Interprofessional Collaboration In Teaching and Research

Canadian Light Source (CLS)

Conference Program

AFPC Conference 2005
June 24 – 26, 2005
Delta Bessborough Hotel
Saskatoon, Saskatchewan

ASSOCIATION OF FACULTIES OF PHARMACY OF CANADA | ASSOCIATION DES FACULTÉS DE PHARMACIE DU CANADA

UNIVERSITY OF SASKATCHEWAN

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Introduction

Welcome from Dr. Sylvie Marleau
AFPC President

AFPC ASSOCIATION OF FACULTIES OF PHARMACY OF CANADA
ASSOCIATION DES FACULTÉS DE PHARMACIE DU CANADA

June 24, 2005

Dear Colleagues and delegates,

On behalf of the AFPC council and executive, I wish to welcome you all to the 2005 AFPC Conference, held conjointly this year with the 6th International Long Life Learning in Pharmacy Conference at the Delta Bessborough Hotel in Saskatoon.

The local organizing committee, chaired by Roy Dobson, has proposed a very challenging theme: "Interdisciplinary Collaboration in Teaching and Research". This theme arrives in a timely manner with a growing recognition of the importance of interdisciplinary collaboration in both research and teaching, to provide our curriculum with the most integrated vision of health care.

The opening session and dinner offers an ideal opportunity for us to meet and celebrate together the excellence of our award winners in academic research, teaching and studies. On the following Saturday and Sunday, you are invited to join us to visit the exhibits and posters, and to our teaching conferences and pharmacy practice research symposium. Do not miss our General Annual meeting on Saturday to learn all about the AFPC Council activities over the last year.

In closing, I wish to thank all the people who have been involved in making this conference a reality. The generous sponsorship that we have received is also so vital in making this event possible. Thank you for your work and support!

I look forward to meeting all of you over the next few days.

Sincerely,

Sylvie Marleau, B.Pharm, Ph.D
AFPC President (2004-2005)

Welcome from Dr. Peter MacKinnon
President, University of Saskatchewan

June 2005

Dear Conference Delegate:

On behalf of the University of Saskatchewan, I would like to welcome you to the 2005 Association of Faculties of Pharmacy of Canada (AFPC) Conference. We are delighted to be hosting this conference. Its dedication to excellence in pharmaceutical education, scholarly activity, and research exemplifies the University of Saskatchewan's own pursuit of excellence, and it invites us to reflect on what we are doing and how well we are doing it. By hosting the AFPC Conference, the University of Saskatchewan supports new initiatives in the pharmaceutical sciences, and I wish all of you great success at this conference.

I hope you enjoy your visit to Saskatoon, that you have an opportunity to visit our campus, and that you are able to take full advantage of all that the 2005 AFPC Conference has to offer.

Yours sincerely,

Peter MacKinnon
President

The President, University of Saskatchewan
105 Administration Place, Saskatoon SK S7N 5A2
Telephone: (306) 966-6612 Facsimile: (306) 975-1026

Welcome from Dr. Linda Suveges
Acting Dean, College of Pharmacy and Nutrition

June 23, 2005

Colleagues:

On behalf of the College of Pharmacy and Nutrition, University of Saskatchewan, I am please to welcome you to Saskatoon the 2005 Annual Conference of the Association of Faculties of Pharmacy of Canada. In the face of ongoing health care reform and the complexity of the challenges we face both as educators and as scholars, the theme of this year's conference, *Interprofessional Teaching and Research*, is a timely and appropriate subject. The conference speakers have been carefully selected to improve our understanding of interprofessional education and our ability to apply IPE methods within our training programs. As well, attendees will gain in their appreciation of the role of research in advancing the use of collaborative practices, both in health care and academia.

Along with the conference's educational program, we have planned a number of events designed to give everyone the opportunity to interact socially, to renew old friendships, to build new relationships, and to exchange ideas. In addition to the Opening Reception on Friday night and the Awards Banquet on Saturday, the Planning Committee has arranged a truly authentic Prairie event, the Bush Party. I also encourage you to look beyond the planned conference events and to seek out and enjoy the many fine qualities of our wonderful city and province.

Finally, I wish to thank the Conference Planning Committee and the many others who have contributed to the success of this conference. They have worked diligently to provide you with a quality conference experience. Should you require assistance during your stay in Saskatoon, please do not hesitate to contact any of the members of the Committee.

Again, welcome to Saskatoon, and best wishes for a very informative and enjoyable conference.

Linda Suveges, PhD
Professor and Acting Dean

College of Pharmacy and Nutrition, University of Saskatchewan
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AFPC Conference 2005 Planning Committee

Roy Dobson, Chair University of Saskatchewan	Registration Logistics, Conference Budget, Exhibitors
Frank Abbott University of British Columbia	Registration Logistics, Conference Budget, Exhibitors
Bev Allen University of Saskatchewan	Member-at-large
Jane Alcorn University of Saskatchewan	Synchrotron Tour, Registration Packages
David Blackburn University of Saskatchewan	Transportation, Registration Packages
Dawna Hawrysh University of Saskatchewan	Awards Banquet
Rosemin Kassam University of British Columbia	Pharmacy Practice Research Symposium
Adil Nazarali University of Saskatchewan	Conference Program, Posters
Shannon Neubauer University of Saskatchewan	Member-at-large
Fred Remillard University of Saskatchewan	Bush Party, Teachers' Conference 1
Yvonne Shevchuk University of Saskatchewan	Registration Logistics, Name Tags, Bush Party, Teachers' Conference II
Jeff Taylor University of Saskatchewan	Transportation, Registration Packages, Bush Party

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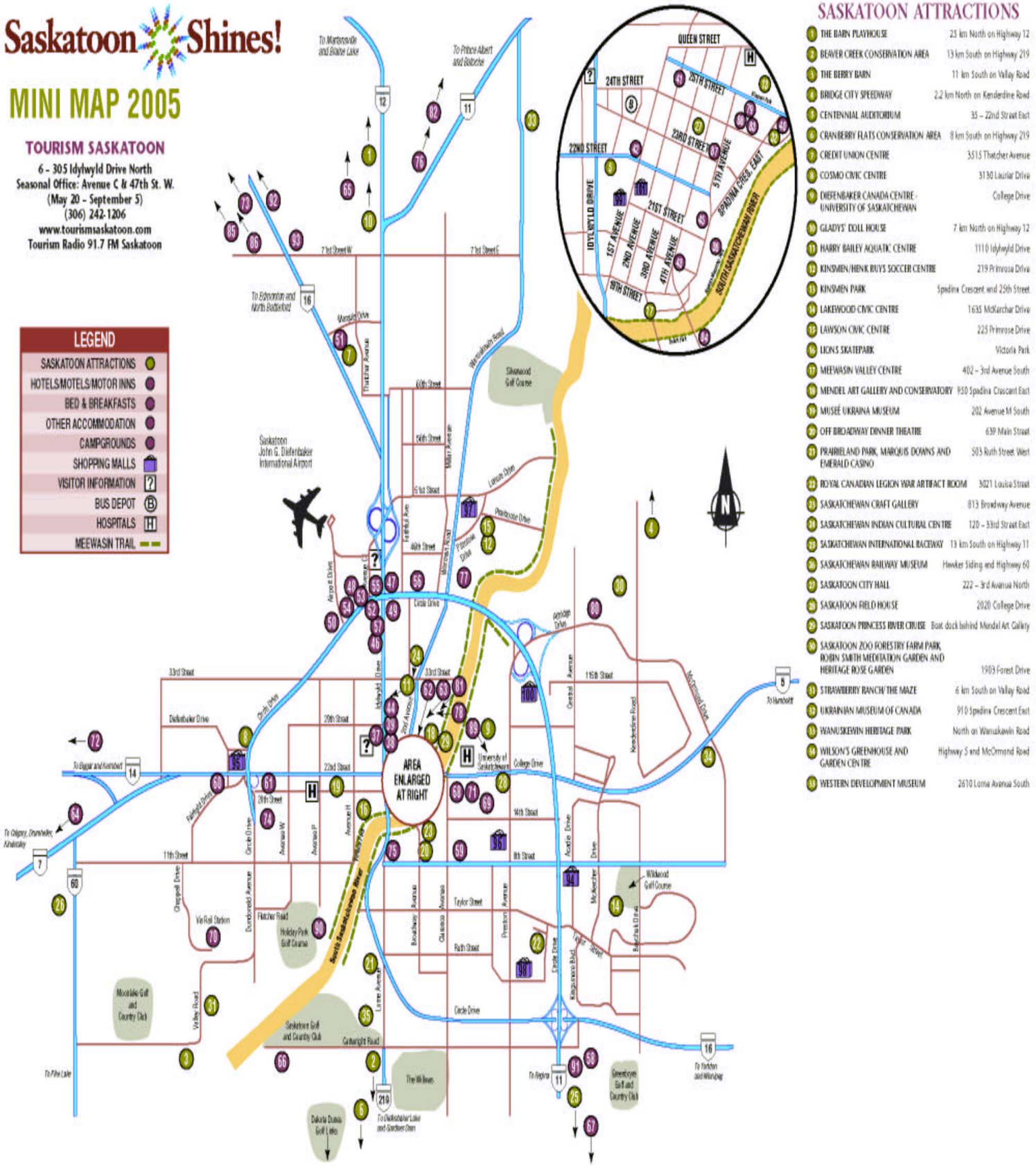


SASKATOON ATTRACTIONS

1	THE BARN PLAYHOUSE	25 km North on Highway 12
2	BEAVER CREEK CONSERVATION AREA	13 km South on Highway 219
3	THE BERRY BARN	11 km South on Valley Road
4	BRIDGE CITY SPEEDWAY	2.2 km North on Kenderdine Road
5	CENTENNIAL AUDITORIUM	35 - 22nd Street East
6	CRANBERRY FLATS CONSERVATION AREA	8 km South on Highway 219
7	CREDIT UNION CENTRE	3515 Thatcher Avenue
8	COSMO CIVIC CENTRE	3130 Laurier Drive
9	DIEFENBAKER CANADA CENTRE - UNIVERSITY OF SASKATCHEWAN	College Drive
10	GLADYS' DOLL HOUSE	7 km North on Highway 12
11	HARRY BAILEY AQUATIC CENTRE	1110 Idylwyld Drive
12	KINSMEN/HENK RUYS SOCCER CENTRE	219 Primrose Drive
13	KINSMEN PARK	Spadina Crescent and 25th Street
14	LAKEWOOD CIVIC CENTRE	1635 McKercher Drive
15	LAWSON CIVIC CENTRE	225 Primrose Drive
16	LIONS SKATEPARK	Victoria Park
17	MEEWASIN VALLEY CENTRE	402 - 3rd Avenue South
18	MENDEL ART GALLERY AND CONSERVATORY	950 Spadina Crescent East
19	MUSÉE UKRAINA MUSEUM	202 Avenue M South
20	OFF BROADWAY DINNER THEATRE	639 Main Street
21	PRAIRIELAND PARK, MARQUIS DOWNS AND EMERALD CASINO	503 Ruth Street West
22	ROYAL CANADIAN LEGION WAR ARTIFACT ROOM	3021 Louise Street
23	SASKATCHEWAN CRAFT GALLERY	813 Broadway Avenue
24	SASKATCHEWAN INDIAN CULTURAL CENTRE	120 - 33rd Street East
25	SASKATCHEWAN INTERNATIONAL RACEWAY	13 km South on Highway 11
26	SASKATCHEWAN RAILWAY MUSEUM	Hwy 60 East and Highway 60
27	SASKATOON CITY HALL	222 - 3rd Avenue North
28	SASKATOON FIELD HOUSE	2020 College Drive
29	SASKATOON PRINCESS RIVER CRUISE	Boat dock behind Mendel Art Gallery
30	SASKATOON ZOO FORESTRY FARM PARK, ROBIN SMITH MEDITATION GARDEN AND HERITAGE ROSE GARDEN	1903 Forest Drive
31	STRAWBERRY RANCH/ THE MAZE	6 km South on Valley Road
32	UKRAINIAN MUSEUM OF CANADA	910 Spadina Crescent East
33	WANUSKEWIN HERITAGE PARK	North on Wanuskewin Road
34	WILSON'S GREENHOUSE AND GARDEN CENTRE	Highway 5 and McOrmond Road
35	WESTERN DEVELOPMENT MUSEUM	2610 Lorne Avenue South

Tourism Saskatoon:

6-305 Idylwyld Drive N
Saskatoon, SK S7L 0Z1
Ph: (306) 242-1206
Fx: (306) 242-1955
Toll Free: 1-800-567-2444

Select Saskatoon Attractions

The Meewasin Valley Trail: Follows the South Saskatchewan River through the heart of Saskatoon, offering year-round recreation and sightseeing opportunities for everyone. Cycle, jog or enjoy a casual stroll through beautifully landscaped parks and natural areas. Access points are found throughout the city with maps, interpretive signage and washrooms located along the route.

Wanuskewin Heritage Park:	**Western Development Museum:**
5 kms north of Saskatoon on Highway #11, follow the Bison signs or take Warman Rd North of Saskatoon and follow the Bison signs Phone: (306) 931-6767 Fax: (306) 931-4522	2610 Lorne Avenue South Saskatoon, Saskatchewan Canada S7J 0S6 Tel: (306) 931-1910 Fax: (306)934-0525

Select events in Saskatoon for June/July, 2005:

Date	Event	Venue
June 17 – June 19	**5th Annual Cameco Victoria Park Summer Festival** A fun-filled weekend of entertainment – events for the whole family to enjoy including children's activities, cultural entertainment, music, an ethnic food village, hospitality area and dragon boat races.	Victoria Park
June 24 – July 3	**Sasktel Saskatchewan Jazz Festival** A province-wide celebration of jazz music and music influenced by jazz.	Saskatoon, Regina, Moose Jaw, Prince Albert and North Battleford are all performance locations.
July 1	**Optimist Centennial Canada Day 2005** Celebrate Canada's birthday and the 2005 Saskatchewan Centennial.	Diefenbaker Park
July 6 – August 7	**Shakespeare on the Saskatchewan Festival** Shakespeare on the Saskatchewan will present its 21st season in the form of Shakespeare's "A Comedy of Errors" and "Romeo and Juliet".	Banks of the South Saskatchewan River

Section 2:

Program at a Glance

AFPC Annual Conference 2005

"Interprofessional Collaboration in Teaching and Research"

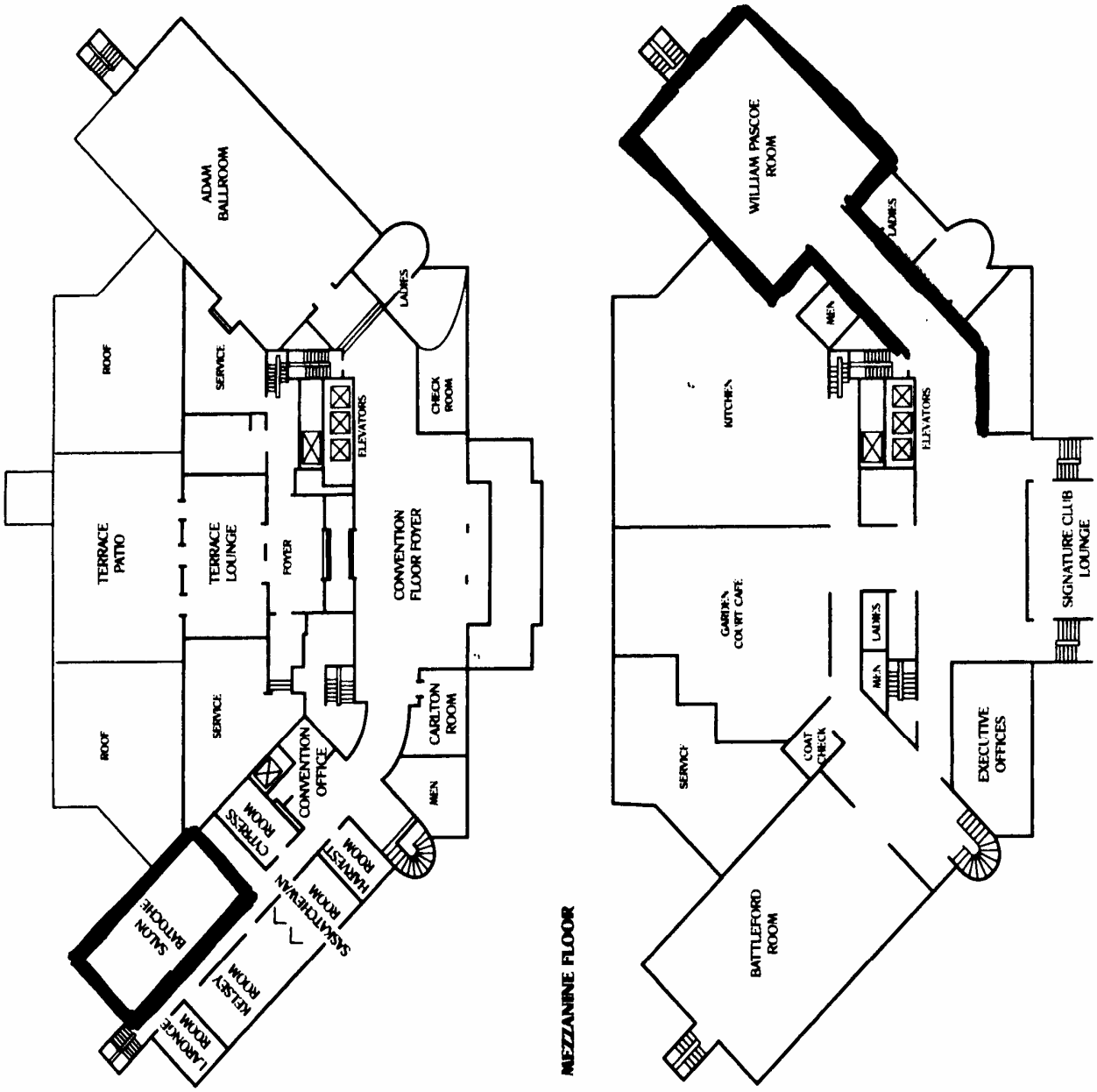
Program
AFPC Annual Conference
June 24-26, 2005
Delta Bessborough Hotel
Saskatoon, SK

Friday, June 24, 2005		
5:00 pm – 7:00 pm	Conference Registration	William Pascoe Room
6:00 pm – 6:30 pm	Opening Reception School Posters	
6:30 pm – 9:30 pm	Call to Dinner Welcome from Dean of Host Faculty, Conference Chair, and President of AFPC. AFPC Awards Committee Chair - Presentations by AFPC Award Winners in Teaching and Research	
Saturday, June 25, 2005		
7:30 am – 3:00 pm	Conference Registration	William Pascoe Room
7:30 am – 5:00 pm	Exhibits and AFPC Posters	
7:30 am – 8:00 am	Continental Breakfast	
8:00 am – 10:30 pm	**TEACHERS' CONFERENCE I: Interprofessional Education (IPE) and Challenges for Academia** **Models of IPE.** Dr. Stephanie Gardner, Professor and Dean, University of Arkansas for Medical Services College of Pharmacy **Embracing Change**: Dr. Ken Zakariasen, Associate Dean and Chair of Dentistry, University of Alberta.	

10:30 am – 12:00 pm	Authors present their posters	
12:00 pm – 1:30 pm	Annual General Meeting of AFPC (Includes Lunch)	Salon Batoche
AFPC Pharmacy Practice Research Symposium 2005 **Sponsored by Merck Frosst Canada Ltd.** *"Interprofessional Collaboration in Pharmacy Practice and Research"*		
2:00 pm	**Introduction to the Session by the Chair** *Rosemin Kassam*	William Pascoe Room
2:10 pm	**Interprofessionalism: Lessons learned from pharmacists who have become physicians** *Zubin Austin*	
2:40 pm	**Pharmacists on primary Health Care Teams: Who, What, Where, When, How?** *Derek Jorgenson*	
3:10 pm	**Characteristics of Patient-Pharmacist Interactions Involving OTC Products in Community Pharmacies** *Jeff Taylor*	
4:00 pm	**Collaborative medication management in a team-based practice primary care practice: an explanatory conceptual framework** *Jana Bajcar*	
4:30 pm	**Interprofessional Rural Program in British Columbia** *Rosemin Kassam*	
5:00 pm	**Adjourn**	
6:00 pm – 9:30 pm	**AFPC Awards Banquet** Ukrainian Fowl Supper	Ukrainian Museum of Canada 910 Spadina Crescent
10:30 pm – ? ? ? ?	**BUSH PARTY**	????
Sunday, June 26, 2005		
7:30 am – 8:30 am	Breakfast Buffet	William Pascoe Room
7:30 am – 9:00 am	Conference Registration	
8:30 pm – 12:30 pm	**TEACHERS' CONFERENCE II:** **Preparing Our Students and Ourselves** **Workshop:** Marcel D'eon, Educational and Support Development, College of Medicine, University of Saskatchewan. **Workshop will focus on the three essential elements of effective interprofessional education: real-life cases, cooperative learning**	

	and experiential learning.	
12:30 pm	Closing Remarks and Adjournment	
1:30 p.m.	Depart from Hotel for tour of the Canadian Light Source (Synchrotron) on the	University of Saskatchewan

AFPC Conference 2005 Floor Plan



Section 3:

Opening Dinner & Presentations

Friday, June 24, 2005
6:00 pm – 9:30 pm
William Pascoe Room

AFPC/GlaxoSmithKline Graduate Student Research Award

Shirley Teng, B.Sc. (Hon), MSc, PhD Candidate
Leslie Dan Faculty of Pharmacy, University of Toronto

Shirley Teng received her Hon.BSc from the University of Toronto in 1999, specializing in environmental toxicology. She pursued her MSc in the Department of Pharmaceutical Sciences, Leslie Dan Faculty of Pharmacy, University of Toronto where she studied the biochemical mechanisms of formaldehyde-induced hepatotoxicty and how toxicity can be modulated through the manipulation of metabolic pathways. She is currently in the fourth year of her PhD program under the supervision of Dr. Micheline Piquette-Miller, also at the Leslie Dan Faculty of Pharmacy, University of Toronto. Her thesis research focuses on how nuclear receptors, in particular the pregnane X receptor, are involved in the regulation of drug transporters in the liver. Shirley is the recipient of an Rx&D Graduate Research Scholarship in Pharmacy and was awarded two Ontario Graduate Scholarships. She also received a Presidential Trainee Award from the American Society for Clinical Pharmacology and Therapeutics in 2004 and the AstraZeneca Trainee Presentation Award from the Canadian Society for Clinical Pharmacology in 2003. She has published 7 papers including 3 for which she is first author. Shirley also served as an executive of the Pharmaceutical Sciences Graduate Students Association from 1999 to 2002.

The Involvement of the Pregnane X Receptor in Hepatic Gene Regulation During Inflammation in Mice, *Shirley Teng* and Micheline Piquette-Miller

Inflammatory conditions such as sepsis and viral infections can lead to the development of intrahepatic cholestasis. Disease onset is mainly the result of a cytokine-mediated decrease in the levels of hepatocyte bile acid transporters and metabolizing enzymes, leading to the cellular accumulation of bile acids and subsequent hepatotoxicity. However, the mechanism of this down-regulation has not been fully elucidated. Recently, nuclear hormone receptors have been found to play a key role in the regulation of many genes responsible for the transport and metabolism of bile acids. In particular, studies have found that activation of the pregnane X receptor (PXR) can induce the expression of bile acid transporters such as the bile salt export pump (BSEP) and multidrug resistance associated protein (MRP2) as well as the bile acid detoxifying enzyme CYP3A. Furthermore, PXR expression was found to be altered during inflammation. Thus, we hypothesized that PXR plays a role in transporter suppression during inflammation. To test this hypothesis, we investigated transporter regulation by PXR and compared the effect of inflammation on hepatic gene regulation in wild-type (PXR+/+) versus PXR knockout (PXR-/-) mice. Treatment of PXR+/+ but not PXR-/- mice with the PXR activators PCN or RU486 resulted in increased mRNA levels of BSEP, MDR1a, MRP2, MRP3, OATP2, and CYP3A11, indicating involvement of PXR in their regulation. In the inflammation studies, significantly lower mRNA levels of BSEP, MDR2, MRP2, MRP3, NTCP, OATP2, and CYP3A11 were found in endotoxin-treated PXR+/+ and PXR-/- mice. However, the extent of MRP2 suppression was significantly diminished in endotoxin-treated PXR-/- mice. Interleukin-6 imposed significant decreases in the expression of BSEP, MRP2, and CYP3A11 in PXR+/+ mice, but this was not observed in PXR-/- mice. In addition, endotoxin and IL-6 were also able to suppress PCN-mediated induction of BSEP, MRP2, CYP3A11, and PXR. Taken together, our results suggest that PXR plays a role in the down-regulation of several hepatic proteins during inflammation. Thus therapeutics targeting PXR could represent a novel avenue for the treatment of cholestasis.

AFPC/Bristol-Myers Squibb, National Award for Excellence in Education

The Structured Practical Experience Program (SPEP) of the Leslie Dan Faculty of Pharmacy has exerted an innovative and broad influence on Pharmacy education, beginning with a pilot in 1996, and then annually, since 1998. Within the context of the pharmaceutical care (PC) model, the SPEP rotation are designed to enable students to meet specific, terminal curricular outcomes under the tutelage of patient-focused pharmacists who are good teachers. SPEP sites are required to be conducive physically, philosophically and managerially to the provision of PC.

At SPEP's inception the Faculty, working with stakeholders, articulated PC-based educational outcomes; determined learning objectives within patient, practice, professional and societal contexts; designed activities to enable students to develop skills and demonstrate attainment of objectives; developed feedback, assessment, and evaluation methods; and created mechanisms to measure program effectiveness.

SPEP required pharmacist-supervisors that were committed to moving their practices toward PC and were fully knowledgeable and effective teachers; therefore, a large cadre of pharmacists would need to be educated in preparation for assuming 'Teaching Associate' roles. Thus the Teaching Associate Educational Program (TAEP) was developed in broad consultation with practitioners. The Faculty presently has more than 300 SPEP-affiliated practice sites and more than 700 pharmacists who have been trained to conduct SPEP rotations. A large proportion of students choose to work in SPEP sites upon graduation and an educational feedback loop has been created as many graduates return as TAs

SPEP's strategic approach of educating both practitioners and students and creating a synergistic experience continues to provide exemplary educational experiences for students, meaningful professional development for pharmacists as well as a positive, continuing impact on practice in Ontario.

Andrea Cameron received her B.Sc.Phm. from the University of Toronto in 1981, and began a career in hospital pharmacy, with a residency from the Toronto General Hospital, followed by clinical pharmacist and management positions at The Wellesley Hospital in Toronto, from 1982 until 1997. Throughout this time, Andrea fulfilled various positions with the Canadian Society of Hospital Pharmacists, at the local and national level. In 1992 she completed an MBA from U of T. In 1997, she joined the Faculty of Pharmacy, as the SPEP Coordinator, Appraisal and Quality Assurance. At the University of Toronto, Andrea is very involved in Interprofessional Education. Off campus, Andrea spends time running marathons, and running after her three young children.

Lesley Lavack graduated from the Faculty of Pharmacy, University of Toronto in 1968 and embarked on a career which included both community and hospital practice. Between 1985 and 1990, in addition to clinical pharmacist responsibilities at The Wellesley Hospital, she assumed teaching roles at the Faculty of Pharmacy. Lesley joined the Faculty full time in 1990 and taught Professional Practice courses. In 1994 she became Assistant Dean and assumed major responsibility for creation and development of the Structured Practical Experience Program (SPEP). In 2002 Lesley's portfolio expanded and, as Assistant Dean for Undergraduate Affairs, she has major administrative and program overview responsibilities. Lesley loves to travel and has in recent years studied in Siena, Italy and Oxford, UK. She enjoys music, art, dancing, cooking, entertaining, keeping fit and spending time with family and friends.

AFPC/AstraZeneca New Investigator Research Award

Heather Boon, PhD, Assistant Professor
Leslie Dan Faculty of Pharmacy, University of Toronto

Heather Boon, BScPhm, PhD is an Assistant Professor in the Leslie Dan Faculty of Pharmacy and a CIHR New Investigator. In addition, Dr. Boon is cross-appointed to the Department of Family and Community Medicine and the Department of Health Policy, Management and Evaluation, both in the Faculty of Medicine, University of Toronto. She was originally trained as a pharmacist, completed a PhD in medical sociology (U of T) and a Post-doctoral Fellowship in Centre for Studies in Family Medicine (UWO). Dr. Boon is one of the Founding Chairs and Principal Investigators of the Canadian Interdisciplinary Network for CAM Research which recently received five years of funding from the Canadian Institutes of Health and the Natural Health Products Directorate (Health Canada). She is also a member of Health Canada's Expert Advisory Committee for Natural Health Products. She has published numerous peer-reviewed articles and book chapters on complementary/alternative medicine and is co-author of the text: A Complete Natural Medicine Guide to the 50 Most Common Herbs: A Botanical Pharmacy. Her primary research interests are patients' use of complementary/alternative medicine, the safety and efficacy of natural health products and complementary/alternative medicine regulation and policy issues. Her current research focuses on exploring how complementary/alternative medicine is (or is not) being integrated with the Canadian health care system and the implementation and impact of the federal natural health product regulations.

Complementary and Alternative Medicine: A Program of Research

After exploring the scope of complementary and alternative medicine (CAM), this presentation will provide a description of my CAM health services and policy research program which is built around three key objectives:

- To establish a CAM research network
- To explore the professionalization of CAM practitioner groups
- To explore the perceptions and impact of the new natural health product (NHP) regulations

The Canadian Interdisciplinary Network for CAM Research (IN-CAM; www.incamresearch.ca) is introduced and an overview of the new Canadian NHP regulations will be provided. This will be followed by a brief summary of the key finding from two recent projects that investigated how CAM practitioners and NHP industry members are responding to these new regulations. The presentation will conclude with future research plans.

AFPC/Pfizer Research Career Award

Raymond Reilly, PhD, Assistant Professor
Leslie Dan Faculty of Pharmacy, University of Toronto

Dr. Raymond Reilly is an Associate Professor at the Leslie Dan Faculty of Pharmacy and in the Department of Medical Imaging at the University of Toronto. He obtained his BSc in Pharmacy and MSc in Nuclear Pharmacy from the Faculty of Pharmacy at the University of Toronto in 1979 and 1983, respectively, and obtained his PhD in Medical Biophysics from the University of Toronto in 1999. Following licensure as a pharmacist in Ontario, Dr. Reilly trained in the specialty of nuclear pharmacy. He held the positions of nuclear pharmacist at Princess Margaret Hospital (1984-1987) and as coordinator of the nuclear pharmacy at the University Health Network (1987-2002). While at the University Health Network, he established the Laboratory of Molecular Imaging and Targeted Radiotherapeutics to promote research into the discovery and development of new radiopharmaceuticals for imaging and treatment of cancer. Dr. Reilly invented indium-111 labeled epidermal growth factor, a novel targeted radiotherapeutic agent for metastatic breast cancer, which is now in Phase I clinical trial at Princess Margaret Hospital. He is also designing radiopharmaceuticals for imaging and radioguided surgery of breast cancer. Dr. Reilly has been actively involved in training MSc and PhD students, summer research students and post-doctoral fellows in the radiopharmaceutical sciences and several of his trainees have won local, national or international awards/scholarships for their research. He teaches undergraduate courses in pharmaceutical analysis and pharmaceutics and two graduate courses in radiopharmaceuticals. He has published 65 papers, 35 abstracts and 6 books/book chapters. Dr. Reilly's research is supported by grants from the U.S. Army Breast Cancer Research Program, Susan G. Komen Breast Cancer Foundation, Canadian Breast Cancer Research Alliance, Canadian Breast Cancer Foundation, Ontario Cancer Research Network and Canadian Institutes of Health Research.

Development of Radiopharmaceuticals for Imaging and Targeted Radiotherapy of Breast Cancer and Other Malignancies.

The mission of the research program of my group is to discover, develop and translate to the clinic, novel radiopharmaceuticals for imaging and targeted radiotherapy of breast cancer and other malignancies. We are especially interested in designing new radiopharmaceuticals that can non-invasively characterize the phenotype of breast cancer by imaging, predict its response to treatment, or assist the surgeon in tumour resection. In the area of targeted radiotherapeutics, our group discovered that epidermal growth factor, an endogenous peptide that stimulates the growth of breast cancer cells, can be exploited as a specific vehicle to insert the subcellular range Auger electron-emitter, indium-111 (^{111}In) into the nucleus of the cells. Once delivered to the nucleus, the nanometer-micrometer range electrons emitted by ^{111}In are severely damaging to DNA, killing the cells ("Trojan Horse" strategy). We successfully translated this new radiopharmaceutical treatment from preclinical testing against breast cancer cells and in mouse tumour xenograft models, through kit formulation and regulatory approval by Health Canada, to a Phase I clinical trial at Princess Margaret Hospital. To date, we have enrolled 11 patients at three different dose levels. Tumour localization was observed in some patients by imaging and importantly, there have been no serious normal tissue toxicities. No tumour responses have been observed at the doses studied, but the doses are being increased and patient outcome continues to be monitored. We are now extending this new radiotherapeutic strategy to a multitargeted approach aimed at HER-2/neu receptors on breast cancer cells and vascular endothelial growth factor receptors (VEGFR) on the supporting vasculature. Recent work by our group further suggests that it can be extended to the treatment of leukemia and neuroblastoma. Our imaging research is focused on radiopharmaceuticals that image mRNA or protein targets in breast cancer cells that are implicated in metastasis or are informative of response to treatment.

Section 4:

Teachers' Conference I: Interprofessional Education (IPE) and Challenges for Academia

Saturday, June 25, 2005
8:00am – 10:30 am
William Pascoe Room

NOTES

Stephanie Gardner, PhD
Professor and Dean of the University of Arkansas for Medical Sciences College of Pharmacy

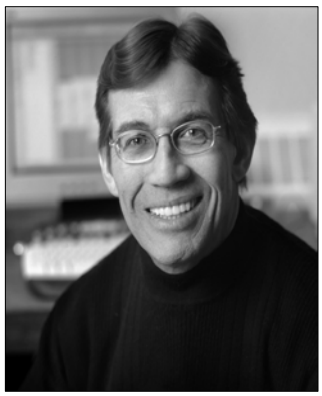
Dr. Stephanie Gardner currently serves as Professor and Dean of the University of Arkansas for Medical Sciences College of Pharmacy. She received her Bachelor of Science and Doctor of Pharmacy degrees from the University of North Carolina at Chapel Hill. Following that, she completed a two-year fellowship in cardiovascular pharmacology at Case Western Reserve University. She has been on the faculty of the UAMS College of Pharmacy for the last 14 years and served as Chair of the Department of Pharmacy Practice for 6 years. In 2001, she completed her Doctor of Education degree in Higher Education Administration at the University of Arkansas at Little Rock. In addition to her research in hypertension and cardiovascular effects of herbal medications, Dr. Gardner's research interests include interdisciplinary learning and educational assessment. Dr. Gardner's dissertation focused on attitudes toward and barriers to interdisciplinary education at academic health centers in the United States. She has published numerous papers focused on the use of the objective structured clinical examination (OSCE) for teaching and assessment in pharmacy education. Her current research focuses on the assessment of metacognitive skills among first-year professional students in an effort to identify students at risk for poor performance and to assess the impact of interventions on future performance.

Models of Interprofessional Education

There is a wealth of information showing that providing patient care through a team approach can improve patient outcomes and decrease overall costs to the healthcare system. However, there are few well-defined models for training students during their didactic years to become members of an interprofessional healthcare team. This speaker will discuss how administrators at professional schools in the disciplines of medicine, pharmacy, and nursing differ in their attitudes toward interprofessional coursework. The barriers to providing interprofessional education at academic health centers will also be discussed. The speaker will highlight some successful models of interprofessional education and will discuss the obstacles that were necessary to overcome in their implementation phase. More discussions among faculty members and administrators of various disciplines may allow barriers to be overcome and allow development of interprofessional didactic courses that could test the hypothesis that these courses are more cost effective and more likely to foster teamwork in the clinical setting. An understanding of the perceived and actual barriers to interprofessional coursework may assist educators in moving toward curricular reform that promotes collegiality and a relationship-centered practice model.

NOTES

Kenneth L. Zakariasen, DDS, MS, MS(ODA), PhD
Associate Dean and Chair of Dentistry
University of Alberta



Dr. Ken Zakariasen is Associate Dean and Chair, Department of Dentistry, University of Alberta Faculty of Medicine and Dentistry. He is also an Adjunct Professor in the Department of Public Health Sciences focusing on graduate studies in health policy and management. Prior to returning to Alberta, Dr. Zakariasen was, over a span of three decades, an educator, researcher and academic administrator at the University of Minnesota, University of Iowa, University of Alberta, Dalhousie University and Marquette University, including Dean of three colleges over a 10-year period at Marquette University and Dalhousie University. He was also Executive Director of two professional organizations, and is the Editor-in-Chief of the Year Book of Dentistry for Mosby publishing.

Dr. Zakariasen, active in clinical endodontic practice for many years, now practices organization development extensively as a consultant, particularly with healthcare organizations and universities. He specializes in strategy development, organizational transformation through innovative whole systems approaches, executive leadership team development and enhancement of organizational effectiveness. He has published numerous articles, research abstracts and book chapters, and has presented widely on research, professional, policy and organizational topics.

Embracing Change:
The Challenge of Interprofessional Education

Some of our most exciting times as health science academics come when we brainstorm with health professionals from other disciplines, and generate ideas and new perspectives that none of us would have developed individually.... truly synergy at work. Given that most of us have probably had this experience, why is it that so many of us shy away from this fertile ground for creativity in education, and our students so often deem our interprofessional education efforts as mandatory, but largely useless, exercises? Could it be that change is just as disruptive for us university-types, who pride ourselves as innovative thinkers, and that we have been less than stellar in making the case for interprofessionalism to our students who remain largely underwhelmed? Could we turn this situation around so that we actually embrace change in interprofessional education not only because it adds real value, but because it adds some real excitement to our professional lives and our students' educational experiences? I truly believe the answer to these questions is a resounding "yes"! But, this will take a dramatic shift in the way we generate ideas, in the way we visualize our ideal world relative to interprofessionalism, in the way we involve people in the generative process and in the way we approach each step in the process of change. We can make it work! This presentation will look at the thinking and development processes that allow us to arrive at the point of truly embracing change!

Section 5:

AFPC Poster Session

Saturday, June 25, 2005
7:30 am – 5:00 pm
William Pascoe Room

List of Abstracts

BASIC RESEARCH:

BasicRes No. 1: Combination therapy preventing the emergence of antibiotic-resistant *Enterobacter cloacae,* **Harris Iacovides[1]**, Robert Ariano[1,2], Godfrey Harding[1,2], Sheryl Zelenitsky[1,2], University of Manitoba[1] and St. Boniface General Hospital[2], Winnipeg, MB

BasicRes No. 2: The anti-atherosclerotic effects of the Growth Hormone-Releasing Peptides are CD36 dependent, **Diala Harb[1]**, Kim Bujold[1], Maria Febbraio[2], Martin G Sirois[3], Andre Tremblay[4], Huy Ong[1,3] and Sylvie Marleau[1], [1]Faculty of Pharmacy, Departments of [3]Pharmacology, [4]Obstetrics & Gynecology, Faculty of Medicine, Université de Montréal, Montréal, Québec, [2]Department of Cell Biology, Lerner Research Institute, Cleveland, OH, USA

BasicRes No. 3: Hexarelin modulates left ventricular apoptotic signaling pathways in cardiomyopathic hamsters, **Mukandila Mulumba**, Huy Ong and Sylvie Marleau, Faculty of Pharmacy, Université de Montréal, POB 6128, Station Downtown, Montréal, QC, H3C 3J7

BasicRes No. 4: Determining the role of *Hoxa2* gene in palate development using a retroviral gene delivery system, **Xia Wang** and Adil J. Nazarali , College of Pharmacy and Nutrition, University of Saskatchewan, Saskatoon, S7N 5C9

BasicRes No. 5: Heavy metals modulate Aryl hydrocarbon receptor (AhR)-regulated genes at transcriptional and posttranscriptional levels by oxidative mechanisms, **Reem H. Elbekai** and Ayman O.S El-Kadi, Faculty of Pharmacy, University of Alberta, Edmonton, AB

BasicRes No. 6: Novel implantable delivery system increases maximum tolerable doses of paclitaxel in mice, **Vessela Vassileva**, Christine Allen, Micheline Piquette-Miller, Department of Pharmaceutical Sciences, Leslie Dan Faculty of Pharmacy, University of Toronto, Toronto, Ontario, M5S 2S2

BasicRes No. 7: The effect of heat-treatment on Fungizone-induced renal toxicity in human kidney proximal tubule cells and fungal toxicity in *Aspergillus fumigatus*; the role of phospholipases, **Ross Taylor[1]**, Carlos Leon[1], Karen Bartlett[2], and Kishor M. Wasan[1], [1] Faculty of Pharmaceutical Sciences, University of British Columbia and [2] School of Occupational and Environmental Hygiene, University of British Columbia

BasicRes No. 8: Estrogenic drugs modulation of the striatal rat dopamine transporter. **Maryvonne Le Saux,** and Thérèse Di Paolo, Molecular Endocrinology & Oncology Research Center and Faculty of Pharmacy, Laval University, Quebec, QC

BasicRes No. 9: Nrf2 deficiency does not alter susceptibility to hypoxic ischemic brain injury in the neonatal mouse, **Derek J. Roberts[1,2,3]**, Gregory J. Anger[3], Robert W. Gilbert[3], George S. Robertson[2,3] , [1]College of Pharmacy, [2]Department of Psychiatry, and [3]Department of Pharmacology, Dalhousie University, Halifax, NS.

CLINICAL RESEARCH:

ClinicalRes No. 1: Long-term survival and late effects of central nervous system tumors in children of Saskatchewan: 1970-1999, Kaiser Ali, **Betty C. Riddell,** Edward Leung, Christopher Mpofu, Saskatoon Cancer Centre, Saskatchewan Cancer Agency, and Colleges of Medicine, and Pharmacy & Nutrition, University of Saskatchewan, Canada.

EDUCATIONAL AND TEACHING RESEARCH:

Edu/Teach-Res No. 1: Development of a multiple choice instrument to assess characteristics of candidates for admission to the B.Sc.Phm. program at the Leslie Dan Faculty of Pharmacy, Richard Braha Assessment Consultants Incorporated, Halifax, Nova Scotia and **Lesley Lavack,** Leslie Dan Faculty of Pharmacy, University of Toronto

Edu/Teach-Res No. 2: Number of direct observation forms requested of preceptors during final year pharmacy experiential rotations, **Andrea J. Cameron,** Lesley A. Lavack, Annie WM Lee, Leslie Dan Faculty of Pharmacy, University of Toronto, Toronto

Edu/Teach-Res No. 3: Interprofessional Rural Program in British Columbia – Program Overview. **Rosemin Kassam,** Faculty of Pharmaceutical Sciences, The University of British Columbia and the Interprofessional Rural Program of BC Working group.

Edu/Teach-Res No. 4: Pharmacy Students' Experiences with the Interprofessional Rural Program in British Columbia, **Rosemin Kassam,** Faculty of Pharmaceutical Sciences, The University of British Columbia

Edu/Teach-Res No. 5: Development of an on-line, foundations course for students in a part-time Doctor of Pharmacy Program, **Lalitha Raman-Wilms,** BSc.Phm., Pharm.D. University of Toronto.

PHARMACY PRACTICE RESEARCH:

PPR No. 1: Natural health products in the management of osteoporosis, **Anne M Whelan[1,2]**, Tannis M Jurgens[1], Susan K Bowles[1,3], [1] College of Pharmacy, Dalhousie University, [2] Department of Family Medicine, Dalhousie University, [3] Division of Geriatric Medicine and Department of Pharmacy, Capital District Health Authority. Halifax, Nova Scotia.

PPR No. 2: Impact of a pharmacist telephone follow-up intervention on patients receiving antibiotic treatment in community: MICROBE study, **Thanh-Thao Ngo,** Hélène Lachance-Demers, Cynthia Vachon, Krystel Beaucage, Faculty of Pharmacy, University of Montreal, Montreal, Quebec.

SOCIAL AND ADMINISTRATIVE RESEARCH:

SocAdminRes. No. 1: The health care team: what role do community pharmacists see for themselves?**, Roy Dobson[1]**, Carol Henry[1], Jeff Taylor[1], Gord Zello[1], Jean Lachaine[2]

[1.] University of Saskatchewan; [2.] Université de Montréal

BASIC RESEARCH:

BasicRes No. 1: Combination therapy preventing the emergence of antibiotic-resistant *Enterobacter cloacae*

Harris Iacovides[1], Robert Ariano[1,2], Godfrey Harding[1,2], Sheryl Zelenitsky[1,2]

University of Manitoba [1] and St. Boniface General Hospital[2], Winnipeg, MB

Background: Clear indications for combination antibiotic therapy in the treatment of nosocomial infections remain to be defined. *Enterobacter* continues to rate among the most common Gram-negative pathogens in hospitalized patients, with resistance to broad-spectrum cephalosporins approaching 35%. The objectives of this study were to (1) simulate the emergence of cephalosporin-resistant *E. cloacae* during ceftazidime therapy in an in vitro pharmacodynamic model (IPDM), and (2) characterize the ability of combination therapy with ciprofloxacin or gentamicin to prevent resistance. **Methods:** A one-compartment IPDM of *E. cloacae* bacteremia was established using three clinical blood isolates. Each isolate was initially susceptible to all antibiotics tested, with minimum inhibitory concentrations (MICs) for ceftazidime of 0.5 mcg/ml. Ceftazidime alone and in combination with ciprofloxacin or gentamicin were tested using concentration profiles simulating those observed with standard clinical doses (q12h x 72h) in humans. Resistance was detected through MIC determinations after 24, 48 and 72h of therapy. Resistant isolates were further classified as stably derepressed or reversibly induced by re-plating on antibiotic-free media five times and re-determining MICs. **Results:** Despite optimal dosing, monotherapy with ceftazidime selected high-level resistance in 90% of exposures for all isolates. Ceftazidime MICs increased to values $\geq$ 256 mcg/ml during therapy. Of the resistant isolates, 100% of isolate #1, 78% of isolate #2 and 33% of isolate #3 were stably derepressed mutants. Alternatively, combination therapy with either ciprofloxacin or gentamicin was 100% effective at suppressing the emergence of ceftazidime-resistant isolates. **Conclusions:** This pre-clinical data strengthen the argument for combination antibiotic therapy in the prevention of antibiotic-resistant *E. cloacae* infection, and support further investigation in animal models and humans.

BasicRes No. 2: The anti-atherosclerotic effects of the Growth Hormone-Releasing Peptides are CD36 dependent

Diala Harb[1], Kim Bujold[1], Maria Febbraio[2], Martin G Sirois[3], Andre Tremblay[4], Huy Ong[1,3] and Sylvie Marleau[1]

[1]Faculty of Pharmacy, Departments of [3]Pharmacology, [4]Obstetrics & Gynecology, Faculty of Medicine, Université de Montréal, Montréal, Québec, [2]Department of Cell Biology, Lerner Research Institute, Cleveland, OH, USA

Our recent studies have shown that long-term (12 weeks) treatment with growth hormone-releasing peptides (GHRPs), as ligands of the CD36 type B scavenger receptor, show striking anti-atherosclerotic and hypocholesterolemic effects in apoE-deficient mice ($apoE^{-/-}$) fed a high fat, high cholesterol (HFHC) diet. Synthetic GHRP analogs such as

hexarelin (HEX), in addition to binding CD36 on macrophages, also bind to the ghrelin receptor (GHS-R1a). In order to assess the relative contribution of these receptors to macrophage accumulation and fatty streak formation at lesion-proned sites, apoE$^{-/-}$ mice have been treated with either ghrelin (320 µg/kg), the endogenous GHS-R1a ligand, HEX (100 µg/kg) a ligand of both CD36 and GHS-R1a, and EP 80317 (300 µg/kg) a selective CD36 ligand, for a period of 12 weeks. At 18 weeks of age, treated mice received ^{111}In-labelled peritoneal macrophages from donors apoE$^{-/-}$ mice. Aortic accumulation of labeled macrophages was assessed by densitometric analysis 48 hours later. Chronic treatment with EP 80317 was associated with a reduction of ^{111}In-labelled peritoneal macrophages accumulation by 40% compared to 0.9% NaCl-treated mice, suggesting a potential role of EP 80317 in modulating the inflammatory component of atherosclerosis. In agreement, long-term treatment with EP 80317 was associated with a 51% reduction of oil red-O-stained lesion after 12 (from 6-18) weeks of treatment. In contrast, chronic treatment with ghrelin failed to modulate the development of aortic lesions whereas HEX modestly reduced aortic lesions by 28%. Our results support a role for CD36 in mediating the anti-atherosclerotic effects of GHRPs.

BasicRes No. 3: Hexarelin modulates left ventricular apoptotic signaling pathways in cardiomyopathic hamsters.

Mukandila Mulumba, Huy Ong and Sylvie Marleau

Faculty of Pharmacy, Université de Montréal, POB 6128, Station Downtown, Montréal, QC, H3C 3J7

Recent studies have shown that programmed cell death (apoptosis) greatly contributes to the development of heart failure in patients with dilated cardiomyopathy. Novel therapeutic strategies to reduce cardiac apoptosis include administration of growth hormone-releasing peptides (GHRPs), initially designed as growth hormone sécrétagogues acting through the GHS-R1a receptor. Hexarelin (Hex), a synthetic hexapeptide GHRP analog, has been shown to inhibit cardiomyocyte apoptosis in vitro. The aim of this study was to assess the effects of Hex on the development of apoptosis in cardiomyopathic hamsters (CMH). CMH were treated with Hex (100 µg/kg/day, s.c) or 0.9% NaCl for 30 days starting either at the age of 30 days (early phase of the disease) or 160 days (late phase). Golden Syrian hamsters (GSH) were used as controls. Apoptotic nuclei of early-treated CMH were assessed by immunohistochemistry and the expression of apoptotic mediators by RT-PCR. Vehicle-treated show an elevated percentage of apoptotic nuclei (8.50 ±0.50%) compared to GSH (3.33 ± 0.60%). Hexarelin significantly reduced the number of nuclei by 30% ($p<0.05$). In agreement, the mRNA levels of the anti-apoptotic markers Bcl-2 and Bcl-Xl were increased by 53 and 72%, respectively in left ventricle. Similar results were observed following late treatment with Hex, with Bcl-2 and Bcl-Xl mRNA levels increased by 46% and 88%, respectively. In contrast, Hex reduced the expression of Bax, a pro-apoptotic protein, by 60% and 69%, respectively, when the treatment was initiated in the early or late phase of the disease. These results suggest that Hex may exert its cardioprotective effects by modulating the apoptotic pathways in both the early and late phase of cardiomyopathy development in CMH.

BasicRes No. 4: Determining the role of *Hoxa2* gene in palate development using a retroviral gene delivery system

Xia Wang and Adil J. Nazarali

College of Pharmacy and Nutrition, University of Saskatchewan, Saskatoon, S7N 5C9

Hoxa2-/- mice exhibit craniofacial abnormalities including a cleft palate. Valproic acid (VPA) can induce a cleft plate in humans exposed *in utero*. The effect of VPA on palatal fusion rates was measured in treated mouse palate cultures. The fusion rates were 91.7%, 68.2%, 55.0%, 21.1% and 0% with 0, 12.5, 25.0, 50.0 and 100 μg/ml of VPA, respectively (N=19-24 palates/dose, $p \leq 0.05$). RT-PCR results revealed wild-type palatal cultures exposed to VPA resulted in a dose dependent decrease in *Hoxa2* expression and a delay in palatal growth. It has not been determined what role *Hoxa2* gene plays in palate development. A retroviral expression system has been developed to study the function of *Hoxa2* in the developing palate. Transduction of palatal shelves with *Hoxa2* antisense retrovirus resulted in a pronounced inhibition of palatal fusion. The fusion rates were 45%, 33% and 28% with titers at 0.08×10^6, 1.80×10^6 and 3.60×10^6 cfu/ml, respectively (N=18-25 palates/titer). These are comparable to palatal cultures from *Hoxa2-/-* mouse (44.4%) ($p \leq 0.05$). Interestingly, retroviral particles expressing *Hoxa2* sense transcripts did not impact palatal development to the same extent as their antisense counterparts. The palatal fusion rates were relatively high (73%) with lower viral titers (N=19-22 palates/titer), while higher viral titers induced palatal fusion to a lesser extent (50-61%) (N=16-20 palates/titer). The expression of *Hoxa2* in the wild-type palates at different embryonic stages was quantified with real-time RT-PCR. Confocal microscopy has revealed *Hoxa2* retroviral expression in the palate. Our results have demonstrated for the first time that direct inhibition of *Hoxa2* transcripts in the developing palate induces a delay in palatal growth. (Supported by NSERC)

BasicRes No. 5: Heavy metals modulate Aryl hydrocarbon receptor (AhR)-regulated genes at transcriptional and posttranscriptional levels by oxidative mechanisms.

Reem H. Elbekai and Ayman O.S El-Kadi,

Faculty of Pharmacy, University of Alberta, Edmonton, AB

Recently, we demonstrated the ability of heavy metals (As^{3+}, Cd^{2+}, and Cr^{6+}) to alter the capacity of AhR ligands to induce the bioactivating Cyp1a1 and the detoxifying NQO1 and GST Ya xenobiotic metabolizing enzymes. Since heavy metals have been shown to exert their toxicity, at least in part, by the generation of reactive oxygen species (ROS), we evaluated the role of metal-induced ROS on the expression of these enzymes. Hepa 1c1c7 cells were treated with 5 μM of As^{3+}, Cd^{2+}, or Cr^{6+} in the presence or absence of TCDD (1 nM), an AhR ligand. Cd^{2+} and Cr^{6+} increased the production of ROS, while As^{3+} caused perturbations in glutathione redox status. Although all three metals inhibited the induction of Cyp1a1 activity by TCDD, Cyp1a1 mRNA levels were potentiated. Pre-treatment with the antioxidant N-acetylcysteine (NAC) did not alter Cyp1a1 mRNA expression but completely abrogated the inhibition of Cyp1a1 activity induction by the

metals. In parallel, when cellular GSH was depleted with the pro-oxidant, L-buthionine-[S,R]-sulfoximine (BSO), Cyp1a1 mRNA expression was further potentiated whereas Cyp1a1 activity was further inhibited, compared to treatment with metals and TCDD alone. Metals alone induced Cyp1a1 mRNA expression, which was superinduced in the presence of the protein synthesis inhibitor, cycloheximide. On the other hand, all three metals, alone or in the presence of TCDD, enhanced NQO1 and GST Ya activities and mRNA levels, an effect that was completely abrogated with NAC and markedly potentiated by BSO. Pretreatment with the DNA transcription suppressor, actinomycin-D, abolished the induction of NQO1 and GST Ya mRNA levels by the metals. Our data clearly show that heavy metal-induced ROS modulate Cyp1a1 activity posttranscriptionally but induce NQO1 and GST Ya activities at the transcriptional level.

BasicRes No. 6: Novel implantable delivery system increases maximum tolerable doses of paclitaxel in mice

*Vessela Vassileva***,** Christine Allen, Micheline Piquette-Miller,

Department of Pharmaceutical Sciences, Leslie Dan Faculty of Pharmacy, University of Toronto, Toronto, Ontario, M5S 2S2

Purpose: To compare the safety, toxicity and biocompatibility of a novel chitosan-egg phophatidylcholine (chotosan-ePC) implantable delivery system that provides controlled and sustained release of paclitaxel (PTX) versus the conventional Taxol ® formulation in healthy CD-1 mice. **Methods:** Animals were surgically implanted intraperitoneally (IP) with drug-free or PTX-chitosan-ePC formulation. In parallel, to compare tolerable doses, bolus IP Taxol® injections were administered to mice in various amounts every other day or weekly, with Cremophor EL (CrEL) and anhydrous ethanol as control. Following sacrifice, animals were visually inspected for signs of infection, inflammation and capsid formation (around implants). Tissues were collected, fixed, paraffinized, sectioned and stained with hematoxylin and eosin (H&E). Toxicity was assessed as number of deaths, weight loss, general appearance and histopathological changes. **Results:** Mice implanted with the drug-free or PTX-chitosan-ePC formulations appeared healthy, without any weight loss. There were no observable signs of infection, inflammation, local irritation or fibrous encapsulation. In contrast, mice receiving bolus IP PTX injections every other day, displayed significant weight loss and deaths with signs of inflammation and irritation within the peritoneal cavity. The maximum tolerable PTX dose was 20 mg/kg/week as bolus IP administration, whereas PTX doses of more than 154 mg/kg/week were well tolerated when administered with the implants. Interestingly, the majority of deaths occurred in the CrEL treated controls. **Conclusions:** The novel chitosan-ePC delivery system is non-toxic, biocompatible and a safer method of PTX administration, providing higher dosages without adverse effects with possible clinical significance in the treatment of solid tumors.

BasicRes No. 7: The effect of heat-treatment on Fungizone-induced renal toxicity in human kidney proximal tubule cells and fungal toxicity in *Aspergillus fumigatus*; the role of phospholipases.

Ross Taylor[1], Carlos Leon[1], Karen Bartlett[2], and Kishor M. Wasan[1],

[1] Faculty of Pharmaceutical Sciences, University of British Columbia and [2] School of Occupational and Environmental Hygiene, University of British Columbia

Purpose: To determine the effects of heat-treatment (70 °C for 20 minutes) on Fungizone (FZ)-induced nephrotoxicity in human kidney (HK-2) cells, on fungal toxicity in *Aspergillus fumigatus*, and to determine the role of phospholipase A_2 (PLA_2). **Methods:** HK-2 cells grown in T75 flasks were seeded in 96 well plates (20,000 cells/well). FZ/heat-treated Fungizone (HFZ) concentrations of 10, 25, and 50 μg/ml of Amphotericin B (AmpB) were prepared. Snake venom PLA_2 (2.15 U/ml) was pre-incubated with HFZ one hour prior to addition to the cells. After 18-hour incubations, 3-(4,5-dimethylthiazol-2-yl)-5-(3-carboxymethoxyphenyl)-2-(4-sulfophenyl)-2H-tetrazolium (MTS) assays were performed, assessing cell viability through mitochondrial respiration. *Aspergillus fumigatus* spore suspensions were prepared and seeded in 96-well plates at 500,000 spores/well. HFZ/FZ were prepared as above and incubated with the fungi. Minimum inhibitory concentrations (MIC) were determined after 72 hours. **Results:** FZ-induced cytotoxicity was significantly greater than HFZ in HK-2 cells (40.4 ± 2.8% vs. 11.0 ± 1.1%) for 25 μg AmpB/ml (n=4, $p<0.05$). HFZ/FZ were found to have similar MIC ranges for *Aspergillus fumigatus* (0.225 – 0.25) μg AmpB/ml (n=4). Independently, PLA_2 had no apparent effect on HK-2 cells; however, the addition of 2.15 U/ml of PLA_2 to 50 μg heated-AmpB/ml significantly enhanced cytotoxicity (42.71 ± 2.85% vs. 25.22 ± 1.48%); (n=4, $p< 0.05$). **Conclusions:** Results suggest HFZ is significantly less toxic than FZ towards HK-2 cells. The efficacy of HFZ against *A. fumigatus* was equivalent to FZ. PLA_2 is not independently cytotoxic, but increases HFZ-associated cytotoxicity. **Acknowledgements:** This project was funded by CIHR.

BasicRes No. 8: Estrogenic drugs modulation of the striatal rat dopamine transporter.

Maryvonne Le Saux, and Thérèse Di Paolo,

Molecular Endocrinology & Oncology Research Center and Faculty of Pharmacy, Laval University, Quebec, QC

The membrane dopamine transporter (DAT) is the main mediator of dopamine uptake from synapses. Estrogens were reported to increase rat and human striatal DAT. The first study investigated if the selective estrogen receptor modulators (SERMs) tamoxifen and raloxifene could reproduce the estradiol effect on DAT in long term ovariectomized rats, a model of hormonal withdrawal as occurs in menopause. Tamoxifen is currently used for breast cancer treatment while raloxifene is given to women to treat osteoporosis. In the middle striatum, ovariectomy decreased DAT specific binding, which was corrected by estradiol, tamoxifen and raloxifene. The effect was specific to this subregion since neither the anterior nor the posterior parts responded to hormonal withdrawal and treatments. The second study sought the possible involvement of the estrogen receptors ERα and ERβ in the estradiol modulation of striatal DAT. Ovariectomized rats were treated for 2 weeks

with estradiol, a specific ligand for the estrogen receptor α (ERα 4,4',4''-(4-Propyl-[1H]-pyrazole-1,3,5-triyl)trisphenol (PPT) or estrogen receptor β (ERβ 2,3-bis(4-hydroxyphenyl)-propionitrile (DPN). Ovariectomy decreased DAT specific binding in the middle striatum compared to intact rat values and estradiol corrected this decrease. DPN, but not PPT, mimicked the estradiol increase. Neither ovariectomy nor treatments modulated DAT specific binding in the anterior and posterior striatum. These results show a new effect of tamoxifen and raloxifene in the brain and suggest for the first time that ERβ mediates the estradiol increase of DAT in striatum. *Supported by a CIHR grant to TDP. MLS was supported by a studentship from La Fondation de l'Université Laval.*

<u>BasicRes No. 9</u>: Nrf2 deficiency does not alter susceptibility to hypoxic ischemic brain injury in the neonatal mouse

Derek J. Roberts[1,2,3], Gregory J. Anger[3], Robert W. Gilbert[3], George S. Robertson[2,3],

[1]College of Pharmacy, [2]Department of Psychiatry, and [3]Department of Pharmacology, Dalhousie University, Halifax, NS.

Cerebral ischemia results in the excessive generation of reactive oxygen species (ROS) in the brain that leads to oxidative stress and possible neuronal cell death. To combat this induced oxidative stress, protective cellular mechanisms are activated that promote neuronal survival. Activation of the nuclear transcription factor NF-E2-Related-Factor-2 (*Nrf*2) is one such endogenous protective mechanism that forms a coordinated defense against ROS. Treatments that induce the activation of *Nrf2* may represent a novel therapeutic strategy for stroke. The objective of this study was to determine whether *Nrf*2 deficiency alters brain damage (infarct volume) in a neonatal mouse model of hypoxic-ischemic brain injury. In wild type (WT), *Nrf*2 heterozygous (*Nrf2 +/-*), and *Nrf*2 homozygous (*Nrf2 -/-*) knockout mice (PO7) the left common carotid artery was isolated and cauterized. Following a 2 hour recovery period, all mice were placed in a low oxygen atmosphere environment (8% oxygen) for 60 minutes. Seven days later, animals were sacrificed; brains fixed and sectioned at a thickness of 50 μm. Sections were stained with cresyl violet and for the neuron specific marker NeuN. Infarct volume of all stained brain sections was determined using the Scion Image software package. WT, *Nrf2 +/-, and Nrf2 -/-* animals composed of 8-14 animals each displayed comparable infarct volumes in the ipsilateral hemisphere, neocortex, hippocampus, and striatum. Loss of NeuN-positive cells also appeared similar in all groups. The results of the present study indicate that *Nrf2* deficiency does not influence the susceptibility of the neonatal brain to the injurious effects of hypoxia-ischemia. Given that adult *Nrf2* null mice have been reported to be more susceptible to brain injury caused by transient focal ischemia, we will determine whether susceptibility to hypoxic-ischemic brain injury is increased in older animals. Our findings also suggest that in this model, oxidative stress is not a major contributing factor to injury in the neonatal brain; however, measurement of ROS generated in the neonatal brain of Nrf2 null and WT mice following hypoxia ischemia is required to test this hypothesis.

CLINICAL RESEARCH:

ClinicalRes No. 1: Long-term survival and late effects of central nervous system tumors in children of Saskatchewan: 1970-1999.

Kaiser Ali, *Betty C. Riddell*, Edward Leung, Christopher Mpofu.

Saskatoon Cancer Centre, Saskatchewan Cancer Agency, and Colleges of Medicine, and Pharmacy & Nutrition, University of Saskatchewan, Canada.

Background & Objectives: Central nervous system (CNS) tumors comprise the largest group of pediatric tumors in developed countries. A 30 year review of children with primary CNS tumors was conducted to determine their outcome with regard to long-term survival and late effects. **Materials & Methods**: Diagnostic categories were identified from a computerised Pediatric Oncology Data Base derived from the Saskatchewan Cancer Registry. Data items from individual patients were captured on standardized forms, and then transferred to a software program for statistical analyses. **Results**: Of a total of 1606 cancers diagnosed ≤ 19 years of age, 316 [20%] had CNS tumors; 297/316 [94%] brain tumors (BT) and 19/316 (16%) tumors of the spinal cord. The three commonest modalities of treatments were surgery (Sx) + radiation therapy (XRT) [35%], Sx alone [29%], and Sx+XRT+ chemotherapy [20%]. Percentage ten-year disease-free survival off therapy for the first three cohorts in 5-year blocks commencing with patients diagnosed in 1970 were 36%, 30%, and 33% respectively. For those patients surviving disease free 5 years post therapy, systemic late effects were noted in 69%. **Conclusions**: Prospective, longitudinal long-term cohort studies will allow for earlier detection and intervention with strategies designed to mitigate the high rate of multiple CNS and other systemic morbidities recorded in these survivors. **Note:** This Abstract has been accepted as a poster presentation at the North American Association of Central Cancer Registries (NAACCR), June 7 – 9, 2005, in Cambridge, Massachusetts.

EDUCATIONAL AND TEACHING RESEARCH:

Edu/Teach-Res No. 1: Development of a multiple choice instrument to assess characteristics of candidates for admission to the B.Sc.Phm. program at the Leslie Dan Faculty of Pharmacy

Richard Braha Assessment Consultants Incorporated, Halifax, Nova Scotia and
Lesley Lavack, Leslie Dan Faculty of Pharmacy, University of Toronto

What to assess. The content domain was determined through compilation of data drawn from key pharmacy professional and academic documents. An extensive list of characteristics was collapsed into nine positive and nine negative broad non-academic characteristics domains. A validation survey of key stakeholders was undertaken. Results re-affirmed the relevance of the characteristics and assisted in determining relative importance. **Development.** A pool of items was generated for each of the identified positive and negative non-academic characteristics. Validity scales were developed for use in a multiple-choice format questionnaire. Sequential field tests investigated the psychometric performance and qualities of the items and this instrument. Refinements

were made until acceptable psychometric performance standards were met. The instrument achieved or exceeded all relevant psychometric standards in field tests and was used in the Spring 2003 admissions cycle. **Validity and standard setting.** Extensive analyses were completed to ensure the instrument and cut-scores were reliable and valid for the purpose of selecting applicants for consideration. After confirming internal validity of the instrument, a combination cut-score was determined and a subset with the most positive and least negative characteristics was identified. **Conclusions.** The instrument displayed strong psychometric properties: excellent item characteristics, reliability, difficulty and discrimination. It displayed ease of administration, scoring, and the ability to select applicants who displayed desirable non-academic characteristics in the absence of undesirable characteristics. The new instrument is improving the reliability with which the Faculty assesses applicants' non-academic characteristics. **Endnote:** The instrument was/is being used in the 2004 and 2005 admissions cycles at U of T and one other Canadian Faculty of Pharmacy.

Edu/Teach-Res No. 2: Number of direct observation forms requested of preceptors during final year pharmacy experiential rotations

Andrea J. Cameron, Lesley A. Lavack, Annie WM Lee

Leslie Dan Faculty of Pharmacy, University of Toronto, Toronto

Objective: To determine perceptions, and related factors, of both preceptors and students, related to a reduction in number of required direct observation forms (OBS) used for student feedback. **Methods:** An online survey was designed to elicit feedback from preceptors and students, related to a reduction in OBS required during 8-week rotations. Prior to 2005 one OBS per day, (40 per rotation), was required. In 2005, preceptors were asked to complete one form daily in the first 4 weeks, followed by one every other day for remaining weeks. Variables measured in the survey include: number of rotations supervised, practice type, shared preceptoring, and impact on verbal feedback. Routine program evaluation feedback and unsolicited comments were also collected. **Results:** The survey will be emailed during the final 2 weeks of the second rotation, ending April 29. From preliminary feedback students and preceptors have commented: 'OBS forms are an excellent tool for developing counseling skills and gauging improvement'; 'OBS are irrelevant in the second half of rotation'; 'prefer to keep one OBS daily to provide critical evidence for summative evaluations'; 'student perceived the reduced OBS number meant a reduced effort was appropriate'. **Conclusions:** Results of the survey and other feedback will guide further modifications to the documentation process. The simplicity and consistency of one OBS throughout a rotation may be supported, with a view to converting other documentation to on-line. Reinforcement of the purpose and importance of OBS can be provided to students and preceptors in pre-rotation communications. Frequent direct observations of student performance in a clinical setting are a key component of effective experiential learning.

Edu/Teach-Res No. 3: Interprofessional Rural Program in British Columbia – Program Overview

Author: Interprofessional Rural Program of BC Working group.

Presenter: *Rosemin Kassam*, Faculty of Pharmaceutical Sciences, The University of British Columbia

Objective An Interprofessional Rural Program of British Columbia (IRPbc) was established to expose students in the health professions to rural communities and to provide them with the opportunity to learn how to work effectively within an interprofessional setting. **Methods:** A program development approach was used to implement the IRPbc. The IRPbc is a provincial program, developed through funding from the British Columbia Ministry of Health and coordinated through the British Columbia Academic Health Council. The program was initiated as a broad-based collaborative initiative bringing together partners from government, the academic context and health services in rural communities; this was an important first step for British Columbia in establishing a collaborative interprofessional initiative that engages numerous stakeholders in working toward a common goal. **Results:** A team consisting of practitioners, managers, educators, and policy makers was established to plan the implementation process. In addition, two working groups were established, one is responsible for the operational aspect of the program and the other to conduct on-going evaluation of IRPbc. Geographically diverse rural communities were selected for the program. Preceptors from participating health and human services programs who were interested in interprofessional work were recruited and offered a one-day orientation session. Senior year students interested in rural exposure and interprofessional collaboration were also recruited and offered a two-day orientation session. Each student had to complete the requirements of their own professional education, as well as meet expectations set by the IRPbc. **Conclusion:** IRPbc has provided a model for implementation of interprofessional education.

Edu/Teach-Res No. 4: Pharmacy Students' Experiences with the Interprofessional Rural Program in British Columbia

Rosemin Kassam

Faculty of Pharmaceutical Sciences, The University of British Columbia

Background: In January 2003, the British Columbia Ministry of Health funded the development of an Interprofessional Rural Program of British Columbia (IRPbc) to prepare students for interprofessional collaborative practice and to promote rural recruitment of health professionals. To-date, 60 students representing 11 health professionals have participated. **Objective:** To present pharmacy students' experiences with the IRPbc. **Methods:** Recruitment of rural communities as clerkship sites for pharmacy students was influenced by the availability of local preceptors to supervise students. Senior year students with an interest in rural practice and interprofessional education were recruited through an interview process and offered a two-day orientation session. Students were provided with shared accommodation and funding for travel. In addition to completing the requirements of their own professional education, each student

had to meet expectations set by the IRPbc. Individual interviews with students, along with review of their learning log were used to evaluate their experiences. **Results:** To-date four pharmacy students have had the opportunity to partake in the IRPbc. For the first three placement cycles, these experiences took place primarily in two communities, Bella Coola and Trail, and occurred in teams ranging from three to seven interprofessional students. Students identified a number of benefits they received through this experience. Some of the benefits included the opportunity to interact with an interprofessional team, gain a stronger sense of their own identity, develop an increased appreciation of other professions they worked with and, last but not least, experience life in a small community. **Conclusion:** IRPbc has provided a model for implementation of interprofessional education.

Edu/Teach-Res No. 5: Development of an on-line, foundations course for students in a part-time Doctor of Pharmacy Program.

Lalitha Raman-Wilms

Leslie Dan Faculty of Pharmacy, University of Toronto, Toronto

Background: A part-time on-line program was developed for a post-baccalaureate Doctor of Pharmacy Program. One of the earlier courses students take is Foundations for Advanced Practice Pharmacy, which enables students to develop the required knowledge and skills for the Advanced Therapeutics courses. **Objectives**: The development, implementation and evaluation of the on-line foundations course taught in a problem-based format for a post-baccalaureate Doctor of Pharmacy Program is presented. **Methods**: A literature search was done to identify existing on-line programs that emphasize problem-based learning. Based on the literature review, consultations with individuals working with on-line courses and from reviewing the existing face-to-face foundations course, an on-line course was developed and implemented for nine part-time Doctor of Pharmacy Students. At the completion of the course, students were surveyed on the benefits and challenges with the on-line learning. This survey was compared to a similar survey given to learners in the face-to-face program for the same course. **Results**: Overall, the on-line course was successful in helping students meet the required course objectives. Compared to the face-to-face program, students taking the on-line course expressed additional challenges to their learning. **Conclusions**: An on-line course was successful in helping part-time students meet the objectives of a foundations, problem-based, Doctor of Pharmacy course. Based on students' feedback, this on-line course will be further revised and modified to improve the student's learning experience.

PHARMACY PRACTICE RESEARCH:

PPR No. 1: Natural health products in the management of osteoporosis

Anne M Whelan[1,2], Tannis M Jurgens[1], Susan K Bowles[1,3]

[1] College of Pharmacy, Dalhousie University, [2] Department of Family Medicine, Dalhousie University, [3] Division of Geriatric Medicine and Department of Pharmacy, Capital District Health Authority. Halifax, Nova Scotia.

Objective: To identify natural health products (NHPs) recommended for the management of osteoporosis and to review the evidence for their effect on bone mineral density (BMD)/fracture rate in women. **Methods:** Medline, Natural Medicines Comprehensive Database, and the Internet were initially searched to identify any NHPs advocated for use in osteoporosis. These sources, along with IPA, The Cochrane Library, IBIDS, CINAHL, and HerbMed, were searched again to locate randomized controlled trials (RCTs) in English, published between 1966 and October 2004. Additional references were obtained from the bibliographies of those articles. RCTs were selected if the NHP was evaluated in osteoporosis in women using BMD/fracture rate as the outcome measure. RCTs were excluded if the NHP was examined in secondary osteoporosis. NHPs examined in well-conducted systematic reviews were excluded. Data was extracted using predetermined criteria and studies appraised using the Jadad scale. **Results**: Forty-six NHPs were identified that claimed to be of benefit in osteoporosis. Of these 46, 15 had some clinical trial evidence to support their claim. Calcium, Vitamin D, and fluoride were excluded from the list of 15 as they were reviewed elsewhere. Strontium was also excluded as strontium ranelate, a drug under development, was used in the published studies. For the remaining 11 NHPs, RCTs that fit the inclusion criteria of the study were found for only DHEA, phytoestrogens and Vitamin K. **Conclusion**: Identified data is insufficient to support the use of phytoestrogens, DHEA or Vitamin K for the management of osteoporosis in women. **Acknowledgment**: Funding provided by Merck Frosst Canada & Co.

PPR No. 2: Impact of a pharmacist telephone follow-up intervention on patients receiving antibiotic treatment in community: MICROBE study

Thanh-Thao Ngo, Hélène Lachance-Demers, Cynthia Vachon, Krystel Beaucage

Faculty of Pharmacy, University of Montreal, Montreal, Quebec.

Purpose: To evaluate the impact of a community-pharmacist telephone follow-up intervention (PTFI) on clinical outcomes, pharmaceutical care, and cost for patients undergoing antibiotic treatment. **Method:** In a multicenter, randomized, controlled trial, patients in the usual pharmacist intervention (UPI) were compared to PTFI patients. **Results:** Compared to the UPI (n=129), in the PTFI (n=126), drug-related problems (DRPs) were identified in more patients (PTFI: 53%, UPI: 8%; $p<0.001$). Verbal recommendations (PTFI: 52%, UPI: 6%; $p<0.001$) as well as recognized (PTFI: 10%, UPI: 2%; $p=0.015$) and study-specific pharmaceutical advices (PTFI: 5%, UPI: 1%; $p=0.064$) were issued for more patients. The mean difference in the change in the number of infectious symptoms across the two groups (-0.24 symptom; 95% confidence interval (95% CI): -1.22 to 0.74) and the change in the infection-severity score (mean difference: -0.05 unit, 95% CI: -0.35 to 0.25) were small and not statistically significant. The adherence to treatment and patient satisfaction did not differ across the two intervention groups. The incremental direct costs of the PTFI vary from $2.65 CAD and $5.11 CAD per patient depending on whether cognitive services are reimbursed. **Conclusion:** A PTFI provides an excellent opportunity to detect and manage DRPs. No improvement in clinical outcomes was detected. This may be attributable to the difficulty of measuring clinical outcomes without laboratory culture, to the high level of pharmaceutical care offered to all study patients, and to the relatively small number of patients.

Financial support for this study was provided by Pro Doc Ltée. The results of this study were presented at the Canadian Association for Population Therapeutics annual conference, April 16-19, 2005, Vancouver, Canada.

SOCIAL AND ADMINISTRATIVE RESEARCH:

SocAdminRes. No. 1: The health care team: what role do community pharmacists see for themselves?

***Roy Dobson*[1], Carol Henry[1], Jeff Taylor[1], Gord Zello[1], Jean Lachaine[2]**

[1.] University of Saskatchewan; [2.] Université de Montréal

Background: This study reports on support among community pharmacists for multidisciplinary health care teams and greater clinical responsibility, as well as the extent they perceive a leadership role for themselves within the health care team. **Methods:** A mail-in questionnaire (English or French) was sent to community pharmacists across Canada between February and April 2004. Selection was based on a random sample stratified by region (Atlantic Canada, Quebec, Ontario, the Prairie Provinces, and British Columbia). **Results:** The response rate was 35.2% (470/1337) with the highest rate in the Prairie Provinces (40.6%) and the lowest in Quebec (24.4%). Most community pharmacists agreed or strongly agreed that pharmacists should be part of health care teams (81.7%) although fewer agreed or strongly agreed that pharmacists possessed the necessary skills (61.0%). Most community pharmacists agreed or strongly agree they should be more involved in selecting (69.9%) and monitoring (81.0%) drug therapy. Most pharmacists also indicated they should be more responsible for treating minor illnesses (72.0% agreed or strongly agreed) while one-half (50%) agreed or strongly agreed they should have greater responsibility for treating chronic illnesses. Within the health care team, community pharmacists perceived a clear leadership role for medication-related activities, but also saw the necessity for leadership by pharmacists in a number of other team-centred activities. **Conclusions:** Community pharmacists across Canada indicate a general willingness to be members of health care teams, want a larger role in patient care, and perceive a significant leadership role for themselves within the health care team. Community pharmacists represent a substantial resource for community-based multidisciplinary health care teams and are prepared to participate significantly in a number of team activities.

Section 6:

Pharmacy Practice Research Symposium

Saturday, June 25, 2005
2:00 pm – 5:00 pm
William Pascoe Room

AFPC Pharmacy Practice Research Symposium 2005 "Interprofessional Collaboration in Pharmacy Practice and Research"

Sponsored by: 

2:00 pm **Introduction to the Session by the Chair**
Rosemin Kassam, Faculty of Pharmaceutical Sciences, University of British Columbia

2:15 pm **Interprofessionalism: Lessons learned from pharmacists who have become physicians**
Zubin Austin, Leslie Dan Faculty of Pharmacy at the University of Toronto

Professions are characterized by distinct cultures, and professional education may be described as a process of socialization into that culture. Interprofessionalism may be viewed as a process of cultural negotiation in which individuals must learn to communicate effectively with others who have different norms, mores and conventions. In an attempt to describe the distinct cultures of pharmacy and medicine, a qualitative study was undertaken to examine the experience of pharmacists who had become physicians. A total of 35 pharmacist/physicians were interviewed; inductive data analysis was undertaken utilizing Social Identity Theory, Social Identification Theory and Culture Shock Theory as sensitizing concepts. Four broad themes emerged to differentiate pharmacy and medical cultures. Given the experience of the study participants these were framed as culture shock/geographical metaphors: the Canada-US effect, the Alberta-Saskatchewan Effect, the Manhattan-Brooklyn Effect, and the Toronto-Guelph effect. These metaphors serve as a useful vehicle for conceptualizing essential cultural and communicative differences between professions, and may be useful in explaining interprofessional interactions between pharmacists and physicians. Limitations of this study include the use of stereotyped descriptions and the assumption that within-group differences were less significant than between-group differences. Overall, this study provided a unique way of describing how pharmacists and physicians interact, from the perspective of individuals who had assumed both roles and were comfortable in both professional cultures.

2:45 pm **Pharmacists on Primary Health Care Teams: Who, What, Where, When, How?**

Derek Jorgenson, Saskatoon Health Region and Saskatchewan Health Quality Council

The benefits of including pharmacists as key members of primary health care teams are well supported in the literature. In addition, many traditional members of these teams are now requesting expanded access to the expertise of a pharmacist. Unfortunately, it is not known exactly how pharmacists can optimally utilize their skills within this new setting. Which patients should they be seeing? What should they be doing with these patients? Where should they be located? How should they be paid?

This session will include a very brief summary of some of the issues related to identifying the optimal role of pharmacists within primary health care teams. However, it will focus on presenting the results of a research project that attempts to address the issue of which patients need to be seen by a clinical pharmacist in this setting. The project is a randomized controlled trial that evaluated the ability of a patient self administered risk questionnaire to appropriately identify which patients should be seen by a clinical pharmacist in a family practice setting.

3:15 pm **Characteristics of Patient-Pharmacist Interactions involving OTC Products in Community Pharmacies**

Jeff Taylor, College of Pharmacy and Nutrition University of Saskatchewan

While not a high profile area of interest for the profession, over-the-counter medicines represent a vital area of practice, both in economic and professional terms. For this session, the speaker will cover the basic elements of what takes place when consumers interact with pharmacists during the purchase of OTC products. Aspects will include the initiator of the event (and whether this matters), how often interaction takes place, the quality of interventions when they do occur, and implications for practice.

3:30 pm **Coffee Break**

4:00 pm **Collaborative medication management in a team-based practice primary care practice: An explanatory conceptual framework**

Jana Bajcar, Leslie Dan Faculty of Pharmacy and Faculty of Medicine (Department of Family and Community Medicine), University of Toronto

The presentation will describe a conceptual framework that was developed to create a platform that can be used by different health care providers to identify, define, and discuss roles and responsibilities in collaborative medication management. The framework was developed based on a qualitative review and group reflection of an existing pharmaceutical-care-based consulting practice within a family medicine practice setting. Key roles and responsibilities relative to collaborative management of medications were identified and described. The conceptual framework that was developed, called the Team Approach to Medication Management (TeAMM), consists of three primary components referred to as medication-related practices (medication-prescribing, medication-taking, and medication-dispensing). Each of these primary practices is supported by a team of health-care professionals that have supportive roles and responsibilities. In the TeAMM framework the patient's medication-taking practice holds a central and key position within a collaborative approach to medication management. The proposed TeAMM framework can be used to guide discussions and decisions among the different health-care providers working in primary care to define both direct and indirect medication management roles that health care practitioners and patients play in collaborative practices.

4:30 pm **Interprofessional Rural Program in British Columbia**

Rosemin Kassam, Faculty of Pharmaceutical Sciences, University of British Columbia

Background: Difficulties with recruitment and retention of qualified health care practitioners in rural communities has been a big concern in Canada. In response, an Interprofessional Rural Program of British Columbia (IRPbc) was established to expose students in the health professions to rural communities, while at the same time train future practitioners to work effectively together among professions. **Objective:** To provide an overview of the IRPbc and discuss the lessons learned. **Methods:** Preceptors from participating health and human services programs who were interested in participating in the IRPbc were recruited and offered a one-day orientation session. Senior year students interested

in rural exposure and interprofessional collaboration were also recruited and offered a two-day orientation session. Each student had to complete the requirements of their own professional education, as well as meet expectations set by the IRPbc. Individual and group interviews with preceptors and students, along with students' log of their experiences were used to evaluate the program. **Results:** IRPbc has phased through three placement cycles: summer 2003, winter 2004 and summer 2004. To-date 62 students have participated. Some of the benefits of IRPbc have included expansion of clerkship opportunities in rural communities, increased understanding of the needs of rural communities by students, and an increase in recruitment of qualified professionals in participating rural settings. The major challenges experienced have revolved around the implementation process, and have been associated with the short implementation time frame, different program priorities, different timing and duration of student placements, and conflicts between the demands placed on students by their disciplines and the IRPbc. **Conclusion:** IRPbc has provided an excellent model for implementation of interprofessional education.

5:00 pm Adjourn

Speaker Biographies

Zubin Austin, MSc, MBA, Med, PhD
Assistant Professor, Leslie Dan Faculty of Pharmacy at the University of Toronto

Zubin Austin is Assistant Professor at the Leslie Dan Faculty of Pharmacy, University of Toronto, and the inaugural chair-holder of the OCP Professorship in Pharmacy. A graduate of the University of Toronto, Zubin has completed masters degrees in business administration, information science and education, as well as a PhD in Cognitive Science. Currently, he co-ordinates undergraduate courses in pharmacy practice and applied pharmaceutical sciences, and teaches in graduate courses in health professions education. He has an active research program and supervisors several MSc, MEd, and PhD students. He has published extensively in the area of health professions and pharmacy education, and has been an invited speaker at numerous national and international conferences. As Principal Investigator, he was instrumental in development of the International Pharmacy Graduate program at the University of Toronto, a bridging education program designed to assist foreign-trained pharmacists in acquiring the knowledge and skills necessary to meet Canadian standards of practice. This program has been recognized as a "best-practices" model for immigrant-integration in Ontario. Zubin is also an award-winning educator, having received teaching recognition from both the Association of Faculties of Pharmacy of Canada and the American Association of Colleges of Pharmacy.

Derek Jorgenson, BSP, PharmD
Coordinator, Clinical Pharmacy Services, Saskatoon Health Region
Knowledge Exchange Consultant, Saskatchewan Health Quality Council

Derek Jorgenson is a coordinator of clinical pharmacy services for the Saskatoon Health Region. His clinical practice site is located within an interdisciplinary primary health centre. He also works as a Knowledge Exchange Consultant for the Saskatchewan Health Quality Council. Derek received his Bachelor of Pharmacy degree from the University of Saskatchewan in 1995. He went on to practice in community pharmacy for 5 years before moving to Toronto and earning his Doctor of Pharmacy degree from the University of Toronto. Derek spent the next two years at the Toronto Western Hospital as primary care pharmacy consultant in an interdisciplinary clinic setting. Derek's research interests focus around identifying optimal models of care for integrating pharmacists into primary health care teams; however, he is waiting for construction to be completed on his new clinical practice site before moving ahead with

some of his research ideas. Current projects that he is involved with at the Health Quality Council include Medication Management in Seniors and Quality of Care in Asthma.

Jeff Taylor, PhD
Associate Professor, College of Pharmacy and Nutrition
University of Saskatchewan

Dr. Taylor teaches on topics mainly involving OTC therapeutics and patient education. Taylor has been involved with several chapters for the Canadian textbook on minor illness and is a reviewer for the American reference. Research interests include consumer behaviour during the purchase and use of OTC products. A clinical practice site at a community pharmacy is devoted totally to the management of minor and chronic illnesses amenable to OTC agents.

Appointments include Chair of the National Drug Scheduling Advisory Committee, a body responsible for advising provincial pharmacy regulatory authorities on placement of OTC drugs within the Canadian drug scheduling system. He is also director of the College's *Edu*Lab program for patient counselling skills

Jana Bajcar, BScPhm, MScPhm, EdD, FCSHP
Associate Professor in the Leslie Dan Faculty of Pharmacy and Faculty of Medicine (Department of Family and Community Medicine) at the University of Toronto

Jana Bajcar is an Associate Professor in the Leslie Dan Faculty of Pharmacy and Faculty of Medicine (Department of Family and Community Medicine) at the University of Toronto and also is a Primary Care Pharmacist in the Department of Family and Community Medicine, St. Micheal's Hospital, Toronto. She received her undergraduate and graduate pharmacy degrees from the University of Toronto and her Doctor of Education degree (Health Care Specialization) from Nova Southeastern University, USA. She has held clinical and administrative positions in teaching and non-teaching hospitals and has been involved in developing and studying the implementation of pharmaceutical care models of practice in the critical care and in the family physician office practices. She has been involved in pharmacy education for the last 14 years in the Undergraduate and PharmD programs and for eight years she was the Director of the Doctor of Pharmacy Program at the University of Toronto.

Dr Bajcar's current research focus is on the reduction of preventable medication-related problems from multiple perspectives (different health care professionals and patients) and in diverse patient populations (across illnesses, practice settings, ages, socioeconomic and mental status). One research focus is on the development of targeted pharmacist practice

models and practice tools. A current research project is focusing on defining potential pharmacist practice models within a team-based primary care setting. Within pharmacy practice, education has been isolated as an evolving focal point for inquiry, specifically the study of strategic education models for medication-related instruction for various audiences. Within this area she is currently involved in several studies that focus on educating and supporting patients and their families to develop and maintain an effective medication-taking practice (e.g. psychiatric adolescent patients and their parents, socially disadvantaged diabetic patients, elderly patients on chronic medications) and through these studies she is investigating patient-centered approaches to patient mediation-taking education. The second research focus is on pedagogical methods and is correlative to the pharmacy practice research and how each one informs the other.

Rosemin Kassam, Assistant Professor and Director of Structured Practice Education Programs (SPEP), Faculty of Pharmaceutical Sciences, The University of British Columbia

Dr. Rosemin Kassam obtained her Bachelor of Science in Pharmacy from the University of Alberta. She completed a hospital residency at the Royal Alexandra Hospital in Alberta and obtained her Doctor of Pharmacy degree from the University of Toronto.

Rosemin is currently an Assistant Professor and Director of the Structured Practice Education Program at the University of British Columbia, and a Pharmacotherapeutic Specialist with the Vancouver Coastal Health Authority Geriatric Diabetes Program. She brings extensive practice experience to her current position. She has worked in both community and hospital pharmacy, and was the project manager and clinical coordinator of the Pharmaceutical Care Research and Education Project in Alberta prior moving to BC. Rosemin is currently involved in educational and pharmacy practice research, and as Director of SPEP, her primary interest is to assess how experiential education helps meet educational outcomes and address societal needs.

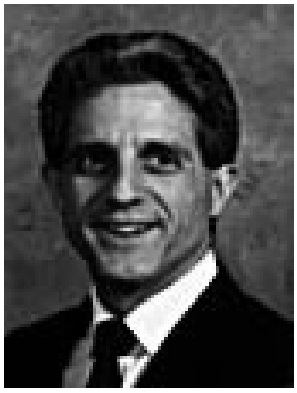
Section 7:

Teachers' Conference II:
Preparing Our Students and Ourselves

Sunday, June 26, 2005
8:30 am – 12:30 pm
William Pascoe Room

NOTES

Marcel D'Eon, PhD
College of Medicine, University of Saskatchewan



Marcel D'Eon is an educator currently working in the College of Medicine in Educational Support and Development. He served for 16 years as a classroom teacher before beginning work on a PhD which he completed in 1997. Marcel is interested in faculty development research (specifically how to easily and accurately evaluate workshops), pedagogy (active and cooperative learning), and curriculum (inter-professional education). He also teaches a class on professional issues to first year medical students.

Interprofessional Education Workshop

The focus of the workshop will be on three essential elements of effective inter-professional education: challenging real-life cases, cooperative learning, and experiential learning. Most time will be spent giving people an experience of cooperative learning, exploring the theory, and preparing them to conduct cooperative learning groups.

In Part One participants will briefly review the material in the pre-reading article related to the organization of cases and the stages of experiential learning. To do this I will establish cooperative learning groups and assign tasks to be completed at table groups. This will take about an hour including at the end a large group discussion.

The bulk of the time will be spent exploring cooperative learning in more detail. In Part Two I will again establish cooperative groups with tasks to explore the five characteristics/elements of successful groups. Following a large group discussion time will be devote to issues of implementation with inter-professional students.

Please note: Pre-Reading must be read in advance of the workshop.

"A Blueprint for Interprofessional Learning"
Medical Teacher 26(7), Nov 2004.
Also to be published in Journal of Interprofessional Care

NOTES

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Section 8:

Conference Exhibitors

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