G, Montaner J |
| Kate Shannon | Postdoctoral Fellow-CIHR Bisby Fellowship | 2008-2011 | Montaner J |
| Aranka Anema | PhD | 2008-present | Montaner J |
| Luke Swenson | MSc student, Research Virology Lab | 2008-present | Harrigan PR |
| Aida Sadr | IDC Preceptorship | Apr 2008 | Montaner J |
| Patricia Lim | MSI, 4th yr, UBC | Apr 2008 | Montaner J |
| Melanie Murray | Fellow, Infectious Diseases, UC | Apr-Jun 2008 Sept 2008 | Montaner J |
| Sanita Malhotra | Fellow, Infectious Diseases, UBC | Jan, Jun 2008 Oct-Nov 2008 | Montaner J |
| Miguel Genebat | International Fellow | Jan-Apr 2008 | Montaner J |
| Eliana Castillo | Fellow, Internal Medicine, UBC | Jan-Feb 2008 Apr-May 2008 | Montaner J |
| Cherinet Seid | Fellow, Ottawa | Jun 2008 | Montaner J |
| Lana Bullock | IDC Preceptorship | Jun 2008 | Montaner J |
| Heather MacDonald | IDC Preceptorship | March 2008 | Montaner J |
| A Fong | Fellow, Infectious Diseases, UBC | Nov 2008 | Montaner J |
| Ibrahim Momenkhan | Fellow, Infectious Diseases, UBC | Nov 2008 | Montaner J |
| V Brcic | IDC Preceptorship | Nov-Dec 2008 | Montaner J |
| Batool Ali | Fellow, Infectious Diseases, UC | Oct 2008 | Montaner J |
| Manisha Rajora | IDC Preceptorship | Sept, Dec 2008 | Montaner J |